Experiencing smallpox in eighteenth-century England

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Abstract

This thesis explores eighteenth-century smallpox to investigate the course, management and control of the disease by communities, families and individuals. It focusses first on the prevalence of smallpox in Oxfordshire demonstrating that smallpox mortality in the county reduced during the century because, even before inoculation was practised, the disease was clearly being controlled through community and familial responsibility; containment and isolation practices were successful in impeding the disease.

Secondly, the thesis uses the combination of parish register data and family reconstitution to reconstruct three catastrophic outbreaks in the county. It ascertains a causal relationship between adult and child deaths and presents new knowledge on pathways of smallpox transmission and the nature of familial proximity. Moreover it establishes a direct relationship between changes in behavioural patterns and adult smallpox deaths. Drawing from a national body of life-writings the roles of smallpox carers are also scrutinised, revealing their high levels of stress but also their resilience thanks to integrated and reciprocal support. Spousal, parental and kinship networks were vital components of this care.

Thirdly, the thesis explores how inoculation was practised in Oxfordshire from the 1760s onwards. Despite the difficulties and conflicts encountered by practitioners, it is clear that local provision was characterised by demand-led and well-organised programmes, conclusions that help to explain the high levels of local immunity. It also argues that inoculation was a likely factor in the rise in smallpox mortality in the late 1760s and early 1770s, although the absence of major outbreaks of smallpox in Oxfordshire after the 1770s and the high level of inoculation activity in the county and its regions indicate that the practice was reducing smallpox mortality by that time. The procedure was generally more accepted by the younger generation despite the sometimes irreconcilable family differences. This helps explain reduced infant mortality in the later eighteenth century since it is shown that infants were most at risk of smallpox from the home environment and thus the immunity of parents to smallpox through inoculation was a key factor in reducing overall infant mortality.

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The path to the completion of this project has been a long one. During this time four grandchildren have made their appearance, bringing me great joy and a welcome distraction from my desk. Maya, Janey, Lana and Aiden, this thesis is dedicated to you - with all my love.

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Abbreviations and Glossary

Abbreviations

CAMPOP	Cambridge Group for the History of Population and Social Structure
CBS	Centre for Buckinghamshire Studies
IMR	Infant Mortality Rate
JOJ	Jackson's Oxford Journal
LRO	Lancashire Record Office
NCRO	Northamptonshire County Record Office
NRO	Norfolk Record Office
OHC	Oxfordshire History Centre
VCHO	Victoria County History Oxfordshire
WHO	World Health Organisation
WYAS	West Yorkshire Archive Service

Glossary

Confluent smallpox	Where pustulation coalesces to form a mass
Distinct smallpox	Where distinctions can be made between clear and affected skin.
Inoculation	The term 'inoculation' has a wide literal meaning to include the deliberate OR accidental transference of matter. However, eighteenth-century use of the word 'inoculation' represented the deliberate act so this terminology will be used in this thesis, as it is in both contemporary and historical accounts.
'Natural' smallpox	Experiencing the disease naturally or without the interference of inoculation
Partial inoculation	Inoculating some people only in a community
Pocca	Anglo-Saxon meaning pouch or blister

'Pocks' or 'pox'	Any unpleasant skin condition. The word 'small' was prefixed in the fifteenth century to distinguish smallpox from 'the great pox' or syphilis.
Vaccination	(In smallpox) Deliberate immunisation with apparent cowpox virus to confer immunity to smallpox
Pustulation	Skin condition comprising raised pimples containing pus
Variolation	Deliberate insertion of smallpox virus into the body
Variola	Scientific name of the virus that causes smallpox
Variola major	A severe strain of smallpox, also described as 'fulminating' or 'haemorrhagic' smallpox
Variola minor	Less severe variant although clinicians did not always agree on the distinctions

CHAPTER ONE

AN INTRODUCTION TO SMALLPOX EPIDEMIOLOGY AND HISTORIOGRAPHY

This thesis examines the effects of smallpox on communities, families and individuals in the eighteenth century with particular reference to Oxfordshire. Smallpox was one of the chief killer diseases in England from the end of the plague in 1666 to the late eighteenth century and was not entirely eliminated until 1977. There was no effective curative treatment until its elimination by prevention. Whilst endemic in large urban areas, the effects of smallpox in small rural communities never previously exposed to the disease were often catastrophic. In London in the eighteenth century smallpox killed 4,000 people per year per million of the population and was mainly concentrated in children.[1] Records itemising causes of death in the metropolis in the late seventeenth and early eighteenth centuries show that smallpox outnumbered every other cause of death through illness with the exception of fever.[2] In a susceptible population that had not experienced the disease in the recent past and was likely to lack immunity, proportions were far higher; in Iceland in 1707 18,000 people died of smallpox out of a total of 50,000, equivalent to 36 per cent of the population.[3]

The thesis takes a multi-disciplinary approach to offer a new perspective on the history of the disease. It combines historical demographic and qualitative evidence, enabling new questions to be addressed. The key research questions are: how did smallpox outbreaks affect parishes and households in Oxfordshire throughout the eighteenth century, and, taking a broader approach, how was smallpox understood and managed by sufferers, families and carers?

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[1] E. J. Edwardes, *A Concise History of Smallpox And Vaccination In Europe* (London: H. K. Lewis, 1902), 13. Edwardes quotes physician Samuel Farr, (1741-1795).

[2] M. J. Dobson, *Contours of death and disease in early modern England* (Cambridge: Cambridge University Press, 2002), 250.

[3] Edwardes, *Concise History*, 13.

One of the aims of this investigation is to reveal, within the micro-historical framework of a well-defined unit of research, the prevalence, course, management and attempts to prevent smallpox in Oxfordshire, particularly within the changing context of the increased use of inoculation in the second half of the century.[4] Eighteenth-century Oxfordshire encompassed the rare combination of diverse local communities, some of the most severe smallpox epidemics in the country and particularly well-maintained ecclesiastical records. The county town of Oxford, with its well-established major international university was described by an eighteenth-century contemporary as 'large, strong, populous and rich'.[5] Little structural occupational change occurred in the city in the eighteenth century, with most of its industry supporting the needs of the university.[6] On the other hand, agriculture was the mainstay of the Oxfordshire economy. Banbury, in the north of the county, had a long-standing market economy, Burford and Witney in the west were also market towns, both towns centering on the cloth trade with the added economy of horse racing and its associated revenue for Burford.[7] With a good network of major communication routes, towns such as these offered convenient staging places along coaching routes to London, Bath, Gloucester and the Midlands and provided employment for associated traders such as coachmakers, blacksmiths and inn-keepers.[8] In contrast, Cuxham, in the south of the county was a closed village dominated by Merton College, Oxford as the major landowner. Cuxham had a regular population turnover, particularly among the poor.[9] Furthermore, communities in the county varied considerably by size. Witney, in the west,

[4] The genre of the micro-history was coined by Barry Reay in 1996 which attempts to explore social history 'under a microscope' but not in isolation from the wider issues. See B. Reay, *Microhistories, Demography, Society and Culture in Rural England, 1800–1930* (Cambridge: Cambridge University Press, 1996), 260.
[5] http://www.localhistories.org/oxford.html (accessed 18/1/2015).
[6] http://oxfordshirelocalhistory.modhist.ox.ac.uk/original-documents/, http://www.localhistories.org/oxford.html (accessed 18/1/2015).
[7] http://www.british-history.ac.uk/vch/oxon/vol14/pp77-88R; R. & J. Moody, *A Thousand Years of Burford,* (Burford: Hindsight of Burford, 2006), 62.
[8] http://oxfordshirelocalhistory.modhist.ox.ac.uk/original-documents/, http://www.localhistories.org/oxford.html (accessed 18/1/2015).
[9] *Victoria County History Oxfordshire*, Vol XVIII (2015 work in progress). http://www.victoriacountyhistory.ac.uk/sites/default/files/work-in-progress/cuxham_4_social_web.pdf (accessed 18/1/2015).

comprised a population in 1801 of 4087, Middleton Stoney in the east supported a community of 309 people and Cuxham, in the south east, only 144.[10] These contrasting communities have been examined in relation to smallpox mortality, investigating its prevalence and severity. Moreover, numerous parishes in the county experienced severe outbreaks of smallpox, although, with the exception of Moody's work on the Burford epidemic on 1758, almost no work has been done on the prevalence of the disease in the county, particularly in the parishes outside the bounds of the city.[11] Finally, and perhaps most importantly, the survival of parish records for Oxfordshire provide an excellent opportunity for rigorous research.[12]

By building on this foundation the thesis then introduces an analysis of ego-documents to explore the breadth of personal experiences of the disease. So far, little work has been done on the individual's sickness experiences of smallpox. Suffering was often prolonged and potentially more fatal than most illnesses; the disease was infectious and therefore extremely hazardous to loved ones; the outward manifestations of cutaneous injury were disturbing and required careful nursing and, if the person survived, permanent disfigurement was very likely. The combination of the demographic approach and the use of life-writings in the cultural context of smallpox will add novel knowledge to the field of the history of medicine. Before these questions are examined, however, we need first to review the disease as a biological and historical entity.

[10] 1801 Population figures taken from *Victoria County History Oxfordshire*, Vol II (1907).

[11] See Moody, *Great Burford Smallpox.*

[12] The city of Oxford, which experienced high smallpox mortality in 1710, 1791 and 1728 has not been covered in detail in this thesis. As an urban area, patterns of periodicity of smallpox were different and require detailed analysis to provide a complete picture of the city.

1.1 The Disease of Smallpox

1.1.1 Causes, transmission and symptoms

Smallpox is an acute viral infection known as *variola* belonging to the group of orthopox viruses, all of which cause diseases that involve eruptions to the skin. Some orthopox viruses are specifically associated with animals such as camels, raccoons and mice although only some are transmitted to humans. For example, monkeypox, found only in tropical rainforests of Africa, can live in other species such as apes and humans. Camelpox has the closest DNA match to smallpox.[13] Cowpox can be also transmitted from one individual to another of a different species, including humans.[14] Around 1770, physician, Edward Jenner, noted cowpox affecting the hands of milkers, reportedly providing some immunity to smallpox. Later, as a doctor inoculating patients against smallpox in Gloucestershire, Jenner's earlier observation was the first step in his understanding and development of protection against the disease through vaccination with cowpox, rather than the use of live smallpox in the inoculation procedure.[15] Smallpox was mainly eliminated in England by the end of the nineteenth century, first by inoculation and later vaccination, although one epidemic occurred in the county in 1962, with 66 confirmed cases.[16] In the 1950s the World Health Organisation (WHO) commenced an eradication programme applying the 'bold' strategy of hunting for outbreaks and vaccinating those in the vicinity rather than by vaccinating every single individual in the world.[17] The disease was officially declared eradicated worldwide in 1979 although some material is kept for research purposes as an example of a particularly virulent disease.[18]

[13] Chickenpox does not belong in this group but relates to the herpes family.
[14] I. & J. Glynn, *The Life and Death of Smallpox* (London: Profile Books, 2005), 179.
[15] Glynn, *Life and Death*, 95-104.
[16] A. Mercer, *Infections, Chronic Disease and the Epidemiological Transition: A New Perspective* (USA Rochester: Boydell and Brewer for University of Rochester Press, 2014), 74-5.
[17] See Glynn, *Life and Death,* 190-194; R. Baker, *Epidemic, The Past, Present and Future of the Diseases that Made Us* (London: Vision Paperbacks, 2007), 73 & 76.
[18] Glynn, *Life and Death*, 5 & 228.

The origin of smallpox is unknown. The first accurate description of the disease was given by Rhazes, a physician in Bagdad who died around A.D. 923 although it may have been present in China from around 1122 B.C. The word 'smallpox' is derived from 'pocca', a bag or pouch. In old English accounts, the word, 'pockes' is frequently used although from the seventeenth century onwards, the term 'small' was prefixed to distinguish the disease from the 'great pocks', or syphilis. Smallpox was introduced into America in the early sixteenth century, disastrously affecting native Americans who had no prior immunity.[19] The disease occurs naturally only in humans.[20] Modern WHO consultants on infectious diseases do not always agree on the number of different types of smallpox. In the 1960s physician, C. W. Dixon, suggested two distinct variants, variola major and variola minor, and types within those variants, which did not change from one into the other.[21] More recently, A. Mercer has confirmed this suggestion commenting that different strains were 'likely'.[22] Variola major, sometimes described as 'fulminating' or 'haemorrhagic' smallpox was usually fatal; less severe types had lower mortality levels.[23] The normal mode of infection was through respiratory discharge, suggesting that close physical contact was necessary for transmission. This is borne out in Dixon's finding that the all-age chance of being attacked if living in a smallpox infected household was about 75 per cent whilst the chance of casual contact was around 9 per cent.[24] Particularly high case and fatality rates have been observed, moreover in those nursing smallpox patients and in mothers nursing their sick children. Those sharing a bed with, or cleaning a room previously occupied by a smallpox patient, appeared to be particularly vulnerable. True airborne transmission was an 'extreme rarity' and transmission in the absence of the infected, highly unlikely.[25] Moreover, scab material lacked epidemic potential although it could be infective for months under favourable conditions by being

[19] C.W. Dixon, *Smallpox* (London: J. & A. Churchill Ltd, 1962), 187, 188, 192.
US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.
[20] Glynn, *Life and Death*, 179.
[21] Dixon, *Smallpox*, 5.
[22] Mercer, *Infections, Chronic Disease,* 58.
[23] See Dixon *Smallpox,* 5; A.R. Rao, *Smallpox* (India Bombay: The Kothari Book Depot, 1972), 6. US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.
[24] *Ibid*., 309-12.
[25] *Ibid.*, 309-12.

embedded into materials stored in damp and unventilated places. Exposure of these materials to sunlight or water, however, reduced the virus load considerably.[26] Eighteenth-century physicians did not appreciate the virus theory although they had a grasp of environmental conditions likely to be detrimental to health. The physician William Buchan for example, in the 1780s, warned against unwholesome air which was too hot, cold or moist and the danger of infectious diseases being communicated through dirty clothing and bedding.[27]

In fulminating smallpox (the so-called variola major) the patient became ill after an incubation period of eleven to twelve days and death could occur within twenty-four to thirty-six hours, before the onset of the characteristic rash. Symptoms included severe headache and backache accompanied initially by fever.[28] The disease also possessed a psychological aspect; one symptom was defined as 'apprehension', coined by the eighteenth-century clinician, Dr John Woodward, who advised the importance of 'continually keep[ing] up the Hopes of the [smallpox] Patient'.[29] This is investigated further in Chapter Five of this thesis. Other strains presented with a rash, usually accompanied by pustulation, whereby spots filled with clear fluid and then pus became raised above the surface of the skin.[30] In fatal cases deaths usually occurred by the fifth day of the illness in fulminating smallpox and up to 21 days in less severe cases, either from the disease itself or from of a combination of smallpox and complications such as broncho-pneumonia. Infant deaths, likely due to complications, could occur at other periods of the disease.[31] In non-fatal cases fever abated and the patient began to recover by the fourteenth day.[32]

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[26] *Ibid*., 297-309: Rao, *Smallpox,* 81-8.
[27] W. Buchan, *Domestic Medicine or a Treatise on the Prevention and Cure of Diseases,* 8th Edition (London: W. Strachan, 1784), 112-20.
[28] Dixon, *Smallpox*, 5-8.
[29] D. Shuttleton, *Smallpox and the Literary Imagination 1660 – 1820* (Cambridge: Cambridge University Press, 2007), 29.
[30] Dixon, *Smallpox,* 5-8: Glynn, *Life and Death*, 4
[31] Dixon, *Smallpox,* 88.
[32] *Ibid*., 28.

1.1.2 After-effects and prevention

The demographic consequences of smallpox could be severe, with the loss of family and community networks. For example, an epidemic in Burford, Oxfordshire in 1758 killed approximately 190 people, probably accounting for nearly 12 per cent of the population of the town.[33] (This is discussed in detail in Chapter Three.) Smallpox could cause temporary blindness during the course of the disease, whereby sufferers' eyelids became infected. The disease has been claimed to result in permanent blindness, stunted growth and facial disfigurement as a result of pock-scarring. One of the most prolific eighteenth-century literary writers on facial disfigurement was socialite, Lady Mary Wortley-Montagu, who contracted the disease in London in 1715 at the age of 20, leaving her permanently scarred.[34] As the wife of the British Ambassador in Turkey, and observing inoculations being performed in that country, she was influential in introducing the practice into England in the 1720s, having had her son inoculated in Turkey in 1718.[35]

Inoculation is the insertion of a small amount of matter from the pustule of a smallpox patient into a healthy person who had not had the disease, in order to induce an immune response. This was usually done by extracting pus from the patient, making a small incision in the skin of the healthy person with a blade or needle and inserting the matter into the wound, usually on a small piece of thread. The newly inoculated would, theoretically, experience a mild attack of smallpox from which recovery and immunity was expected. Wortley-Montagu's three-year-old daughter was one of the first to be inoculated in England.[36] Clinical trials on condemned prisoners followed under the supervision of Sir Hans Sloane, royal physician and fellow of the Royal Society.[37] The practice was slow to gain general

[33] J. Moody, *The Great Burford Smallpox Outbreak* (Burford: hindsight of Burford, 1998), 5 & 34.
[34] G. Williams, *Angel of Death* (Basingstoke: Palgrave macmillan, 2010), 78-9.
[35] *Ibid.*, 90.
[36] *Ibid*.
[37] *Ibid*., 91-2.

popularity, however, and appeared to go into decline from the 1720-1740s (although this is disputed in some of the historiography[38]), mainly due to the fear of contagion from those recently inoculated, its hazardous nature in infecting otherwise healthy individuals, and cost. In the 1750s the procedure became more medicalised; a preparatory regime lasting several weeks was introduced by inoculators, whereby prospective inoculees could be bled, purged and restricted to a light diet in order to render the body properly receptive to the procedure.[39] The fear that inoculation with the live matter would cause contagion was a major concern throughout the eighteenth century, and one of the reasons why Jenner's vaccination with cowpox received contemporary acclaim.

1.1.3 Incidence over the eighteenth-century in England

Until the eighteenth century smallpox was a mild disease, becoming both more common and increasingly virulent in the second half of the seventeenth century.[40] It continued in a slow but consistent increase from the late seventeenth century to the third quarter of the eighteenth century, before declining steadily from the 1770s onwards.[41] Annual average smallpox deaths in the metropolis in the period 1661 – 1665 were 862.6, compared to 912.8 between the years 1696 – 1700, an increase of approximately six per cent.[42] This compares to a population increase in London of around 5.4 per cent in the same period.[43] By the eighteenth century, at a time when ideas about treatment were changing, particularly with the growing popularity of inoculation from the 1760s onwards,

[38] G. Miller, *The Adoption of Inoculation for Smallpox in England and France,* 134-7. http://babel.hathitrust.org/cgi/pt?id=mdp.39015003806836;view=1up;seq=284
[39] P. Razzell, *The Conquest of Smallpox* (Firle: Caliban Books, 1977), 13.
[40] C. Creighton, *History of Epidemics in Britain* Vol 2 (London: Frank Cass and Co Ltd, 1965. First published 1894), 434.
[41] J. Landers, *Death and the metropolis: Studies in the Demographic History of London, 1670-1830* (Cambridge: Cambridge University Press, 1999), 94.
[42] These figures are derived from Creighton's calculations of smallpox deaths in London 1661 to 1700. See C. Creighton, *History of Epidemics* Vol 2, 456.
[43] https://www.oldbaileyonline.org/static/Population-history-of-london.jsp (accessed 28/2/2015).

contemporary writings on the disease were ubiquitous in medical literature. This has provided the backdrop for much historical research and debate on this period.[44]

One of the key works on smallpox in the eighteenth century is John Landers' discussion on demographic mortality patterns in London, which illustrates the enormous loss of life associated with smallpox, particularly of children under five years. The severity and scale of the disease was sufficient that he attributed overall increases in child mortality from 1700 onwards to it.[45] Probably more significantly, however, was the increased susceptibility of older children and adults. The effects of the disease on higher age groups caused greater alarm among contemporaries, generating intense fear and driving it into the medical gaze.[46] However, statistics appear to show a significant drop in smallpox mortality by the end of the eighteenth century.[47] A chronology of epidemic disease compiled by Mary Dobson in 1997, as part of her enquiry into topographical variations in mortality levels in early modern England, shows a similar trend. Data extrapolated from Dobson's work shows smallpox to be prevalent in most years up to the 1760s and, although present in many years in the second half of the century, 'smallpox-free' years are seen particularly after the early 1770s.[48] This trend appears to be similar in the north of the country, where in Hindley, Lancashire, for example, smallpox represented 18.1 per cent of all deaths in 1779-89, falling to 8.5 per cent by 1800-09.[49] (It is pertinent to note for the current study, however, that historians generally agree on an increase in smallpox mortality in the 1760s, a

[44] See, for example, Doctor Bettenson advocating the provision for patients of 'quantities of wine with his Cordial --- one, or two, or three Quarts in 24 Hours', *Gentleman's Magazine,* May 1736; Doctor Richard Mead's 1747 translation of an early treatise (date unknown) 'A Treatise on the small-pox and measles', *Gentleman's Magazine,* November 1747; 'On the Extirpation of the Small-Pox', The *Gentleman's Magazine* September 1775. Buchan, *Domestic medicine, or a treatise on the prevention and cure of diseases by regimen and simple medicines* 7th edition 1781 www.jischistoricbooks.ac.uk (accessed 3 April, 2013) and 8th edition 1783, 240-59.
[45] Landers, *Death and the metropolis,* 153-5. A special study was undertaken taking smallpox burials from London Quaker meetings from 1650–1799. With known ages, this data was used to estimate age-specific mortality rates for the disease and assess its impact on overall levels of mortality in childhood.
[46] Creighton, *A History of Epidemics* Vol 2, 443.
[47] In London, for example, the percentage of all deaths attributable to smallpox had halved from ten to five per cent by the beginning of the nineteenth century. See Landers, *Death and the metropolis*, 153-5, 203.
[48] Information derived from Dobson, *Contours of death,* 421-49.
[49] P. Razzell, *Population and Disease: Transforming English Society, 1550-1850* (Caliban Books, 2007), 189.

finding to which we will return.) The decline in smallpox towards the end of the century is likely to have been linked with inoculation practice, a thesis which has recently received new attention from historians. Furthermore, the relationship between inoculation and the reduction in infant and child mortality in the second half of the eighteenth century forms a much-debated component of smallpox studies. By taking a micro-historical approach this thesis is able to make its own contribution to this debate.

Another aspect of smallpox in this period relates to the distinction between endemic and epidemic forms. In its endemic state, usually in large urban areas, the disease was constantly present, affecting primarily the young and migrants who had not encountered the disease before. On the other hand, epidemics occurred at infrequent intervals at certain times, particularly affecting small towns and villages that had been able to escape the disease for long periods, but also large towns with sizeable migrant populations. For these susceptible communities, with limited prior immunity, the results could be devastating, as in the case of Burford, identified above. In large urban areas, however, intervals between epidemics could be short. For example, Penrith, a semi-isolated town in Cumbria with an approximate population of 2,000, experienced a smallpox epidemic every five years or so whereas in London, epidemics, super-imposed on the endemic state, occurred at two- yearly intervals.[50]

1.2 The Historiography of Smallpox

There have been two key historiographical approaches to smallpox; histories of the disease and historical demography with particular emphasis on local studies. Inoculation is a recurring theme throughout much of the historiography on smallpox, standing as a watershed in medical history as a forerunner to vaccination. To do justice to the coverage of this topic, it will be discussed within the

[50] S. R. Duncan, Susan Scott, C. J. Duncan, 'The Dynamics of Smallpox Epidemics in Britain, 1550-1800'. *Demography*, 30 (August 1993): 405.

context of smallpox histories and historical demography and also within a section on inoculation practice, that is, the management of the practice 'on the ground'. Another relevant strand of research, although not one yet much applied to smallpox, is the exploitation of ego-documents. I will, therefore, be adding a third perspective in an investigation of life-writings to assess the meaning of the disease on an individual level.

1.2.1 Histories of smallpox as a disease

Smallpox histories can be categorised into two groups; those written before and those after the eradication of the disease. Whilst it was still unchecked, commentaries were characterised by strong social and moral messages and were often written by practitioners who perhaps had a vested interest in promoting awareness of potential methods of prevention. In 1902, for example, physician Edward J. Edwardes compiled an historical account of the origins of smallpox backed by some global eighteenth-century mortality statistics. The main crux of his publication, however, was to promote universal vaccination and in particular, re-vaccination of school-aged children.[51] Meanwhile, smallpox was beginning to interest historians. Charles Creighton, in the 1890s, was one of the first to assess the rise and decline of smallpox through the compilation of primary statistical material which he complemented with his own observations. His conclusions on the relationship between inoculation and smallpox mortality have been controversial but his data analyses are still cited in studies of the disease.

By the mid-twentieth century, physicians were pre-occupied in writing commentaries on smallpox aimed at medical audiences. In the 1960s and 70s C. W. Dixon and A. R. Rao, for example, compiled consultative histories based on applied practice in attempts to understand and control the disease.[52] Meanwhile the historical perspective remained mainly unchanged in moral tone. A popular work by

[51] Edwardes, *Concise History*, vi.
[52] Dixon, *Smallpox;* Rao, *Smallpox.*

historian Frederick. F. Cartwright in 1972 attempted to explain the effects of diseases such as smallpox, syphilis and typhus on the course of history.[53] Cartwright's discussion speculated on a lack of self-discipline in overcoming 'modern' diseases, such as those exacerbated by smoking and over-eating. Cartwright also identified under-vigilance over smallpox re-vaccination (deemed necessary at the time to ensure lifelong immunity).

Once first-hand knowledge of smallpox had been confined to the past, smallpox histories embraced an enduring and radical change of direction which out-ran some other lines of enquiry. For example, a discussion on the relationship between smallpox and height failed to come to any consensus of opinion in the late twentieth and early twenty-first centuries and (presently) has been laid to rest. However, the tone of social responsibility was ever-present, although now in the context of possible future engagement. A global approach ensued, navigating the role of smallpox in human history, the circumstances and events leading up to its elimination through inoculation and vaccination and the sobering concept of its use in biological warfare, encompassing the ethical question of the fate of any remaining viral stocks of the disease. Herve Bazin applied this ethical focus in 2000 and later, Gareth Williams in 2010.[54]

In 2012 Donald Hopkins, physician and director of the WHO smallpox eradication programme, re-wrote a previously published work on the story of smallpox to mark its worldwide eradication, using the horrors of the disease to enlighten a new generation on the ramifications of any possible planned re-introduction of the virus.[55] Physician and historian (respectively) Ian and Jenifer Glynn's work in 2005 covered a similar spectrum, working through the origin and characteristics of smallpox, the

[53] F. F. Cartwright in collaboration with M. D. Biddiss, *Disease and History* (London: Rupert Hart-Davis, 1972).
[54] H. Bazin, *The Eradication of Smallpox* London: Academic Press, 2000); G. Williams, *Angel*, 372. See also S. L. Kotar and J. E. Gessler, *Smallpox a History* (USA Jefferson: McFarland & Co Inc, 2013); D. Koplow, *The Fight to Eradicate a Global Scourge* (USA Berkeley: University of California Press, 2004) for discussions on the future of remaining stocks of smallpox virus.
[55] D. Hopkins, *The Greatest Killer, Smallpox in History* (previously published as *Princes and Peasants)* USA, Chicago: University of Chicago Press (2002).

stories of inoculation, vaccination and elimination and its use in biological warfare.[56] Similarly in 2013, physician Gareth Williams' popular study predictably embraced a familiar framework concluding with the story of smallpox being 'one of the grandest epics in the history of medicine'.[57] The global approach has persistently endured to the present day and one of the aims of this thesis is to redress the balance between this slant and the local and personal. Finally in this section, Arthur Boylston's history of inoculation in 2012 challenged the perception of a 'medical desert' in the first half of the eighteenth century, citing the innovation of evidence-based practice in attempts to control smallpox, without which the benefits of cowpox may not have been discovered. In an examination of some of the key instigators in the field both for and against the practice of inoculation, Boylston came across difficulties due to the paucity of records left by district inoculators or the experiences of those inoculated, a challenge which is addressed in this thesis.[58]

As we have seen, the prophylactic measures of inoculation and vaccination have been uppermost in historical accounts, a theme also taken up in studies of other individual, yet currently, enduring diseases. For example, in 1993, Andrew Cliff, Peter Haggett and Matthew Smallman-Raynor developed epidemiological models of the spatial dynamics of measles, concluding with predictive values to be applied in public health management.[59] Seventeen years later, in 2010, Gareth Williams took a chronological look at the discovery, treatment and control of poliomyelitis through vaccine development.[60] Although the work on polio represents another general approach in the history of

[56] Glynn, *Life and Death.*

[57] G. Williams, *Angel* 372; Studies outside the UK include, for example, Arthur Boylston's work on smallpox in Boston, USA and the controversies surrounding inoculators in Massachusetts and P. Skold's work on the effects of smallpox on survivors in Sweden. A. W. Boylston, *Defying Providence*, *Smallpox and the Forgotten 18th century Medical Revolution* (USA North Charleston: CreateSpace Independent Publishing Platform, 2012); P. Skold, *The Two Faces of Smallpox: A Disease and Its Prevention in Eighteenth- and Nineteenth-Century Sweden (*Sweden Umeå: Umeå universitet, 1996).

[58] Bolyston, *Defying Providence*, particularly x, xi & 145.

[59] G. Kearns, Review of *Measles: an historical geography of a major human viral disease from global expansion to local retreat, 1840–1990* by A. Cliff, P. Haggett, and M. Smallman-Raynor, *Medical History* 39 (April 1995): 239-40.

[60] G. Williams, *Paralysed with Fear: The Story of Polio (*Basingstoke: Palgrave Macmillan 2013).

medicine which continues to the present day, it has been criticised recently for taking a 'top down clinical and research approach' which overshadows the experiences of patients and families.[61] This criticism has been addressed in this thesis in attempting to gain a comprehensive understanding of the patient experience. Another contribution of this thesis is its potential to speak to modern debates on the protection against childhood diseases such as polio and mumps, and more widely, meningitis and ebola by investigating the role of transmission routes of smallpox between parents and infants.

Histories of individual diseases such as smallpox, measles and polio have been driven by optimistic defiance, working through the political and social difficulties in achieving the goal of eradication. Williams, for example, examined medical research on the understanding of polio within the context of scientific rivalry but with a clear focus on vaccine development.[62] Cliff *et al.* were optimistic in the potential elimination of measles, urging comprehensive vaccination campaigns, particularly in poor countries.[63] The history of smallpox, however, is unique and regularly re-visited as it appears incomplete without an engagement with the future in the form of its use as a biological weapon.

Finally, in this overview of the histories of smallpox, popular interest in the disease has always been present. In 2006 Diana Crook explored the disease from its origins and history through to the twentieth century. By exploiting primary and secondary sources relating to Sussex, Crook examined nursing costs, the history and use of inoculation, mass inoculation programmes in the village of Glynde and the workings of local pesthouses, concluding yet again with the grave issue of the use of the virus in biological warfare. In places Crook's work includes some implausible medical suggestions and unsubstantiated comment. However, it exposes some local family correspondence on smallpox and

[61] S. Maudsley, Review of *Paralysed with Fear, The Story of Polio* by G. Williams, *Social History of Medicine* 27:2 (2014): 407-8.
[62] W. Gagen, Review of *Paralysed with Fear, The Story of Polio* by G. Williams. http://www.history.ac.uk/reviews/review/1635; S. Maudsley, Review of *Paralysed with Fear*: 407-8.
[63] G. Kearns, Review of Cliff, Haggett and Smallman-Raynor, *Measles,* 239-40. http://journals.cambridge.org/download.php?file=%2F1986_C0459E7A6FD704FD4B44072DC8E5C31B_journals_MDH_MDH39_02_S0025727300059883a.pdf&cover=Y&code=44f64594122d4c949ea5704c1f57a0b3

inoculation and offers vignettes of several inoculators who, through the process of cross referencing for this thesis, are known to have also practiced in Oxfordshire and its surrounds.[64] The popular style provided by Crook and similarly, Williams, holds an important place in a general appreciation of the subject although this genre is often written in an overtly dramatic style, sensationalising the experiences of the sufferer within the context of modern perceptions of customs and norms. For example, this description of pest houses in Diana Crook's study:

> Pest houses, where sufferers were kept until they died or recovered, provoked their own terror …Victims were kept like lepers away from people, given food and drink passed through the window on poles and often cared for by disfigured survivors who were considered immune.[65] Passers-by would cross over the road and hold their noses.[66]

Descriptions such as this would gain academic value by further exploration. In this case, investigations into the interface between the pest house and local community and the relationship between the parties in the care and suffering of the patients would provide a more nuanced appraisal. This is one of the aims of the current study by holding in focus the experience of the disease for sufferers and carers.

The controversy and debate over inoculation, being the only effective preventative measure known at this time, is also substance for popular studies. The story of Lady Mary Wortley-Montagu, for example, has provided the naissance of inoculation in England with a wider sense of appeal than a clinical scrutiny alone could have done, although as Genevieve Miller suggested in the 1950s, the importance of her contribution to the adoption of the practice has been artificially elevated by two components; the story of a mother's love and the preservation of Eastern beauty. Miller prefers the

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[64] D. Crook, *Defying the Demon Smallpox in Sussex (*Lewes: Dale House Press, 2006).

[65] Crook, *Defying,* 9. Crook quotes A. Allen *A Dictionary of Sussex Folk Medicine* (Countryside Books, 1995), 143.

[66] Crook, *Defying,* 9.

investigations of the Royal Society with its reputation as a truth-seeking body, and in particular, fellow Hans Sloane as the key player in this role.[67]

1.2.2 The demography of smallpox incidence

The three lines of work within the demography theme will cover those which take a regional approach to explore the effect of smallpox mortality at local level, investigations into epidemiological patterns of smallpox, and examinations of the relationship between inoculation and smallpox and overall mortality.

1.2.2.1 Regional studies

Whereas histories of smallpox have adopted an enduring global or national focus, the 1980s saw the regional approach emerging in parallel, allowing for more nuanced research not manageable on a national scale. By exploiting parish documents, contemporary local newspapers and secondary literature such as the on-going project of the *Victoria County Histories* series, these studies provide a wealth of stimuli for new research. In the past these sources have not always been fully exploited in researching smallpox studies.[68] One of the forerunners of research into local demographic trends, was the ground-breaking work in 1981 by E. A. Wrigley and R. S. Schofield on behalf of the Cambridge Group for the History of Population and Social Structure (CAMPOP). Aided by a team of local historians utilizing the rich source of Anglican parish registers, Wrigley and Schofield provided a detailed analysis of the relationship between economic and demographic change, converting 'raw' evidence from an original trawl of 404 parish tabulations into a clear picture of population trends.[69] Wrigley and

[67] G. Miller, *The Adoption of Inoculation for Smallpox in England and France,* 54. http://babel.hathitrust.org/cgi/pt?id=mdp.39015003806836;view=1up;seq=284

[68] In 1998, however, Joan Moody drew scholars' attention to an account of a devastating smallpox epidemic in Burford in 1758 which had been previously overlooked in other historical accounts of this prominent eighteenth-century market town in Oxfordshire. See J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight of Burford (1998), 5.

[69] E. A. Wrigley and R. S Schofield, *The Population History of England, 1541-1871* (London: Edward Arnold 1981).

Schofield identified smallpox as contributory to the 'background rumble' of crisis mortality, hitting individual communities when there was a sufficient number of susceptible children, not previously exposed to the disease.[70] Regional studies appeared to experience a second wave of interest in the late twentieth century possibly re-invigorated by new pieces of historical exploration. The second piece of work carried out by CAMPOP in 1997 employed Anglican parish registers in 26 parishes, using the technique of family reconstitution to explain demographic trends in mortality, fertility and nuptiality. This demonstrated further the enormous value of parish registers as a source, without which we would know almost nothing of any rigour about the population of England prior to the start of civil registration in 1837.[71]

In 1996 Barry Reay added the term 'microhistories' to the social historian's vocabulary, without which, he observed, histories are 'half-written'.[72] Reay utilized local histories of the Blean area of Kent to explore some of the significant societal changes in the nineteenth and early twentieth centuries by melding parish registers with many other sources such as poor law records, personal testimonies and court records. This was followed by Pat Hudson and Steve King's exploration into the demographic experiences in two West Yorkshire textile townships, Sowerby and Calverley, highlighting the value of the comparative approach 'because conclusions are not based solely on the absolute accuracy of specific applications'.[73] The comparative approach has been applied in this thesis in the investigation of the four smallpox epidemics in the first half of the eighteenth century in Burford and Banbury in Oxfordshire and Aynho in Northamptonshire.

[70] Wrigley and Schofield, *Population History of England*, 669.
[71] E. A. Wrigley, R. S. Davies, J. E. Oeppen, R. S. Schofield, *English Population History from Family Reconstitution* 1580-1837 (Cambridge: Cambridge University Press 1997).
[72] Reay, *Microhistories,* 262.
[73] P. Hudson and S. A. King, 'Two Textile Townships, 1660-1820: A Comparative Demographic Analysis' *Economic History Review* (2000) 53:4, 715 f.n.45.

Returning to specific medical studies, E. G. Thomas explored parish expenses associated with local smallpox outbreaks and the take-up of inoculation and vaccination in the counties of Berkshire, Essex and Oxfordshire, arguing that the poor in the three counties received humane and sympathetic treatment.[74] Thomas concluded that the serious effects of the disease and the widespread use of inoculation, particularly in rural areas, may have had an effect on overall mortality trends in the second half of the eighteenth century.[75] John Smith also investigated smallpox on a county basis in 1987 in his study of Essex, sourcing contemporary manuscripts and newspaper reports with case studies retrieved from parochial collections to encompass the gamut of prevention, immunisation and eradication of smallpox over a period of 300 years. Smith examined the effects of smallpox in communities in the county with an enquiry into efforts to progress the move from inoculation to vaccination in the nineteenth century. Studies such as these started to show the value of the local approach, based on a number of different sources. More work is left to do, however. Smith's caveat, for example, makes no claim to be definitive, acknowledging the 'rich files of study' awaiting exploration through contrasting regional analysis.[76] Thomas's work offers a sound basis for further research but requires a chronological perspective in order to provide more context. For example, by taking the parish of Wantage (then in Oxfordshire) in 1754 the author notes inoculation being 'occasionally' regarded with suspicion, whilst in Berkshire inoculations were 'frequent' in the 1770s.[77] The key point here, overlooked by Thomas, is the nature of changing attitudes between these dates towards the practice over the second half of the century, rather than the implied conflicting attitudes to inoculation. This highlights a danger of examining specific areas in isolation from broader medical ideas.

[74] E. G. Thomas, 'The Old Poor Law and Medicine' 1980. *Medical History,* 24 (1980): 1-19.
[75] Thomas, 'Old Poor Law', 1.
[76] J. R. Smith, *The Speckled Monster* (Chelmsford: Essex Record Office Publication no 95), 1987.
[77] Thomas, 'Old Poor Law', 11 &19.

One problem facing historians has been the deficiency in knowledge on the reliability of parish registers or levels of population movement in the early modern period. S. R. Duncan, Susan Scott and C. J. Duncan, for example, in their work in 1993 on the causation and periodicity of smallpox in London and Penrith admitted that they had made no attempt to consider the effects of migration, or under-registration of baptisms, nor to test the robustness of the parish records (all factors corrected for by the CAMPOP team).[78] The methodology applied in this thesis has addressed these three factors through the use of family reconstitution data, previously tested for reliability. Banbury was one of the parishes tested and subsequently selected for reconstitution by CAMPOP and the data are combined here with my findings from parish register material.[79]

1.2.2.2 Causation and periodicity

Wrigley and Schofield's work on the epidemiological patterns of smallpox was further confirmed by Mary Dobson who also concluded that despite its constant presence, the disease seldom gave rise to a 'mortality crisis' on a national level and rarely caused simultaneous surges of burials across south-east England since epidemics failed to coincide with those in contiguous parishes.[80] These points on the epidemiological patterns of smallpox are particularly relevant to this thesis as it investigates the reasons for the prevalence and course of smallpox in Oxfordshire.

Further work in this area has also been carried out by epidemiologists. For example, Duncan, Scott and Duncan's conclusions on the periodicity of smallpox outbreaks in London and Penrith indicated that epidemics occurred in an oscillatory pattern with regular intervals between epidemics (every two years in London and every five in Penrith) with similar levels of intensity. They set these findings against other studies suggesting that successive epidemics in the same place should be less severe

[78] S. R. Duncan, Susan Scott, C. J. Duncan, 'Dynamics of Smallpox Epidemics', 405
[79] Wrigley et al, English *Population History,* 3-24.
[80] Dobson, *Contours of death,* 477-479; Landers, *Death and the metropolis,* 14. 'Mortality crisis' generally defined by Landers as 'violent short-run disturbances affected mortality levels'.

due to the immunity of the bulk of the population, acquired as a result of a previous local outbreak, rather than oscillating with regular levels of intensity. Their conclusion implied that epidemic cycles were determined by an external cause; in this case, linked to a cycle of malnutrition associated with wheat prices.[81] On the same theme, research conducted by Landers proposed a likely relationship between smallpox and bread prices in eighteenth-century London, inferring reduced immunity from reduced food intake. However, Landers exposed the lack of clinical evidence linking the outcome of exposure to smallpox with nutritional status, and moreover, the heavy lag between price increases and changes in smallpox mortality implied that other variables were likely to be present.[82] On the other hand, Dobson interpreted the periodicity of smallpox outbreaks to be associated with the interaction between the immunological status of a community and the peripatetic habits of carriers, susceptibles and the immune. She also pointed out that variability depended on a community's own response to smallpox; some parishes used pesthouses to help contain disease whilst others did not do so until the late eighteenth century, mainly on the grounds of cost.[83] Periodicity in the endemic state in London and the possible link between smallpox outbreaks and wheat or bread prices is outside the remit of this thesis. However, arguments on the immunological status of a community and the control mechanisms initiated in responses to smallpox outbreaks at local level are developed in this thesis.

Peter Razzell carried out some particularly significant work on small towns and rural areas in 2007, focusing on regional variations in periodicity in relation to the age structure of smallpox deaths. Razzell's findings showed that where the disease occurred infrequently in epidemic form, the ages of those affected were likely to be older than where the disease was felt more frequently and where adults and older children had acquired an immunity through exposure early in life. The proportion of child to adult deaths in northern parishes was considerably higher than in the south, implying the

[81] Duncan, Scott and Duncan, 'Dynamics of Smallpox Epidemics', 405 & 418.
[82] Landers, *Death and the metropolis,* 265.
[83] Dobson, *Contours of death,* 477- 82.

disease was endemic in the north and epidemic in the south.[84] Evidence on the ages of inoculees also suggests that smallpox was a childhood disease in the north where inoculees appeared to be young children, although the caveat here is that other research suggests low take-up of inoculation in the north.[85] Case-fatality rates further complicate the picture on the relationship between age and smallpox. Razzell has suggested a 'U' shaped distribution of case-fatality with the youngest and oldest age groups being the most vulnerable to smallpox mortality.[86] Therefore, the age profile of a community would affect case mortality rates, alongside location and perhaps a range of other factors to do with local grain markets and isolation practices.

1.2.2.3 The effect of inoculation on demographic change

Since the 1980s demographic historians have investigated mortality trends as part of a wider remit towards understanding population change. Naturally, the relationship between such a devastating disease as smallpox, overall mortality change and inoculation against the disease has been intriguing. In the late nineteenth century Creighton's observed that the ordinary course of smallpox in Britain was 'little touched' by the practice, a standpoint that endured into the middle of the twentieth century when Helleiner claimed the value of inoculation to be 'doubtful'.[87] More recently, however, historians have been generally unanimous about the significant effect of inoculation in reducing smallpox mortality in the second half of the eighteenth century. Furthermore, the contribution that inoculation may have played in overall mortality is an enduring and current on-going enquiry. Some historians have felt the practice to be of little importance to overall mortality. In 1977, Thomas McKeown, for example, was unequivocal in his condemnation of inoculation affecting national mortality trends, concluding that improvements in nutrition were the most acceptable explanations for the decline of

[84] Razzell, *Population and Disease, 179-180.*
[85] *Ibid*., 181.
[86] Razzell, *Conquest*, 126.
[87] Creighton, *History of Epidemics* Vol 2, 517; K. F. Helleiner, 'The Vital Revolution Reconsidered' in *Population and History* ed. D. V. Glass and D. E. C. Eversley, (London: Edward Arnold Ltd, 1965), 84.

overall mortality in this period.[88] The McKeown Thesis, as his work became known, suggested the decline of mortality was driven by overall standards of living, especially diet and nutritional status, bolstering resistance to disease.[89] Curative medical intervention played only a 'marginal' role in population change.[90] Although McKeown's work was challenged in the late twentieth century, J.N. Hays also had 'serious doubts' about inoculation having a demographic impact. The lethality of smallpox could have declined autonomously and even such a widespread practice (of inoculation) as documented by previous historians may not have produced a level of immunity sufficient to affect mortality rates.[91] A contrasting view, however, supported inoculation as a significant factor in overall falling mortality. In 1977 Razzell, one of the key investigators into prophylactic measures against smallpox, addressed the rise in the practice, particularly in 'general inoculations', by which a whole community would be treated, many at parish expense, as a precaution against economic and financial loss.[92] Relating his findings on the practice of general inoculations to the decline in smallpox mortality Razzell deduced the 'demographic importance' of inoculation.[93] More recently, however, the role of nutrition as a key factor in mortality change has regained momentum.[94] Razzell, for example, attributed the reduction in infant and child mortality to the interacting factors of inoculation, general medical innovation and environmental improvements.[95] Most recently, in the last twelve months, Alexander Mercer has stated strongly that the contribution that immunisation (he includes vaccination in this assessment) made to overall mortality has 'often been greatly under-estimated'.[96] Mercer

[88] A. J. Mercer, 'Smallpox and Epidemiological-Demographic Change in Europe: The Role of Vaccination', *Population Studies* 39 (July 1985): 293.
[89] J. Colgrove, 'The McKeown Thesis: A Historical Controversy and Its Enduring Influence'. *American Journal of Public Health* 92 5 (2002): 725.
[90] *Ibid.*
[91] Hays, *The Burdens of Disease: Epidemics and Human Response in Western History* (USA Piscataway, 2000), 125 & 242.
[92] Razzell, *Conquest*, 83-9.
[93] *Ibid.*, 136. See also Thomas, 'Old Poor Law':1. 'This treatment might well have had some effect on mortality trends in the second half of the eighteenth century'.
[94] B. Harris, 'Public Health, Nutrition, and the Decline of Mortality: The McKeown Thesis Revisited'. *Social History of Medicine* 17 3 (2004): 379-407.
[95] Razzell, *Population and Disease*, 121.
[96] A. Mercer, *Infections, Chronic Disease*, 60.

showed that London's mortality decline in the late eighteenth and early nineteenth centuries corresponded with the levelling off of the smallpox death rate, taking further statistics from Denmark, France and Sweden to illustrate this point. Furthermore, in Finland, where inoculation was rarely practiced, spikes in death rates corresponded with high smallpox mortality.[97] Other historians have been more cautious in applying inoculation as a major cause of falling mortality. Landers assessed that the overall decline in mortality in the metropolis was 'bound up' with a dramatic reduction in smallpox deaths.[98] This could also be said, however, of other eighteenth-century illnesses such as fever and other diseases of infancy.[99] Furthermore, Deborah Brunton noted a contrasting picture in Scotland, which, unlike England, experienced no reduction in mortality between 1765 and 1800. With only rare reports of inoculation causing a reduction in smallpox deaths Brunton concluded that, in Scotland, inoculation failed to reduce smallpox deaths and had a minimal effect on overall mortality.[100]

Recently, historians have suggested varying reasons for the decline in smallpox mortality in the later eighteenth century. Romola Davenport, Leonard Schwarz and Jeremy Boulton called upon the rich source of data from the sextons' books from two diverse East and West London parishes, which, unlike

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[97] *Ibid.*, 64-70.

[98] Landers, *Death and the metropolis,* 101.

[99] Landers, *Death and the metropolis,* 101, 121-3, 354. See also, Mercer 'Smallpox and Epidemiological-Demographic Change', 306-307. By assimilating evidence from England, Boston (U.S.A) and Copenhagen, Mercer concluded that the use of inoculation 'probably protected many from smallpox to an extent that could have reduced overall mortality in the population' although he was cautious in applying 'prime mover' status to it; M. Bennett supported Razzell's 1977 assessment on the significance of the practice in reducing smallpox mortality but had reservations on its effect on a decline in overall mortality. See M. Bennett, 'Inoculation of the Poor against Smallpox in Eighteenth-Century England' in *Experiences of Poverty in Late Medieval and Early Modern England and France*, ed. A. Scott (Farnham: Ashgate Publishing, 2012), 199-226. A Bolyston suggests a combination of lower mortality due to inoculation combined with earlier marriage and an increase in child-bearing years to be the cause of population growth after 1750. See A. Bolyston, *Defying Providence*, 217

[100] D. Brunton, 'Smallpox Inoculation and Demographic Trends in Eighteenth Century Scotland', *Medical History* 36 (October 1992): 403-29. Although the popularity of inoculation in Scotland was determined partly by threat and past experience of the disease Brunton attributed a lack of provision due to cost and logistics. English parish funds were larger than the equivalent Scottish resources where a more impoverished and rural country could not draw on the wealth of the community. Moreover, scattered populations made the practice difficult and expensive to organize.
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1036632/pdf/medhist00045-0047.pdf
(accessed 21/10/2014).

Bills of Mortality, allow an analysis of age-specific changes in smallpox mortality.[101] They found that the 1770s onwards saw a significant reduction in adult smallpox deaths. As migrants had made up most of the adult deaths earlier in the century (observed by the lack of corresponding baptismal evidence), Davenport *et al* considered that the later reduction was either due to increased exposure in the hinterlands from where migrants were mainly drawn, or to the spread of inoculation. A corresponding rise in young infant smallpox deaths in the metropolis, probably due to a rise in the infectivity of the virus, supported the first option of increased exposure.[102] Another viewpoint, however, proposed that the spread of inoculation was the reason for falling adult smallpox mortality in London, based on the lack of contemporary evidence on increased infectivity in the period.[103] Further research has indicated high levels of inoculation activity both in London and its hinterlands.[104]

Recent research by Romola Davenport has identified that factors such as smallpox and infant feeding practices may explain the transition between patterns of very high mortality with little differentiation by social status in the eighteenth century to a nineteenth-century pattern of relatively moderate urban mortality with the corresponding emergence of marked socio-differentials. By exploring new evidence from London and the sextons' books and parish registers of Manchester she found smallpox to be more lethal to infants in Manchester, accounting for 30 per cent of infant burials, compared to 20 per cent in Saint Martins-in-the-Fields in London. Furthermore, the lower average age of child smallpox deaths in Manchester corroborates previous historiographical conclusions of a north-south divide in the prevalence of smallpox, victims being younger in the north than the south of England. Most importantly in the light of this thesis, the author suggests the geography of smallpox epidemics to be 'very puzzling', calling for a closer analysis of regional patterns of disease transmission more

[101] R. Davenport, L. Schwarz, J. Boulton, 'The decline of adult smallpox in eighteenth-century London', *The Economic History Review* 64(4) (2011): 1289-1314. Bills of Mortality provide information on age and cause of death separately; data which cannot be married up.
[102] Davenport et al, 'The decline of adult smallpox', (2011): 1289.
[103] P. Razzell, 'The Decline of adult smallpox in eighteenth-century London: a commentary', *The Economic History Review,* 64, 4 (2011): 1315 & 1318.
[104] *Ibid.*, 1320-28.

generally. Although smallpox circulated 'efficiently' in sparsely populated areas of northern England transmission appeared to be less effective within the denser and apparently better connected settlements in the south.[105] Whilst a regional analysis of disease transmission generally is outside the concern of this thesis, the investigation of the geography of smallpox epidemics in Oxfordshire, taken together with evidence from life-histories indicates some new key factors in this discussion; namely the effectiveness of local containment and avoidance mechanisms in helping to decelerate transmission.

The enquiry into the link between smallpox mortality, inoculation and overall declining mortality is unresolved and ripe for further investigation. Two relevant lines of enquiry need to be addressed. Firstly, how does smallpox mortality fare against overall mortality at county level over an extended period of years, and secondly, what was the extent of the use of inoculation in these areas?

1.2.3 Inoculation practice and procedures

Moving away from demographic studies into inoculation practice the studies identified in the section below examine the practice of inoculation from the perspective of the medical critic, financial provider and to a lesser extent, the user. Eighteenth-century physicians and theologians saw inoculation either as an encroachment against a natural course of events or a spiritual gift to man to enable him to protect himself. William Buchan, writing in the 1780s and an advocator of inoculation, declared the 'great injury' parents do to their children by neglecting to protect them in this way whilst in contrast, in 1772, the Rev. Edmund Massey described the practice as 'diabolical … [which] … promotes the increase of vice and immorality'.[106] This contentious debate included 'preparation' for inoculation, a key component in the contemporary medical port-folio and a topic also debated in the historiography.

[105] R. Davenport, *The first stage of the epidemiological transition in British cities: a comparison of Manchester and London, 1750-1820.* Cambridge Group for the History of Population and Social Structure. September 2014. http://research.ncl.ac.uk/pauperlives/documents/DavenportCambridgeanniversarypaper16September2014.pdf (accessed 9/12/2014).

[106] Buchan, *Domestic Medicine,* 257; Williams, *Angel*, 132.

Preparation for inoculation involved a programme of up to six weeks' observance of a light diet, with purging and blood-letting for adults, whereby the body maintained a well-preserved equilibrium. Deborah Brunton has highlighted the struggle of the 'old' physicians, whose authority was based on individualised practice, to retain a monopoly and status through customized preparation practices against a new generation of apothecaries and surgeons promoting more routine, less individualized preparation. Brunton suggests the more routine approach appeared as early as the 1740s, with the emergence in the 1750s of patients being prepared for inoculation in groups according to constitution.[107] More recently, Anne Eriksen also saw a dumbing down of 'preparation' of purging, bleeding and dietary restrictives prior to inoculation, previously tailored to meet individual need, as part of the move away from the person-centred approach. Eriksen further suggested that the causes of smallpox were focused previously on the 'internal', centering on individual constitution, temperament and humoral balance. As an innate seed, not existing in all persons, inoculation and its associated risks could be argued to be unnecessary. From the 1760s, however, medical debate moved away from a humoral base, towards the 'external' factors of contagion.[108]

Historians have also looked at inoculation from other perspectives, exploring some of the diverse models of organised practice. Both Michael Bennett and Maisie May examined programmes for inoculating the poor. Focusing on the urban poor in particular, May was cautious about the success of urban programmes, suggesting these were adapted to fit into pre-established, but only partially successful dispensary practices.[109] Bennett discussed the development of other charitable initiatives

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[107] D. Brunton (1990) *Pox Britannica: Smallpox Inoculation in Britain, 1721-1830.* PhD. thesis, University of Pennsylvania http://media.proquest.com/media/pq/classic/doc/745383881/fmt/prv/rep/300PDF?

[108] A. Eriksen, 'Cure or Protection? The Meaning of smallpox inoculation ca 1750 – 1775', *Medical History* 57 *(*October 2013): 516-536. For a review of a contemporary scientific viewpoint, see 'An attempt at a new analysis of the mortality caused by smallpox and of the advantages of inoculation to prevent it,' Daniel Bernoulli. Reviewed by Sally Blower in *Medical Virology* 14 (2004): 275-288.

[109] M. May. 'Inoculating the urban poor in the late eighteenth century', *The British Journal for the History of Science*
30 (September 1997): 298-300 & 304-305**.** May suggests the lack of success of dispensaries was due to their being led by dissenting groups, likely to lack support from the ruling establishment.

in London, recognizing a key milestone in the advance of community medicine through the parish taking responsibility for its own.[110] Mary South's investigation of the three southern towns of Southampton, Winchester and Salisbury revealed contrasting models. Southampton adopted a low-key approach to smallpox and inoculation in an attempt to hide sickness from the visitor trade. Inoculation in Salisbury, on the other hand, was driven by the elite of the town taking a high-profile approach over a period of many years, the results of which were not particularly beneficial, due to lack of organisation and non-standardised and unenforced isolation procedures. Furthermore, Winchester took a 'prevention better than cure' attitude to smallpox by applying strict controls on immigration and vagrancy with fewer, but more effective inoculation programmes.[111]

Having assessed other ways in which historians have dealt with the topic of inoculation, there is a dearth of literature that examines the position of the practitioner. Who were the inoculators? How did they view the market and promote their provision? Was the lessening use of preparation for inoculation more associated with the demands of the market-place than a move away from individualism? What sort of relationship did they have with their local communities? When were their peak years and was their provision supply or demand-led? These questions are addressed in Chapter Six of this thesis.

1.2.4 Consequences in the aftermath of smallpox

Smallpox has also been examined through cultural and social parameters. In 2013 Peter Skold asked whether facial marking through smallpox was a factor in marriage age, assuming physical attraction to play an important role in marriage. Skold's work, however, mainly covered the cohort born at the end of the eighteenth and early nineteenth centuries, therefore reaching a marriageable age in a time

[110] Bennett, 'Inoculation of the Poor against Smallpox', 201.
[111] M. South, (2010) *The Southampton Smallpox Inoculation Campaigns of the Eighteenth Century,* PhD thesis, University of Winchester, 103. Also 70-110.

period outside the remit of this thesis.[112] Smallpox disfigurement is also represented in literary texts, such as Mary Worley-Montagu's poem, *Saturrday, the Small-Pox* (1715) in which the heroine bemoans her lost beauty and power over the male sex.[113] In 2007, David Shuttleton offered the most comprehensive anthology of the representation of the disease in literary terms, much of the material written by survivors of the disease. According to Shuttleton, accounts of the disease by both historians and literary critics, for example D. Hopkins and J. R. Smith (see earlier), 'downplay the role of the literary imagination in the cultural framing of the disease' whilst he (Shuttleton) attempts to draw in literary practice with what he terms as 'the dirty reality of smallpox'.[114] Literary pieces are important in their own way by providing an understanding of the trauma associated with the disease and providing a basis on which to interpret experiences of smallpox, although a fuller investigation of literary reactions is beyond the scope of this thesis. Remaining with the consequences of the infection, the relationship between smallpox and height has generated protracted debate among historians. In 1996 H.J. Voth and T. Leunig suggested that smallpox reduced final adult stature. Their limited data set, however, using details from the records of recruits to the Marine Society who had survived smallpox, has been criticised by other historians, promoting a debate which ensued for ten years without any clear conclusions.[115]

Two areas especially under-explored in the historiography are the manner in which individuals and communities responded to smallpox at a family and community level. Razzell contributed to this theme, proposing that people went to extreme lengths to avoid the disease where it was epidemic in

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[112] P. Sköld, 'The Beauty and the Beast - Smallpox and Marriage in Eighteenth and Nineteenth-Century Sweden'. *Historical Social Research* 28 no. 3 (2003): 141-61.

[113] http://www.poetryfoundation.org/bio/lady-mary-wortley-montagu (accessed 4 June 2014).

[114] Shuttleton, *Smallpox and the Literary Imagination*, 2, 3 & 208. Shuttleton refers to, among others, D. R. Hopkins, *Princes and Peasants* (1983) reissued as *The Greatest Killer: Smallpox in History* (2002) and J. R. Smith, *The Speckled Monster* (1987).

[115] H. J. Voth and T. Leunig, 'Did smallpox reduce height?: stature and the standard of living in London, 1770-1873', *The Economic History Review* 49 (1996): 541-60. See also, for example, P. E. Razzell, 'Did smallpox reduce height?', *The Economic History Review* 51 (1998): 351-9. D. Oxley, 'Pitted but not pitied' or, does smallpox make you small?', *Economic History Review* 59 (2006): 617-35.

the south of England. For example, an advertisement was placed in a local newspaper by a juror who declined service in Chelmsford owing to the disease being 'very much about there … it strikes such a Dread and Horror upon me that I dare not venture to attend'.[116] In the north, in contrast, physician John Haygarth, an advocator of inoculation in the 1770s, noted, 'the lower class of people have no fear of the casual [natural] smallpox.[117] Razzell concluded that a fatalistic attitude prevailed when smallpox was an endemic disease of children but a more fearful approach ensued when it affected adults and children in epidemic form, noting that the wealthy had the means to remove their families when an outbreak occurred or was threatened.[118]

1.2.5 The use of ego documents in understanding patient and carer perspectives

The use of ego-documents, that is, letters, memoirs, autobiographies and diaries provides access to the thoughts and actions of the writer which would not be revealed through the examination of, for example, ecclesiastical records and much other local archival material.[119] The breadth of this field is outside the scope of this thesis; I will focus on how the use of ego-documents has been extended to the fields of medicine and caring, concluding that there is a paucity of work on assessing smallpox in this way. Although the 1980s saw historians expanding the use of local archival documents in attempts to personalise experiences of smallpox, there is a real dearth of literature on the disease which has the room to accommodate the private and personal. In 1985 Roy Porter, one of the first exponents of the study of the sufferer's role in the history of sickness, called for scholarship which moved away from a physician-centred focus towards the complex realities that burdened sufferer, family, kinship and the community, particularly as self-help played a major role in the sufferer's experience.[120] In the

[116] Razzell, *Population and Disease*, 182-3. See footnote 463. Razzell quotes Chelmsford Chronicle, for example, from *Speckled Monster*, 1766 and Haygarth on Chester.
[117] Razzell, *Population and Disease,* 183.
[118] *Ibid.*, 182-83. See, in particular, footnote 463.
[119] The term 'ego documents' was adopted by Dutch historian, Rudolf Dekker in the late 1980s. See Kaspar von Greyerz, 'Ego-Documents: The Last Word?' *German History* 28(3) (2010): 273.
[120] R. Porter, 'The Patient's View: Doing Medical History from Below'*, Theory and Society 14 (March 1985):*175-176.

same decade, Arthur Kleinman argued that the study of sickness narratives had 'something fundamental to teach each of us about the human condition, with its universal suffering and death'. Illness narratives, he concluded, 'edify us about how life problems … [were] created, controlled, made meaningful.[121] These historians were attempting to acknowledge previously overlooked important questions about the effect of the disease experience on otherwise healthy individuals and their families, how it was managed and what consolations, if any, sufferers had at their disposal. In 1987 John Smith's work on Essex attempted to assess the emotional and financial trauma and disturbance caused by smallpox, mainly through parochial records and local newspaper archives.[122] Although Smith exploits the diary of John Evelyn, (whose two daughters died of smallpox in 1685) and two twentieth-century primary accounts of smallpox, recollected some 50 and 70 years after the events, his work is restricted by the limited availability and use of personal narratives.[123] The following case demonstrates the frustration that ensues over the paucity of personal detail; the Essex Quarter Session meeting in 1701 was informed how Michael Holmstead, a Chelmsford yeoman, had 'been of late visited with the small Pox, whereof his Wife dyed, and after that his Landlord did seize all ye Petitioners Goods, not leaving him a Bed to lye on, so that he is reduced by it to great penury and want'.[124] Although this information is explicit in providing the picture of Holstead's dire circumstances, without personal reflection it also leaves us with unanswered questions about how he managed the care of his wife, his perceptions of her illness or his emotional response to her death. At the other end of the social hierarchy, Donald Hopkins' smallpox history focussed on the disease in prominent people, firstly because histories of illness, treatment, death or convalescence were often well-documented and secondly, because this group was considered to be one of the key movers in

[121] A. Kleinman, *The Illness Narratives, Suffering, Healing and the Human Condition (New* York: Basic Books Inc., 1988), xiii.
[122] Smith, *Speckled Monster.*
[123] *Ibid*., 16-18.
[124] *Ibid*., 17.

influencing history. Hopkins purported that 'similar detailed reports were rarely made for less prominent victims'.[125]

By the end of the twentieth century the focus on the patient experience was emerging as an important aspect of the social history of medicine. A problem observed by Anne Digby, however, was that in researching the history of the patient, coverage is mainly confined to the top and bottom levels of the social hierarchy, leaving an apparent absence of material from the 'middling' group and working poor. The affluent and literate left copious detail through letters, memoirs and diary entries, which tended to focus particularly on how to achieve and preserve good health, rather than how sickness was experienced. Furthermore, while records of the sickness experiences of the poor were recorded in, for example, poor law and hospital accounts, they were often limited to the extraction of 'top-down' information from institutional records and day books, permitting only large-scale statistical analyses of treatments and outcomes. This point was qualified by the emergence of studies in the late 1990s of the previously neglected source of pauper letters written to overseers of the poor claiming hardship, often due to sickness.[126] These sources lent a new perspective to the way that sickness was experienced by the poor, moving the historiography towards a more nuanced approach to sickness. As Steve King pointed out in 2007, newer studies were beginning to show that sickness was the 'pivotal experience' of those living on the margins. Pauper letters about sickness in the late eighteenth and early nineteenth centuries, therefore, were important in informing us on the experiences of the sick poor and the sentiments of their communities in managing their needs. [127]

The last decade has seen an expansion of work on the history of the family and care for the sick. As Amanda Vickery pointed out in 2003, much of the work on personal reflections in women's writings

[125] Hopkins, *Greatest Killer*, xiv.
[126] A. Digby, 'The Patient's View' in I. Loudon, *Western Medicine – An Illustrated History* (Oxford: Oxford University Press, 1997), 291-2, 300, 305.
[127] S. King, 'Regional patterns in the experiences and treatment of the sick poor, 18800-1840: rights, obligations and duties in the rhetoric of paupers', *Family and Community History* 10, Issue 1 (2007): 61-75.

was angled towards debates on the expanding or contracting interaction of the 'private' and 'public' spheres for women, rather than encompassing a broad range of domestic and public issues, of which marriage and the illnesses of children formed a main part.[128] Vickery confirms a standard theme in eighteenth-century letters and diaries of the pre-occupation with sick children, yet it '… merits barely a sentence in many accounts of genteel life and philosophy'.[129] In addressing this balance, Vickery examined the following topics: the importance of mothers as sick-nurses; the maternal preoccupation with the vulnerability of children to illness and disease; the involvement of fathers and the 'shared emotional capital' invested in children.[130] Later, in 2012, Joanne Bailey also demonstrated the value of this new field of enquiry in her exploration of parenting in the Georgian period and the notion of sensibility, highlighting emotionally expressive styles of parenting within the context of tenderness, sympathy and benevolence.[131] Within this context Bailey examined gendered parenting at times of sickness, concluding that whilst maternal care was time-consuming, physically demanding and non-egocentric, hands-on parental roles were rarely gendered; both parents suffered constant anxiety when their children were ill.[132] Bailey further concluded that, from the later eighteenth century onwards, emotionally-charged tenderness and engagement was epitomized by fatherly pride in caring for sick children.[133] Hannah Newton came to similar conclusions on the joint physical and emotional investment in sick children in the same year. Newton also proposed that although care and sympathy was not specifically directed according to the sex of the child, boys and girls could perceive care in different ways. Boy patients may have been unaccustomed to tenderness, where generally parents were not encouraged to bestow sympathy lest it should promote 'undesirable' qualities such as softness and delicacy. Girls, on the other hand, could experience a patient perspective which

[128] A. Vickery, *The Gentleman's Daughter, Women's Lives in Georgian England* (New Haven and London: Yale Nota Bene for Yale University Press, 2003), 1-2, 11-12.
[129] *Ibid.*, 1-2, 11-12, 117.
[130] *Ibid*., 117-125.
[131] J. Bailey, *Parenting in England 1760-1830: Emotion, Identity, and Generation* **(**Oxford, Oxford University Press, 2012).
[132] *Ibid.*, 37, 48, 131.
[133] *Ibid*., 121.

embraced unaccustomed empowerment and agency.[134] This is an interesting hypothesis for further investigation. Newton also argues that sickness was not seen as a totally negative experience, drawing attention to the joy and relief on a positive outcome.

1.3 Primary Sources and Methodology

The justification for Oxfordshire as a useful case-study has been identified above. The study on inoculation in the county and its contiguous parishes is so named because it is constructed from an analysis of inoculation activity using information derived from the *Jackson's Oxford Journal* from its inception in 1753 to the end of the century. A close examination of all announcements placed in the journal in this period provides a comprehensive picture of local levels of provision of inoculation and how these fluctuated throughout the eighteenth century. This study gives some context to the evidence from personal narratives on the practice of inoculation. It establishes how inoculators managed their programmes in the rise to the 'heyday' years of the 1760s and beyond, their relationships with local communities, who was being inoculated and the nature of supply or demand-led provision. It also looks at inoculation houses to determine the means of isolating patients to be treated both by inoculation and in the 'natural' smallpox within the wider context of general isolation measures.

Data from the Anglican parish registers form the main source for Chapters Two and Three, combined with information drawn from secondary sources, such as the *Victoria County History* and the local newspaper, *Jackson's Oxford Journal*. Trawls of both these sources have been conducted.[135] A few points on the parish registers are worth noting at the outset. From the 237 Oxfordshire parishes known to be existent in the period, 205 Oxfordshire parish burial records are complete by 80 per cent

[134] H. Newton, *The Sick Child in Early Modern England, 1580-1720* (Oxford: Oxford University Press, 2012), 17-18, 120-122, 156-162, 188-189.

[135] *Victoria County History* was founded in 1899 to celebrate the Queen's Diamond Jubilee. Work on the counties of Oxfordshire is ongoing. At present (2015) two thirds of parishes in the county have been covered. *The Jackson's Oxford Journal* was inaugurated in 1753.

or more for the period 1700-1800. 32 are incomplete by 20 per cent or more, including four parishes with no burial records for the eighteenth century. The 32 incomplete sets of records are weighted to the west and the south of the county although this is largely because these are larger geographical areas. A map of Oxfordshire highlighting the parishes affected by smallpox mortality, is shown in Chapter Two. A caveat here, of course, is that the list cannot be an absolute account of the incidence of smallpox. Outbreaks with many cases but few fatalities will not be fully represented in the burial registers. However, entries recording accidental deaths and those from smallpox are two categories recorded consistently enough in the registers to indicate their significance within the community.[136] Throughout the thesis, if ages are known, children have been categorised as such when they are under 21, or when they are identified in the registers as 'son/daughter of'. Eversley has raised the point that this term was also used for unmarried adult children still living in the family home. On the other hand, unmarried children under the age of 20 were sometimes buried without any indication of parentage. These cases should not cause concern in investigations that examine the relationship between burial data and child mortality so it is to be hoped that they cancel each other out.[137]

Prior to 1753 the year commenced on Lady Day (25 March). February 1746, therefore, is recorded in the registers as February, the penultimate month of 1745. For continuity this thesis takes the calendar year as January to December. It is also noted here that the calendar change was accompanied by eleven 'missing' days, from 3 to 13 September 1752. As we do not have dates of birth for children baptised in Burford in the period and so cannot investigate ages at baptism, and we are not concerned with the month of September in our seasonal burial averages, these missing dates will not affect this chapter.

[136] For the total number of parishes in Oxfordshire, see Harris, C. *Oxfordshire Parish Registers and Bishop's Transcripts* (Oxford: Oxfordshire Family History Society, Seventh Ed, 2006), 7-58.

[137] D. E. C. Eversley, 'Exploitation of Anglican Parish Registers by Aggregative Analysis' in *An Introduction to English Historical Demography* eds D. C. C. Eversley, P Laslett, E. A. Wrigley, (London: Weidenfeld and Nicolson, 1966), 71.

Chapter Four combines my findings from information provided by ecclesiastic registers on Banbury with the major path-breaking reconstitution work conducted by CAMPOP in 1997.[138] This necessitates unbroken and consistently detailed parish registers to allow the reliable linkage of one individual through several different records of vital events. Banbury was selected as a parish with ecclesiastical records of sufficient quality to be included in this programme of study into English demography, being one of only four in England in observation throughout their whole period of investigation from 1538 to 1837.[139] The conclusions from this 20-year project was a major contribution to historical demography enquiry and a base for rigorous research.

A further source consulted is the contemporary report of the smallpox epidemic in Aynho in Northamptonshire, in 1723-4.[140] In this report details of symptoms and outcomes of all 130 smallpox sufferers (approximately one third of the population) were meticulously recorded by the rector of the village, Joseph Wasse, (who also wrote to the Royal Society on other matters such as meteorological phenomena) in response to a request from Dr James Jurin, secretary of the Royal Society, as part of an enquiry in the 1720s into the safety of inoculation.[141] The report was compiled from information provided by those assigned to nurse the smallpox sufferers and it is most unusual to have information on morbidity and the course of the disease for each patient, being the only known document of its kind. It is, therefore, a rare and valuable document offering a rich insight into the presentation of the disease and allowing a new analysis of details of all cases which to-date has not been exploited by previous historians.[142] The report is handwritten in rough table format on several sheets of paper of

[138] Wrigley et al., *English Population History,* 3-24.
[139] *Ibid*.
[140] *Royal Society* Cl.P./23ii/87. 'Account of those who had ye smallpox from September 1723 – December 1724'.
[141] A. Rusnock, *Vital Accounts Quantifying Health and Population in Eighteenth-Century England and France.* (Cambridge: Cambridge University Press, 2002), 11, 44 & 62. Jurin solicited and collected accounts of successful or fatal inoculations throughout England in the 1720 in response to a request for annual house-to-house enumeration. He also welcomed accounts about natural smallpox mortality. From this information he presented comparative figures for natural and inoculated smallpox, calculating comparative risks of death.
[142] Some of this material has been been utilized by previous historians to assess cases against fatalities according to age, to help determine the periodicity of smallpox epidemics.

approximately A3 size, probably by Wasse. All the deaths in the report are recorded in the Aynho parish burial registers, a point which adds robustness to the document.

All the sources have been taken together and influence the whole thesis. Chapters Five and Six, however, focus particularly on ego-documents drawn from approximately 32 families with personal experience of smallpox in the late seventeenth and eighteenth centuries. These have been extracted from private correspondence held in county archives, previously unpublished private correspondence and published autobiographies, memoirs and diaries. The selection mainly covers writers from middling social groups attached to both established and non-conformist denominations in England. Almost all the writers had family connections or were closely tied to their local communities and were selected for evidence of kinship relationships within which they felt able to communicate at a meaningful level. One of the problems of utilizing ego-documents, identified by both Bailey and Newton, is that they tend to over-represent the erudite and often religious middling or upper social groups although, as Bailey notes, there is some uniformity to eighteenth-century terminology; the term, 'tender' parent, for example, cuts across the life-histories from all social ranks.[143] However, other challenges face the researcher of ego-documents. Events in a child or young adult's life are seen retrospectively through the eyes of the mature and judicious adult; autobiographies and recollections may be couched in current interpretation particularly if composed as pieces of propaganda. Letters and diaries need to be handled judiciously. Letters written by socialite women, for example, were often designed to be read aloud so their contents may not be fully reflective of emotions they would not wish to be widely known. Furthermore, conclusions should not be drawn on diary entries that do not provide a total understanding of events. For example, when James Woodforde writes of his visit to a neighbour with smallpox, '… Called at poor neighbour Clarkes but did not go in' we cannot assume reasons for his decisions not to enter the house.[144] On the other hand, diaries and autobiographies

[143] Bailey**,** *Parenting in England***,** 12.
[144] J. Beresford (ed.), *The Diary of a Country Parson 1758-1802 by James Woodforde* (Oxford: Oxford University Press, 1979), 245.

not intended for publication can be particularly insightful. William Hart's autobiography, for example, was written as a treatise for his children so that it 'may afford you some instruction concerning the ways of God in his wise and mysterious Providence'.[145] Moreover, the rich source of private family letters not intended for wide circulation well-illustrate private anxieties and obligations otherwise lost in a narrative designed to be shared. When sickness invaded a household evidence in this thesis shows that letter-writers expose heightened levels of responsibility in keeping relatives and friends informed with accurate bulletins, and they were disturbed if circumstances prevented this.

This chapter has discussed smallpox within its historical background and medical framework, and coverage of the research topics in the historiography have been reviewed. The following chapters return to the research questions outlined above by exploring the areas in which further work needs to be done. As the first stage of the enquiry, Chapter Two takes a new approach by piecing together an overview of the incidence of smallpox in Oxfordshire by individual parish, in order to provide a more in-depth study than would be possible by examining a national picture. The findings in this chapter are threefold. It establishes the prevalence of smallpox in Oxfordshire over the course of the eighteenth century, showing how smallpox mortality corresponded with overall mortality patterns in the county enabling a new understanding of local levels of smallpox mortality, particularly in relation to the increasing use of inoculation. It also explains how and why communities experienced the disease in different ways. Finally, it ascertains initial parameters on how people responded to smallpox outbreaks within their local communities, a theme which is taken up in more detail in the chapters on individual experiences of the disease. Together these provide a sound base for building further detailed work on specific epidemics in the county.

[145] P. Hudson & L Hunter (eds), 'The Autobiography of William Hart, Cooper, 1776-1857', *The London Journal* 7 (2) 1981: 149.

Chapter Three examines responses to smallpox outbreaks in communities in more detail by investigating four smallpox epidemics: in Banbury in 1718/19 and 1732/33, Aynho in Northamptonshire in 1723-4 and Burford in 1758, the latter with particularly catastrophic consequences. Burford lost approximately one sixth of its population to smallpox in three months, with smallpox deaths representing nearly 75 per cent of all burials in the parish for the whole year. A close analysis of parish registers of Burford and Banbury over a twenty-four year period around each epidemic year exposes fluctuations in baptisms, marriages and burials revealing evidence of changed lifestyle and behavioural patterns. This chapter has investigated these patterns and established why they occurred, adding to our understanding of the way in which small communities managed enforced major changes to patterns of life and death. The two epidemics in Banbury were less severe than the Burford outbreak, although with an interval of only approximately 12 years, contrasts are evident in relation to impact. Comparisons are made between the outbreaks and conclusions reveal quick responses to epidemic conditions, major disruption and caution in resuming normal life patterns. However, after a comparatively short interval between outbreaks in the same community, meaning that it was principally children who were unprotected by prior immunity, these characteristics were less pronounced the second time around, demonstrating the links between high adult smallpox mortality, anxiety and changed behavioural patterns. The findings on Aynho, an area very close to my selected region, offer a different kind of assessment, allowing us to add a more rounded picture of the characteristics and nature of the disease as it progressed.

Chapter Four builds on the parish register data for Banbury examined in Chapter Three by combining it with the reconstitution carried out by CAMPOP. It is thus able to recreate the family groups of those who died of smallpox. In this parish, levels of migration can be assessed as families affected by smallpox moved in and out of observation, (their life events of baptisms, marriages and burials as recorded in parish registers). These have been taken into consideration in looking at possible prior immunity levels in the second outbreak in relation to the size of the pool of adult and older child

transmitters in the town. Furthermore, the study of age-related smallpox deaths and case-fatality rates is enhanced by knowing full age-cohort sizes in families affected by smallpox mortality. The chapter establishes how and when family members experienced smallpox fatally. By building on this information it concludes that families affected by smallpox mortality were not generally prone to high infant mortality. Finally it determines a causal relationship between adult and child smallpox deaths. The conclusions to this section present a new understanding on susceptibility and pathways of smallpox transmission within the family unit and the nature of familial proximity and parental responsibilities.

Chapters Five and Six move outward from the close demographic study, using a national body of sources to investigate personal testimonies of smallpox sufferers and those close to them. This helps us to establish actual experiences for the purpose of enriching the historiographical and medical debate. This individualistic perspective draws out common strands to identify what was happening 'on the ground' rather than through the medical, political or literary spectrum. Chapter Five investigates levels of sophistication of knowledge of the disease in relation to etiology, transmission, diagnosis and levels of susceptibility. It also looks at terminology to define the understanding of risk to the life of the smallpox patient leading to the management of nursing care and the handling of 'preparation' regimes, examining also a novel field of research concerning the emotional unrest of the carer of the smallpox sufferer. Finally, this chapter investigates collaborative care and the wider circle of carers; those of kinship and the community in challenging a popular view, often supported in literature, that smallpox sufferers were isolated and stigmatised. De-construction of personal testimonies for this section provides new knowledge of the carer's understanding of the disease and the psychological condition of both the sufferer and carer. These points bring out aspects of the relationship between carer and sufferer not found in any analysis of the group sickness experiences discussed in previous historiography.

As noted earlier, inoculation is one of the most important aspects of the study of smallpox in the eighteenth century. Chapter Six asks some new questions using a range of sources. It establishes how lucrative inoculation was in real terms for the practitioners, exposes diverse access routes for the user and ascertains trends in relationships between providers and the communities they served. Isolation measures to control smallpox are also investigated in this chapter, particularly the incidence and use of inoculation houses. Some of these themes are tested via a study of inoculation practice in Oxfordshire and its surrounds from the perspective of the operators. By closely investigating the market place in which inoculators operated in Oxfordshire over a period of half a century, further insight into the fluid and changeable nature of attitudes and take-up of the practice can be revealed. The chapter also exposes familial conflict over whether or not to proceed with a practice that could have life or death ramifications, showing how parents, in particular, managed the increasing tensions between individual conscience and increasingly popular practice. Finally, the chapter examines and assesses the emotional responses of parents after subjecting their otherwise healthy children to the practice at a time when child mortality was high.

The two-stranded demographic study combined with the use of ego-documents is a novel format in which to investigate the prevalence of smallpox and how it was perceived and managed at local and family level. The detail from personal testimonies helps to elucidate some of the wider aspects of the effects of the disease adding depth and understanding to the bigger picture. Furthermore, the testimonies provides a rich insight into the personal and private in managing smallpox at an individual level making the thesis a unique insight into smallpox in the eighteenth century and an important contribution to knowledge.

CHAPTER TWO

AN OVERVIEW OF SMALLPOX IN OXFORDSHIRE

2.1 Introduction

Chapter Two explores the effects of smallpox on the county of Oxfordshire in the eighteenth century by identifying smallpox deaths parish by parish, - mainly through burial registers as a prelude to the demographic study in Chapters Three and Four. After briefly placing smallpox in Oxfordshire within its chronological context, the chapter discusses the prevalence and course of smallpox by parish over the course of the eighteenth century. This will enable us to establish trends in geographical patterns of smallpox mortality and show how it corresponded with overall mortality patterns. The chapter takes each region of the county in turn to investigate particular pockets of vulnerability to the disease, questioning previous assumptions on proximity. It then offers reasons why these diversities existed. Where data allows the chapter also examines trends in adult and child smallpox deaths separately.

2.2 Underlying trends of smallpox mortality in Oxfordshire

Smallpox was first mentioned in England in 1366 when English chronicler, Raphael Hollinshed wrote: 'Also manie died of the Small Pocks, both men, women, and children'.[1] References appeared in correspondence in the sixteenth and seventeenth centuries, when, for example, parish burial registers in Chester noted smallpox among children in 1636: 'For this two or three years, divers children died of smallpox in Chester'.[2] Around this time diaries and letters were documenting a London epidemic, diarist Samuel Pepys, for example, commenting in 1668, ' hardly ever was remembered such a season for the smallpox as these last

[1] H. Bazin, *The Eradication of Smallpox* (London: Academic Press, 2000), 4.

[2] C. Creighton, A *History of Epidemics in Britain,* Volume 2. Second edition. (London: Frank Cass & Co, Ltd., 1965), 434-6. Letter from Fox to Gardiner, 11 May 1528; 'Selections from the Records of the Kirk Session, Presbytery and Synod of Aberdeen' 1846; Harl. MS, No. 2177.

two months have been [in London], people being seen all up and down the streets, newly come out after the smallpox.[3] By the beginning of the eighteenth century we have reliable evidence of widespread outbreaks of smallpox in England. In Oxfordshire, James Norreys, son of the Earl and Countess of Abingdon died of the disease and was buried in Albury in 1718 and John Hindes, Lord of the Manor of Hampton Gay died of smallpox in 1754.[4] The socially inclusive characteristic of smallpox, described by G. Williams as '… a great leveller'[5] was not common to all contagious diseases. In contrast, parish burial registers of Eynsham in Oxfordshire note in 1801 that epidemic fever 'caused great mortality especially among the poor'.[6] The visibility of smallpox, however, in social groups associated with high literacy levels has allowed the disease to be well-chronicled from first-hand experience.

One of the earliest references to smallpox in Oxfordshire appears in the seventeenth-century diaries and papers of Oxford historian, Anthony Wood. Of his personal experience of the disease, Wood recorded, 'This yeare [1635] he had the small pox so much that he was for a time blinded with them'.[7] Fourteen years later, Oxford professor Thomas Willis noted that smallpox in the city of Oxford was not extensive, 'yet most died of it', although Willis was not convinced by his diagnosis as 'the smallpox had never been in that place'.[8] By the mid seventeenth century the scenario in the city was changing. In 1654 'at Oxford, about autumn, the smallpox spread abundantly'[9] and later in the century Wood's diaries included regular

[3] *The Diary of Samuel Pepys* (Sunday 9 February 1667/68). http://www.pepysdiary.com/archive/1668/02/09 (accessed 28/1/2012).
[4] *Oxfordshire History Centre,* Parish burial registers transcripts of Albury (1718) and Hampton Gay (1754).
[5] G. Williams, *Angel of Death* (Basingstoke: Palgrave Macmillan, 2010), xviii.
[6] *OHC*, Parish burial register transcript of Eynsham (1801).
[7] A. Clark, *The life and times of Anthony Wood, antiquary, of Oxford, 1623-1625.* http://www.archive.org/stream/woodslifetimes01claruoft/woodslifetimes01claruoft_djvu.txt (accessed 15/8/2011).
[8] Dixon, C. W. *Smallpox* (London: J. & A. Churchill, 1962), 192-3. US National Library of Medicine, www.nlm.nih.gov/nichsr/esmallpox_dixon (accessed 24/4/2012).
[9] Creighton, *History of Epidemics* Vol 2 (1965), 437, 'Remaining Works'. Trans by Pordage. Lond. 1681, 142.

references to the disease being prevalent in the city. In November 1662 Wood noted that 'Smallpox rages in New College'[10] and the disease was 'rife among the scholars' in 1695.[11] Outside the city, Wood referred to a death from smallpox in Brize Norton, 14 miles west of Oxford, in 1676.[12] Registers show that burials in Brize Norton peaked slightly for this year, although the total number was small (under 15). Generally, away from the city in the seventeenth century the disease appears to have been mild, a Dr Plot noting in 1677, '… here [in Oxfordshire] they [smallpox] are so favourable and kind that be the nurse but tolerably good, the patient seldom miscarries'.[13]

2.3 Smallpox mortality by parish

Data from Oxfordshire parish burial records form the main source for this chapter, along with data from Victoria *County History* and the local newspaper, *Jackson's Oxford Journal* from its inauguration in 1753. Most of the detail was gathered through a rigorous exercise of examining all the surviving individual parish burial registers from the 237 parishes known to be in existence for the county in the period between 1700 and 1799. Burial entries documenting accidental deaths and those from smallpox are two categories recorded consistently enough in the registers to indicate the significance of smallpox within the community. We can confidently assert, therefore, from the information available, that contemporaries believed smallpox deaths to be present in a particular year in the all parishes listed. From the 237 parish burial records 205 are complete in years by 80 per cent or more. The figure cannot be an absolute interpretation of the incidence of smallpox deaths; burial records of 32 parishes in the county are incomplete in years by 20 per cent or more. It is therefore considered that these parishes do not have

[10] Clark, *Life and times of Anthony Wood*, Note 46x.
[11] J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight of Burford, 1998), 42
[12] Moody, *Great Burford Smallpox,* 41.
[13] Creighton, A *History of Epidemics in Britain* (Cambridge: Cambridge University Press, 1891*),* 467. Creighton quotes from 'Natural History of Oxfordshire', Oxford, 1677, 23.

enough data to be able to say anything confidently, unless smallpox is specifically identified. These parishes are shaded in yellow on figure 2.1 to separate them from those with complete or near-complete registers that did not record any smallpox deaths. 12 parishes with poor records are on the periphery of the county although historically all are within the county boundary and there is no clear reason for this. Occasionally, burial entries offer a brief and poignant glimpse into the personal and private when smallpox invaded a household. Ipsden registers, for example, record the burial of John Quartermaine, aged 36, who died of the disease and was buried on 10 August 1716. Twenty days later, his elderly father, James, was also buried, '… having caught the infection from his son'.[14] Another entry reveals familial distress even more intensely. Ewelme labourer John King and three of his children, Elizabeth (13), Sally (11) and Mary (6) died of smallpox in May, 1789, being the only smallpox deaths in the parish. All three children were buried in the first two weeks of the month and their father approximately two weeks later. King's wife, Jane, died on 14 June from 'mortification'. A memorandum is added to her burial record:

> The mother also and two other children caught the disorder but recover'd and the infection spread no further, the family all being remov'd to Pyrton Hill as soon as it broke out … This woman, the mother mentioned above, was found dead in bed, having previously complained very little, her death may be attributed to the effects of smallpox, brought on or assisted by grief for her recent loss.[15]

Figure 2.i shows all the parishes with extant or traceable smallpox burials in the eighteenth century. It should be noted that urban parishes of Oxford are outside the remit of this enquiry. Patterns of smallpox periodicity are different in urban areas and a study would require further analysis in order to provide a complete representation of smallpox in the city. The number of parishes in the central part of the county investigated, therefore, is small. However, it is appropriate here to note briefly the presence of the disease in the city. In the early eighteenth century outbreaks in 1710, 1719, and 1728 appear to have been

[14] *OHC*, Parish burial register transcript of Ipsden (10 and 30 August 1716).
[15] *OHC*, Parish burial register transcript of Ewelme (2, 6, 14, 31 May, 17 June 1789).

particularly deadly and the parishes of Saint Aldgates and Saint Ebbes also were affected by smallpox mortality in the second half of the century.[16]

[16] See *Victoria County History Oxfordshire* Vol IV (1979) http://www.british-history.ac.uk/report.aspx?compid=22804&strquery=smallpox#n480 (accessed 3/9/2012).

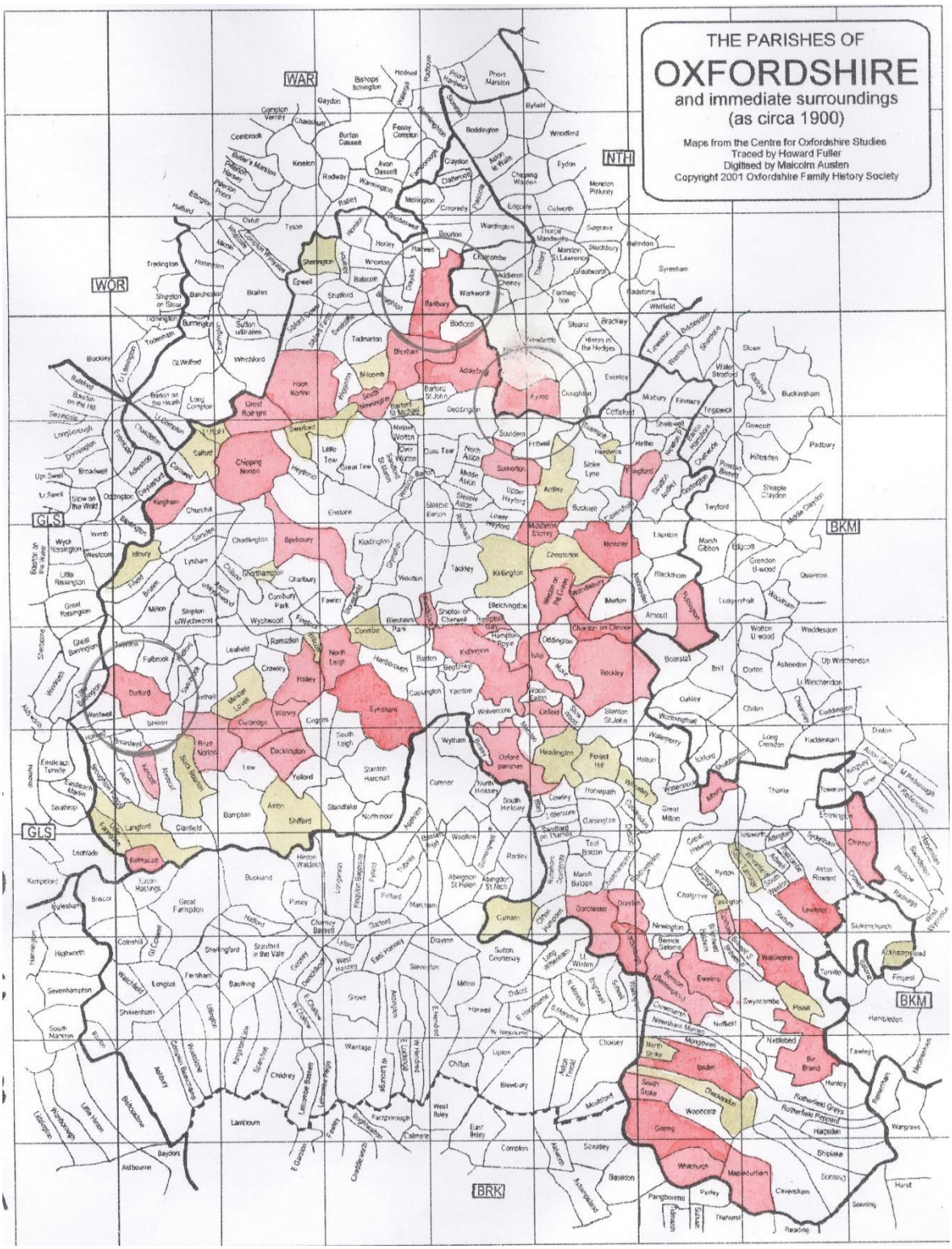

Figure 2.i *Smallpox burials in Oxfordshire parishes 1700-99*

Source: http://www.ofhs.org.uk/web/parmapCounty/OXF500.gif. (accessed 28/2/2015). Copyright 2001 Oxfordshire History Centre[17]; Oxfordshire parish burial register transcripts

Key: red = parishes registering smallpox mortality
yellow = parishes with limited burial data
white = parishes with complete or near complete data with no recorded smallpox deaths

Note: Two parishes, Hampton Gay and Kelmscott, have limited data although smallpox deaths are specifically identified in the extant registers

Ringed parishes are discussed in more detail later in the thesis; Burford in West Oxfordshire and Banbury in North Oxfordshire. Aynho in Northamptonshire is also discussed as a parish close to the border for which we have valuable data on morbidity and the course of the disease at an individual level.

Some of the parishes identified in figure 2.i experienced smallpox more than once in the period. Table 2.1 captures this by presenting a chronological list providing more detail on all the Oxfordshire parishes affected by smallpox mortality, highlighting the results by decade. For spatial clarity each parish has been identified by region (north, north east, east, south, central, west and north west) and the impact of smallpox deaths in that region has been explored. Where records allow, adult and child smallpox burials have been categorised separately. In cases where smallpox mortality has been ascertained from secondary sources but are unrepresented in parish registers, comparisons with average annual burials have been made to help determine levels of smallpox mortality (see, for example, Eynsham 1728-29.) The table shows 151 smallpox outbreaks with registered mortality in 49 different parishes. Of these, 13 outbreaks (with at least one smallpox death) created smallpox burials amounting to more than 50 per cent of their total burials for that year. Furthermore, one of the clearest points from Table 2.1 is the reduction in child smallpox deaths, apart from Witney in 1782, from the 1760s onwards. In the last decade

[17] In 1974 local government re-organisation added the Vale of the White Horse from Berkshire to the county. The boundaries of Oxfordshire in the eighteenth century, therefore, did not include this area.

of the century, when very few smallpox deaths were reported, these were almost all of adults. This is a significant point, which shows that increased inoculation practices contributed to reducing childhood deaths in the closing decades of the eighteenth century, and which will be revisited in Chapters Five and Six on the likely effects of increased inoculation practices.

Table 2.1 only represents smallpox deaths. Incidences of the disease are likely to be far higher, as considered further in the studies of Burford, Banbury and Aynho in Chapters Three and Four. In parishes with many cases but few fatalities, the incidence of smallpox will not be fully reflected in burial registers alone. This is taken up further using alternative primary and secondary sources in Chapter Five, which looks at the care of smallpox sufferers.

Table 2.1 *Oxfordshire parishes affected by smallpox mortality*[18] *(decadal totals below)*

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1707	Bicester	NE	48	unspecified		76	63.2	36	1946
1714	Eynsham	C	24	unspecified		33	72.7	16	1166
1715	Eynsham	C	18	unspecified		28	64.3	16	1166
1715	Watlington	S	14	5	9	35	40.0	24	1276
1716	Watlington	S	20	12	8	41	43.9	24	1276
1716	Lewknor	S	1	1	0	6	16.7		597
1716	Ipsden	S	2	1	1	8	25.0		476
1716	Middleton Stoney	E	2	2	0	6	33.3		309
1717	Ipsden	S	1	1	0	5	20.0		476
1718	Ipsden	S	1	1	0	9	11.1		476
1718	Lewknor	S	1	1	0	9	11.1		597
1718	Albury	E	1	1	0	3	33.3		177
1718	Banbury & Neithrop	N	46	16	30	128	35.9	75	3810
1719	Banbury & Neithrop	N	73	35	38	120	60.1	75	3810
1720s	Combe	C	unidentified			9 (av –see below)		6	424
1723	Ipsden	S	1	1	0	5	20.0		476
1723	Islip	C	1	0	1	13	7.7		557
1724	Islip	C	12	9	3	19	63.2	12	557
1724	Ipsden	S	1	1	0	5	20.0		476
1725	Islip	C	2	2	0	8	25.0		557
1726	Piddington	E	1	1	0	10	10.0		310
1727	Islip	C	2	0	2	12	16.7		557

[18] For Oxfordshire parishes see C. Harris, *Oxfordshire Parish Registers and Bishop's Transcripts.* (*Oxford*: Oxfordshire Family History Society, Seventh Ed. 2006), 7-58.

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1728	Ipsden	S	1	1	0	16	6.3		476
1728	Charlton on Otmoor	E	1	1	0	29	33.3 3.5 53		478
1728/9	Bampton	W	unidentified			72,103		33	2010
1728	Eynsham	C	unidentified			40		17	1166
1729	Eynsham	C	unidentified			39		17	1166
1730	Eynsham	C	unidentified			64		17	1166
1731	Banbury & Neithrop	N	1	0	1	58	1.7	70	3810
1732	Banbury & Neithrop	N	12	8	4	62	19.4	70	3810
1733	Banbury & Neithrop	N	80	25	55	132	60.6	70	3810
1734	Charlton on Otmoor	E	3	1	2	10	30.0		478
1736	Woodstock	C	2	2	0	22	9.1		1322
1736	Chipping Norton	NW	7	unspecified		36	17.9	42	2200
1737	Chipping Norton	NW	8	unspecified		40	20.0	42	2200
1738	Chipping Norton	NW	4	unspecified		38	10.5		2200
1738	Hook Norton	NW	1	1	0	19	5.3		1032
1740	Charlton on Otmoor	E	1	1	0	12	8.3		478
1740	Wendlebury	E	1	1	0	2	50.0	3	146
1741	Dorchester	S	unidentified			25		21	913
1742	Charlton on Otmoor	E	1	1	0	8	12.5		478
1742	Chipping Norton	NW	6	2	4	51	11.8	42	2200
1744	Chipping Norton	NW	1	1	0	42	2.4		2200
1744	Banbury & Neithrop	N	11	7	4	60	18.3	69	3810
1746	Banbury & Neithrop	N	1	0	1	69	1.4		3810
1746	Islip	C	5	5	0	14	35.7		557
1746	Chipping Norton	NW	1	1	0	45	2.2		2200
1747	Chipping Norton	NW	4	2	2	49	8.1		2200
1747	Wendlebury	E	1	1	0	5	20.0	3	146
1749	Chipping Norton	NW	3	1	2	48	6.2		2200
1751	Banbury & Neithrop	N	3	2	1	64	4.7		3810

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1754	Hampton Gay	C	1	1	0	1	100.0	≤ 1	67
1754	Kiddington	C	1	1	0	4	25.0	5	184
1756	Kingham	NW	1	1	0	9	11.1		428
1756	Banbury & Neithrop	N	2	1	1	82	2.4		3810
1757	Goring	S	5	4	1	10	50.0	12	677
1758	Goring	S	1	1	0	12	8.3		677
1758	Warborough	S	1	1	0	9	11.1		535
1758	Burford	W	185	78	107	247	74.9	36	1725
1758	Kencott	W	4	4	0	6	66.7	3	191
1759	Kencott	W	3	3	0	5	60.0	3	191
1760	Banbury & Neithrop	N	unidentified.			166		77	3810
1760s	Adderbury	N	unidentified			28 (av- see below)		28	1923
1761	Bloxham	N	3	3	0	23	13.0		1358
1761	Piddington	E	1	1	0	5	20.0		310
1763	Wendlebury	E	1	1	0	10	10.0	3	146
1763	Goring	S	1	1	0	20	5.0		677
1763	Middleton Stoney	E	5	5	0	12	41.7		309
1764	Goring	S	9	6	3	17	52.9	12	677
1765	Goring	S	7	3	4	11	63.6	12	677
1766	Goring	S	1	1	0	7	14.2	12	677
1767	Elsfield	C	2	2	0	5	40.0	2	175
1768	Goring	S	2	2	0	11	18.1		677
1768	Whitchurch	S	1	1	0	9	11.1		577
1768	North Leigh	C	2	2	0	21	9.5		517
1768	Islip	C	2	2	0	13	15.3		557
1768	Weston on Green	C	3	3	0	12	25.0		350
1769	Banbury & Neithrop	N	unidentified			76		85	3810
1770	Chipping Norton	NW	1	1	0	40	2.5		2200

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1770	South Newington	N	2	2	0	6	33.3		395
1771	Elsfield	C	1	0	1	1	100.0	2	
1772	Whitchurch	S	1	1	0	13	7.7		577
1772	Cuxham	S	9	7	2	9+1	90.0	3	125
1773	Cuxham	S	1	0	1	9	11.1	3	125
1774	Dorchester	S	unidentified			23		22	913
1774	Whitchurch	S	1	1	0	11	9.0		577
1774	Banbury & Neithrop	N	1	1	0	85	1.2		3810
1775	Banbury & Neithrop	N	1	0	1	66	1.5		3810
1777	Burford	W	2	0	1	37	5.4		1725
1777	Banbury & Neithrop	N	1	1	0	65	1.5		3810
1778	Bicester	NE	3	2	1	33	9.1		1946
1778	Banbury & Neithrop	N	2	1	1	77	2.6		3810
1778	Bloxham	N	2	2	0	22	9.1		1358
1779	Witney/Curbridge/Hailey †	W	9	5	4	92	9.8	80	4087
1779	Banbury & Neithrop	N	7	3	4	129	5.4	80	3810
1779	Chipping Norton	W	unidentified			36		39	2200
1779	Fringford	NE	1	1	0	10	10.0		252
1780	Fringford	NE	1	1	0	7	14.3		252
1780	Whitchurch	S	1	1	0	11	9.1		577
1781	Whitchurch	S	1	1	0	12	8.3		577
1781	Piddington	E	1	1	0	8	12.5		310
1781	Bicester	NE	2	1	1	40	5.0		1946
1781	Great Rollright	NW	1	unspecified		11	9.1		403
1782	Witney/Curbridge/Hailey †	W	23	11	12	104	22.1	80	4087
1782	Piddington	E	1	1	0	8	12.5		310
1783	Bloxham	N	1	1	0	21	4.8		1358

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1783	Whitchurch	S	1	1	0	15	6.7		577
1784	Great Rollright	NW	1	unspecified		5	20.0		403
1784	Witney/Curbridge/Hailey †	W	2	2	0	67	3.0		2937
1784	Whitchurch	S	1	1	0	9	11.1		577
1786	Witney/Curbridge/Hailey †	W	1	0	1	88	4.5		2937
1786	Beckley	E	2	unspecified		14	14.3		691
1787	Warborough	S	2	unspecified		15	13.3		535
1787	Bloxham	N	1	unspecified		29	3.4		1157
1788	Spelsbury	NW	1	1	0	11	9.1		509
1788	Bix	S	2	2	0	15	13.3		303
1788	Mappledurham	S	3	2	1	14	21.4		452
1788	Banbury & Neithrop	N	3	2	1	103	2.9		3810
1788	Whitchurch	S	1	1	0	13	7.7		577
1788	Great Rollright	NW	2	unspecified		14	14.3		403
1789	Whitchurch	S	2	2	0	11	18.2		577
1789	Somerton	NE	2	1	1	7	28.6		254
1789	Bix	S	1	1	0	8	12.5		303
1789	Ewelme	S	5	2	3	15	33.3		490
1790	Great Rollright	NW	1	1	0	5	20.0		403
1790	South Stoke	S	1	1	0	14	7.1		564
1791	Witney/Curbridge/Hailey †	W	2	1	1	79	2.5		4087
1791	Banbury (& Neithrop)	N	2	2	0	73	2.7		3810
1791	Kelmscott	W	3	1	2	3	100.0	3	132
1791	Whitchurch	S	6	4	2	14	42.9	13	577
1791	South Stoke	S	3	3	0	10	30.0		564
1791	Mappledurham	S	2	1	1	6	33.3		452

Year	Parish	Region	Smallpox burials	Adult SP burials	Child SP burials	All burials	SP burials as per cent of all burials	Av. annual burials (excl. SP yrs)	Population (1801)
1792	Mappledurham	S	1	1	0	7	14.3		452
1792	Witney/Curbridge/Hailey †	W	1	1	0	76	1.3		4087
1792	Brize Norton	W	1	1	0	7	14.3		453
1792	Great Rollright	NW	3	unspecified		9	33.3		403
1792	Benson	S	1	1	0	22	4.5		811
1792	Ducklington	W	1	1	0	5	20.0		442
1793	Great Rollright	NW	1	unspecified		6	16.7		403
1794	Bix	S	1	1	0	8	12.5		303
1794	Chinnor	S	1	1	0	13	7.7		862
1794	Whitchurch	S	3	3	0	11	27.3		577
1794	Mappledurham	S	2	2	0	6	33.3		452
1794	Ducklington	W	2	2	0	8	25.0		442
1795	Ducklington	W	5	6	0	17	29.4		442
1796	Burford	W	2	1	1	33	6.1		1725
1797	Burford	W	1	0	1	30	3.3		1725
1798	Drayton St Leonard	S	3	3	0	8	13.9		260
1798	Whitchurch	S	1	1	1	8	12.5		577
1799	Whitchurch	S	4	4	0	25	16.0		577
1799	Bix	S	2	1	1	11	18.1		303

Sources:

Total and smallpox burials are derived from parish burial registers

Evidence of smallpox mortality is taken from registers except in the following cases:

Adderbury, 1760s: *VCHO Vol IX* (1969), 5-44 'Local Government … overseers had to arrange for the isolation, medical attention and burial of the [smallpox] victims'. Average burials calculated from 1750-1780. There were more than the average number of burials in five out of ten years in the 1760s. A particularly high number of burials (46) were recorded in 1764 although these may not have been due to smallpox.

Bampton, 1728/9: *VCHO* Vol XIII (1996), 175-191. Other causes may also account for the high number of burials in these years. Charles Creighton discusses 'the very unwholesome years 1727/29' with reference to fevers, influenzas and epidemic catarrhs.[19]
Banbury, 1759/60: *Jackson's Oxford Journal*, 22 November 1760 and 18 April, 1761. 1769: E. G. Thomas, 'The Old Poor Law and Medicine', *Medical History* 24 (1980): 9
Bicester, 1707: see Bicester parish burial register transcript, 1762
Chipping Norton, 1779: *JOJ*, 22 May 1779
Combe, 1720s: *VCHO* Vol XII (1990), 75-82 'Introduction … during smallpox epidemics of the 1720s burials outnumbered baptisms'. Average burials calculated from 1710-1740. (1728, 1733-4 missing). Totals exceeded average burials in six out of ten years in the 1720s. In 1729 there was a particularly high number of burials (19) although these may not have been due to smallpox. See Bampton
Dorchester, 1741: No identified smallpox burials but heavy expenses incurred for nursing and managing smallpox patients. Dorchester Overseers Accounts, PAR87/5/A1/1: 93-97. Average burials taken from years 1737 – 52. Previous years incomplete. See also E. G. Thomas, 'The Old Poor Law and Medicine', *Medical History* 24 (1980): 8
Dorchester, 1774: No identified smallpox burials but smallpox mortality noted in Overseers' Accounts, PAR87/7/A1/3: 21. Average burials taken from 1765 – 1774. Other years incomplete. See also, E. G. Thomas, 'The Old Poor Law and Medicine', *Medical History* 24 (1980): 8
Eynsham, 1728-30: *VCHO* Vol XII (1990), 98-110, 'Introduction', 'Smallpox caused great mortality in the winter of 1714-15 … and there were more serious outbreaks in the winter months of 1728-9 and 1729-30'
Kiddington, 1754: *JOJ*, 22 June 1754

In addition, burials of occupants of the Great Rollright pesthouse took place in the following years:
1786 (1), 1787 (1), 1794 (1), 1795 (1), 1796 (6), 1798 (1), 1800 (3)[20]

Notes:
1. Average burials derived from decade either side of smallpox years, excluding smallpox years
2. Average burials have not been calculated in parishes with populations over 200 and low smallpox mortality (five and under)
3. For populations in 1801 see *VCHO* Vol II (1907), 213-224, with the exception of Cuxham (population in 1772 taken from *Cuxham Smallpox Census*, Cuxham Marriage Register Appx B)
4. In two parishes (Cuxham, 1772; Banbury 1779) where smallpox was present the number of smallpox deaths may be an under-estimation; total burials in these years are significantly higher than average burials although only small numbers of smallpox deaths are recorded. In Banbury in 1719 there was an unusually low number of non-smallpox burials compared to the average in a non-smallpox year. This may be due to average burials in this period being spiked, as they include those for the years 1728/9, a period of exceptionally high mortality, generally, in the parish

[19] Creighton, *History of Epidemics* (1965), 342.
[20] *OHC*, Parish burial register transcript of Great Rollright.

5. In Chipping Norton infants only, rather than all children, are specified as follows: 1736 (2), 1737 (1), 1738 (1)

Key: † There was a Quaker presence in Witney in the eighteenth century. No smallpox burials are recorded in Witney Quaker burial registers. However, there is no obvious reason to link the absence of smallpox burials in the Quaker burial registers with relatively low mortality rates in the parish

* Records missing

Years	Smallpox burials	Parishes experiencing smallpox mortality
1700 - 09	48	1
1710 - 19	204	13
1720 - 29	22	13
1730 - 39	118	10
1740 - 49	36	13
1750 - 59	207	11
1760 - 69	40	17
1770 - 79	45	19
1780 - 89	65	27
1790 - 99	56	27
Total	**841**	**151**

Table 2.2 *Oxfordshire parishes affected by smallpox mortality; decadal totals*
Source: as Table 2.1

Table 2.2 shows the number of smallpox burials in ten-year periods within the context of the whole century. The spikes in the first half of the century clearly show the effect of the three epidemics, Banbury in 1718-19 and 1731-33, and Burford in 1758. The number of smallpox burials rose in the last two decades of the century although these were more thinly dispersed across the parishes than earlier in the century. In this later period, most parishes experienced low smallpox mortality and there is no evidence of further major epidemics.

2.4 Spatial distribution of smallpox mortality and trends in vulnerability

The parishes are now examined in more detail by region to see what, if any, trends emerge. In the northern area we can see that outbreaks were concentrated in the market town of Banbury. Two severe smallpox epidemics occurred there in 1718-9 and 1731-33 which accounted for 119 and 92 smallpox deaths respectively. Average annual burials in Banbury at that time was around 73. In the first half of the eighteenth century no smallpox burials were reported from other parishes in this region. Due to consistently maintained burial registers, and with additional information provided by family reconstitution, both epidemics in Banbury are investigated further as a micro-historical study later in the thesis, looking at the effects of smallpox mortality at family level and the relationship

between adult and child deaths. Banbury also experienced smallpox mortality in 1760 when compared to average annual burials mortality was particularly high. We do not have the number of smallpox deaths in this year although the parish funded the inoculation of 120 parishioners in 1760 (inoculations in this period were mainly carried out when smallpox infection was threatened or present) and in April 1761, the *Oxford Journal* reported the disease being 'entirely over at Banbury, and the Town perfectly clean from Infection'.[21] All other outbreaks in the north of the county were minor and do not create spikes in mortality figures.

In the north east and east a major epidemic occurred in Bicester at the beginning of the century. In 1707 smallpox accounted for over 63 per cent of all burials in the town and totals more than doubled average burials. In retrospect, this outbreak created a major impact on local memories. Over half a century later, in 1762, reference was made in the current registers to the previously high number of smallpox burials in 1707 with '… more burials this year [1762, unrelated to smallpox] than hath been since the year 1707 when there was 48 died of the smallpox'.[22] From 1716 onwards until the end of the century there were several smallpox fatalities (five or under) in eight further parishes in this region, plus two further minor outbreaks in Bicester. Generally, this region of the county, apart from Bicester, experienced very low levels of smallpox mortality.

In southern parishes most outbreaks were minor in the first half of the century except in Watlington in 1715/16 when smallpox deaths (32) generated a considerable increase above average burials. In the second half of the century smallpox outbreaks in this area became more common although mortality was generally low. The exceptions are Cuxham and Goring. In Goring, smallpox burials accounted for more than half the total burials in 1764 and 1765 and Cuxham also saw proportionally

[21] *OHC*, PAR21/2/A/1 'Banbury Vestry Book', 134; *Jacksons Oxford Journal* (18 April 1761).
[22] *OHC*, Parish burial register transcript of Bicester (1762).

high smallpox mortality in 1772.[23] Ten people in Cuxham died of the disease within four months, whereas the number of burials typically averaged only three per year.[24] A smallpox census of parishioners experiencing smallpox naturally compared to those inoculated was conducted by contemporaries and is discussed later in the thesis in relation to the take-up of inoculation.

Parishes in the central and western areas of the county in contrast (although this discussion excludes Oxford city parishes) saw particularly high levels of smallpox mortality. In 1714-15 in Eynsham, 42 people died of smallpox over a nine-month period. These deaths comprised nearly 73 per cent of total burials in 1714 and 64 per cent the following year. Average annual burials in Eynsham, outside these years amounted to only 16. An exceptionally high number of deaths also occurred in Eynsham in 1728-30. The proportion of burials attributable to smallpox is unknown because they are not identified as such in parish registers, but secondary evidence indicates high smallpox mortality in this period.[25] Total burials in these three years in Eynsham was 143. Islip was also badly affected in 1724 with the number of smallpox burials alone equalling the usual figure for average burials. Burford in West Oxfordshire saw the most severe of all epidemics traced in Oxfordshire throughout the whole of the eighteenth century, the number of smallpox deaths being more than double that of any other parish in the county known to be affected by the disease. In Burford 185 people died of smallpox between April and July in 1758, whose burials made up 75 per cent of all burials for the whole year. Due to the severity of the epidemic, which probably accounted for the deaths of nearly 12 per cent of the population, Burford is returned to in Chapter Three for further examination.[26] In Bampton, smallpox

[23] Population taken from Cuxham Census, *OHC*, Parish marriage register transcript of Cuxham, Appx B. 'The Names of the several Persons who had the Small Pox in the Natural Way, or by Inoculation, at Cuxham, beginning Aug 1772'.

[24] Burials in Cuxham were also above average in 1773 and it is possible that the epidemic lasted longer than recorded.

[25] *VCHO* Vol XII (1990), 105. 'Losses perhaps account for a fall in baptisms to only 18 a year in mid-century after a rise to between 20 – 24 in the first four decades. A serious 'epidemic' fever in 1801 resulted in far fewer deaths than the early 18th century outbreaks of smallpox.' Also see Table 1, 'Sources'.

[26] R. Moody estimates the population of Burford at the time of the 1758 smallpox epidemic as 1600. See Moody, *Great Burford Smallpox,* 34.

created a significant drain on parish resources in the late 1720s. In May and June 1728 the parish spent just over £4. 9. 11d. caring for smallpox sufferers alone. Burials in Bampton in 1728/9 were significantly higher than average although other diseases may also account for the high number of burials in the town in these unhealthy years.[27]

If we turn now to consider population size, we see that not all the larger parishes in the county were affected by smallpox mortality, as we might expect from most of the parishes identified above. 12 parishes in the county comprised populations of 1500 or more in 1801. Of these, seven, (Bampton, Burford, Witney, Banbury, Adderbury, Chipping Norton and Bicester) saw smallpox mortality but five (Cropredy, Henley-on-Thames, Shipton-under-Wychwood, Thame and Deddington) appear to have remained mainly unscathed. Communication routes to Thame were in a 'bad state' before turnpiking at the end of the century and Deddington was a parish in decline, dwarfed by Banbury, six miles away, in size and prosperity. These factors may partly account for their protection against infectious disease.[28] Most of the parishes with high smallpox mortality, however, had similar characteristics to each other. Banbury was a large market town lying in the Cherwell valley, located within a triangle of Roman roads, crossed by two further historic roads.[29] Bicester was a large and prosperous market town with a population of 1946 in 1801. The town enjoyed good communication links via a ford over the river Bure and a Roman road running approximately north/south. Watlington was well-served by a good communication route and although it had lost much of its market trade to Henley by the end of the seventeenth century, the town had become a thriving centre for the exchange of goods and services by the second decade of the eighteenth century.[30] Likewise, Burford was a market town

[27] *OHC,* PAR.16/2/A1/1 'Bampton Surveyors Book', 177; PAR16/5/F1/1 'Bampton Overseers Accounts'.
[28] *VCHO* Vols VII (1962) & XI (1983) http://www.british-history.ac.uk/vch/oxon/vol7/pp160-178; http://www.british-history.ac.uk/vch/oxon/vol11/pp81-120 (accessed 12/7/2015).
[29] *VCHO* Vol X (1992) http://www.victoriacountyhistory.ac.uk/counties/oxfordshire/volumes/oxfordshire-x (accessed 21/9/2015).
[30] *VCHO* Vol VIII (1964) http://www.british-history.ac.uk/report.aspx?compid=63826#n514 (accessed 15/11/2011).

located on well-established communication routes running between Salisbury and Chipping Campden and Bristol and Banbury. In the early 1750s, shortly before the smallpox outbreak, local thoroughfares from Burford to Witney and other areas were in the process of being improved by turnpiking, increasing the efficiency of trade and communications.[31] Islip, also, situated on a ford over the river Ray, was a coach and wagon station supporting well-used routes linking London to Worcester and Buckingham and Bicester to Oxford.[32] Furthermore, seven out of the nine parishes were situated on rivers, again providing routes of communication. These factors help to illustrate the vulnerability to disease of busy and well-connected market towns.

Most parishes in Oxfordshire with high smallpox mortality had other qualities too, however. As well as, or as a result of, good communication links, other attractions brought people into these towns. Bicester Abbey entertained dignitaries and nobility in the period and the town had become a significant army headquarters by the end of the Civil War.[33] Eynsham also had had a long-established abbey in this period, again indicating the presence of a traffic of visitors.[34] Summer fayres were a prominent feature of prosperous market towns and at Burford and Banbury horse race meetings attracted outsiders ranging from the poor to the gentry.[35] Although insignificant as a market town, Bampton, bounded by the ancient route of Abingdon Lane, was described in 1761 as a 'genteel neighbourhood' which attracted influential landowners.[36] These attributes of economic or religious prominence and desirability for visitors, whilst providing opportunities for further wealth and

[31] R. & J. Moody, *A Thousand Years of Burford, (*Burford: Hindsight of Burford, 2006), 109.
[32] *VCHO* Vol VI (1959), 205-219 http://www.british-history.ac.uk/vch/oxon/vol6/205-219 (accessed 21/9/2015).
[33] *VCHO* Vol VI (1959) http://www.british-history.ac.uk/report.aspx?compid=63724#n383 (accessed 23/10/2011).
[34] *VCHO* Vol XII (1990) http://www.british-history.ac.uk/report.aspx?compid=5203. (accessed 15/8/2011).
[35] Moody, *Thousand Years*, 62 & 76; VCHO Vol 10 (1972). http://www.victoriacountyhistory.ac.uk/counties/oxfordshire/volumes/oxfordshire-x (accessed 21/9/2015).
[36] *VCHO* Vol XIII (1996) http://www.british-history.ac.uk/report.aspx?compid=15913 (accessed 18/8/2011).

economic growth, increased the susceptibility to a contagious disease which, unlike other infections such as fever, was not particularly influenced by privation or prior unhealthiness.

Two parishes contradict the trend of the vulnerability of well-connected and sought-after Oxfordshire locations; Goring and Cuxham, both in the south of the county. Goring was a small village on the river Thames on the county boundary and Cuxham, another small village only dated back to the middle of the eighteenth century and comprising a very small population. Both experienced disproportionately high numbers of smallpox deaths in the 1760s and 1770s respectively. These two outbreaks occurred later the century compared to the others above and are examined below.

As highlighted in Chapter One, Wrigley and Schofield noted that smallpox did not sweep across the county in epidemic waves, but hit small communities in epidemic form when the pool of susceptibles was large enough to sustain it.[37] Furthermore, they concluded that parishes lying within a distance of one kilometre from a market town were particularly vulnerable, with distances of between one and three kilometres being the most optimum for lessening contagion risk.[38] These two points are now drawn together in investigating smallpox mortality in Oxfordshire. The county as a whole was not hit dramatically in any particular years, supporting Wrigley and Schofield's first contention. Table 2.1 shows that many communities appear to have escaped a serious outbreak of smallpox for many years. It would be expected, therefore, that these particular parishes would be susceptible if the disease invaded a close neighbouring community because their inhabitants had not built up immunity from exposure. Parishes adjacent to Burford, for example, which was well-connected to its hinterlands, were likely to have been vulnerable to attack, particularly as 'very nearly all the inhabitants' of that

[37] E. A. Wrigley & R. S. Schofield, *The Population History of England 1541-1871, A reconstruction*, (London: Edward Arnold 1981), 656 note 28 and 669.
[38] Wrigley & Schofield, *Population History of England,* 685-692. The distance of parishes from market towns were a factor which could influence a mortality crisis.

town were affected in 1758.[39] However, none of the parishes in close proximity to Burford appear to have been affected by smallpox mortality in that year.[40] Slightly further afield in Kencott, a village five miles south east of Burford, with average annual burials of three, four smallpox deaths occurred immediately prior to the Burford epidemic in 1758 and three the following year in 1759.[41] Joan Moody suggests that the disease possibly spread from Kencott to Burford in 1758, although Kencott suffered mildly in comparison.[42] A similar picture emerges around Banbury earlier in the century. The absence of smallpox mortality in connecting parishes is repeated for all the other eight high fatality parishes identified above; (Banbury,[43] Bicester,[44] Watlington,[45] Goring,[46] Cuxham,[47] Eynsham,[48] Islip[49] and Bampton[50]). There were some small geographical pockets of smallpox, however, where chronology indicates that the infection may have passed between contiguous parishes, such as in Charlton-on-Otmoor and Wendlebury in 1740, Adderbury and Bloxham in the 1760s, Whitchurch and Goring in 1768, Islip and Weston-on-the-Green in 1768 and Whitchurch and Mappledurham in 1788 and 1794, although none of these involved high levels of smallpox mortality. Wrigley and Schofield's conclusions are partly borne out in Oxfordshire but findings here also suggest that parishes in very close proximity to parishes with high smallpox mortality fared well against the infection. This point is now explored in more detail.

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[39] *JOJ* (19 August 1758).

[40] Taynton, Fulbrook, Widford, Swinbrook, Shilton, Holwell, Westwell, Great Barrington, Little Barrington. See also Moody, *Great Burford Smallpox,* 35.

[41] *Kencott Parish Burial Register* 1758. One man and three women are recorded in the register as having 'died of the smallpox with which distemper several families in this parish were then afflicted'. In 1759 two men and one women 'all died of ye small-pox when this parish was again visited with this distemper'.

[42] Moody, *Great Burford Smallpox,* 35.

[43] For Banbury, see Hanwell, Bourton, Boddicott, Bloxham, Broughton, Drayton, Warksworth, Chalcombe.

[44] Caversfield, Launton, Ambrosden, Merton, Wendlebury, Chesterton, Bucknell. Ambrosden, in particular, has unusually detailed burial registers, suggesting smallpox deaths would have been recorded if they occurred.

[45] Pyrton, Pishill*, Swyncombe*, Britwell Salome, Cuxham. *Denotes incomplete registers.

[46] South Stoke, Woodcote, Caversham, Mapledurham, Whitchurch, Basildon, Streatley, Moulsford.

[47] Easington*, Pyrton, Watlington, Britwell Salome, Britwell Prior, Brightwell Baldwin, Chalgrove.*

[48] Hanborough, Cassington, Stanton Harcourt, South Leigh, Cogges, Hailey*, North Leigh, Cumnor.

[49] Wood Eaton, Kidlington, Hampton Poyle*, Bletchingdon, Weston-on-the Green, Oddington, Noke, Stow Wood*.

[50] Brize Norton, Lew, Aston Chifford, Buckland, Great Farringdon, Clanfield, Black Bourton*.

2.5 Containment measures

From these findings it is concluded that parishes severely impacted by smallpox initiated efficient mechanisms for containing the disease through community responsibility. An example can be found in 1776, in Quainton, approximately five miles into Buckinghamshire, where it was reported that ' … Pitch hath been burned in the public Streets, and every other Method used to clear the Parish of Infection, and to prevent its spreading to the neighbouring Villages'.[51] Similarly, in Stowe, Gloucestershire in 1768, two households were affected, '… all possible care having been taken to prevent its spreading'.[52] Another example, noted above, also indicates containment. In Ewelme, in the summer of 1789, after the deaths of five members of the King family, the infection was contained and 'spread no further' after the survivors of the family were removed to the pest house.[53] Other evidence points to another model of containment demonstrated by the inhabitants of Burford during the epidemic in 1758. Oxfordshire Quarter Session Rolls note the following in June of that year:

> The inhabitants of Burford, being unable, owing to the devastations of smallpox, to raise sufficient sums for relief of their poor; ordered that Witney be taxed 15 shillings a week to be pd to Chwdns of Burford during their inability … and Asthall and Asthally ordered to be taxed 10 shillings a week for same purpose.[54]

Here, the community of Burford was procuring financial support from other parishes to help ensure the town was self-reliant without straying beyond its boundaries.

E. G. Thomas noted the increasing use of isolation buildings to try and prevent the spread of smallpox In in Oxfordshire, Berkshire and Essex and concluded that they 'might well' have been a contributory factor in preventing the spread of the disease.[55] Thomas identified Oxfordshire pest-houses in Banbury in 1743 and Abingdon in 1799. Through an exploration of primary sources, drawn from a

[51] *JOJ* (23 November 1776).
[52] *Ibid.* (7 May 1768).
[53] *OHC*, Parish burial register transcript of Ewelme (2, 6, 14, 31 May, 17 June 1789).
[54] *OHC*, 'Oxfordshire Quarter Session Rolls/Minute books' (Trinity 1758: 2 & 3, 2/6/1758).
[55] Thomas, 'Old Poor Law', 9.

wider trawl of parish records for the county, this study investigates further the scope and management of isolation practices in the county. There are examples of pest-houses in the county from the 1720s onwards. In Banbury in 1724, overseers spent '1/6 … for cleaning ye wall at ye pest house' and in the following year, expenses of £2.6.6d. were incurred for further maintenance of the building.[56] During the smallpox outbreak in Dorchester in 1741/2 overseers financed the removal of Mary Cox to Chipping Norton at a cost of £2. 17. 8d and paid a further 10s 'for the Use of the House'.[57] In the same year, overseers in Dorchester paid, 'Banister the Taylor for House kept for Jn Bottridges Wife and Family when they had the small pox, 9s'.[58] In 1774, the same parish paid a Mrs Cox 10s.6d for a chaise to Henley for a child with smallpox and in Great Rollright smallpox sufferers were housed in the pest house in the late 1780s and 90s, a point noted in burials registers of that parish.[59] When smallpox broke out in the Radcliffe Infirmary in 1778 affected patients were removed to 'a proper Place … at very large expence'.[60] In Chipping Norton in 1775 parish officials confirmed: '… those who have had the disorder [smallpox], were, before they became infectious, removed to the Pest House (some distance from the town) and are now quite recovered'.[61] In 1773 in Charlbury, a child with smallpox was '… immediately removed to the Pest House and in Abingdon in 1794 smallpox '… though accidentally brought into the Town, did not spread itself'. [62]

We can compare this detail with data provided by the report on the Aynho smallpox outbreak in 1723-24. Only one child under two years in Aynho was affected; in a population of 350 it would seem likely that some children in this age group would be present in the community. In this parish it is most likely

[56] *OHC*, PAR21/2/A/1 'Banbury Vestry Book' (October 1724, 8 July 1725).
[57] *OHC,* PAR87/5/A1/1: 96 'Dorchester Overseers Accounts'.
[58] *OHC*, PAR87/5/A1/1: 97 'Dorchester Overseers Accounts'.
[59] *OHC*, PAR87/A1/3:14 'Dorchester Overseers Accounts'; Parish burial register transcript of Great Rollright (1786, 1787, 1794, 1795, 1796, 1798, 1800).
[60] *JOJ* (26 December 1778).
[61] *JOJ* (24 June 1775).
[62] *JOJ* (9 October 1773; 19 July 1794).

that smallpox cases were nursed in the pest house known as the 'Dodgkenill', established on the eastern border of the parish on the outbreak of the disease and it is probable that its use was effective in reducing familial smallpox infection.[63] Furthermore, local initiative in the parish indicate a history of a pro-active concern for public health in the wider community. In 1721, two years before the smallpox outbreak, the town pump was paved around 'to keep any filthiness from running into the well' with a fine of 3s4d for 'washing guts .. without a tub or bucket to carry off the filthiness'.[64] This measure to protect the cleanliness of the water supply demonstrates a local well-managed approach to health care. All these points above suggest that local community action was key in the deceleration of the spread of the disease.

2.6 Chronological patterns of smallpox mortality

Information derived from Table 2.1 shows that 13 outbreaks of smallpox (with at least one smallpox death) created smallpox burials amounting to more than 50 per cent of their total burials for that year. Table 2.3 shows these outbreaks in order of magnitude. 11 of the 13 occurred prior to 1767. After this date only Kelmscott in 1791 and Cuxham in 1772 come into this category although as small parishes with populations of under 150, percentages are skewed by low numbers. The table shows that smallpox was clearly being controlled more effectively during the later part of the century with the majority of the severe outbreaks occurring prior to the 1760s.

[63] http://www.aynho.org.uk/sites/default/files/walk.pdf
(accessed 17/07/2014); http://www.aynho.org.uk/node/143 (accessed 16/7/2014).
[64] N. Cooper, *Aynho: A Northamptonshire Village* (Banbury: Banbury Historical Society, 1984), 150.

Year	Parish	Smallpox burials	Total burials in smallpox year	Smallpox burials as per cent of total burials
1791	Kelmscott	3	3	100
1772	Cuxham	9	10	90.0
1758	Burford	185	247	74.9
1714	Eynsham	18	28	72.7
1758	Kencott	4	6	66.7
1715	Eynsham	18	28	64.3
1765	Goring	7	11	63.6
1707	Bicester	48	76	63.2
1724	Islip	12	19	63.2
1733	Banbury & Neithrop	80	132	60.6
1719	Banbury & Neithrop	72	122	60.1
1759	Kencott	3	5	60.0
1764	Goring	9	17	52.9

Table 2.3 *Oxfordshire parishes with highest percentage of smallpox burials to all burials 1700-99*
Source: Oxfordshire parish burial register transcripts

Conclusions

Charles Creighton explored the geographical distribution of smallpox as part of his survey of the disease. He cited examples from Scottish parishes to illustrate the range of the severity of smallpox. In 1758 (co-incidentally, the year of the Burford outbreak) in Cupar, Fife, eight people died out of 28 cases, whilst in some parts of Teviotdale, (a rural area fifty miles to the south) 'three or four died for one that recovered'. Creighton offers no explanation why this particular area in Scotland was prone to such diversities, but suggests that certain localities had runs of mild cases (with, therefore, fewer

fatalities).[65] This may be the case in Oxfordshire too; it is difficult to explain why Burford, for example, saw such high levels of severity in 1758, while other parishes of a similar size had a much milder experience of the disease, except for the lack of evidence of the use of a pest house in Burford.

The contagiousness of sufferers was a major consideration in managing the disease. Isolated rural parishes were relatively safe and mainly well-protected by their inaccessibility. However, even those parishes in close proximity to 'smallpox parishes' were well-protected through community action and responsibility. Further work on population density would establish whether infection was also less likely in remote rural areas due to reduced contact between an infectious person and other people.[66] Towns with effective communication systems were vulnerable, although it is unclear why some towns in the county with large populations did not appear to be severely affected by the disease in the first half of the century. A most likely scenario is that the prevalence of smallpox was dependent upon external factors which encompassed efficient control mechanisms. Susceptibility was influenced by two factors; traffic inherent to market towns or those otherwise desirable, and community care and responsibility.

Apart from Witney in 1782 we do not see any major epidemics after the 1760s. The number of outbreaks increased significantly in the last two decades of the century but smallpox mortality was low. Taking the earlier epidemics, where numbers of child deaths are known, children fared worse than adults. However, after the 1760s the number of child smallpox deaths fell considerably and by the last decade they were minimal. Any natural decline in the virulence of smallpox in the late

[65] Creighton, *A History of Epidemics in Britain* Vol 2 (1965), 547. Creighton quotes Whytt, 'Med. Obs and Inquiries, 11. (1762), 187.

[66] In 1992 Deborah Brunton observed endemic patterns of smallpox in mainland Scotland, where much of the Scottish rural population was thinly scattered. As a result, infectious diseases travelled through areas very slowly and were present for long periods. Periodically, however, the death rate in mainland Scottish rural populations 'jumped to epidemic proportions'. See D. Brunton, 'Smallpox inoculation and demographic trends in eighteenth- century Scotland'. *Medical History* 36 (1992): 409. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1036632/?page=7 (accessed 14/10/2015).

eighteenth-century has been dismissed by Davenport *et al*. in their work on the disease in eighteenth-century London, rather, their research suggests the opposite.[67] It is proposed here that inoculation played a major role in reducing smallpox mortality in the county with all but two of the 13 outbreaks with high percentages of smallpox deaths occurring prior to the 1760s. Chapters Five and Six of this thesis will explore the lived experience of the management of inoculation practice at family level, in order to help flesh out this trend. Prior to the practice of inoculation, however, Oxfordshire experienced some severe epidemics of the disease. Before turning to the practice and experience of inoculation this thesis therefore continues with a close examination of the three epidemics in the county ringed in figure 2.1.

[67] R. Davenport, L. Schwarz, J. Boulton, *The decline of adult smallpox in eighteenth-century London, (2011),* 4, 5, 33. http://www.geog.cam.ac.uk/people/davenport/davenport8.pdf (accessed 21/9/2015).

CHAPTER THREE

A COMPARISON OF SMALLPOX EPIDEMICS IN TWO OXFORDSHIRE MARKET TOWNS, BURFORD AND BANBURY

3.1 Introduction

Chapter Three examines three specific smallpox epidemics in Oxfordshire, supported by some evidence from an outbreak in Aynho, Northamptonshire. The aim of the chapter is to determine the impact of the epidemics in terms of mortality and sex ratios at birth, showing that smallpox changed behavioural pattern such as baptism and marriage practices and was a risk to pregnant women. Furthermore, it identifies the fear and stress of being part of a community, at a time when the threat of death from smallpox appeared particularly high. After examining the two parishes within an economic and social context, the first section of the chapter utilises parish registers to scrutinise a severe smallpox epidemic in Burford in 1758 before investigating two major outbreaks in Banbury in 1718-19 and 1731-33. Parish registers are supplemented with other parish records from the two parishes, for example, the *Banbury Vestry Book.* Whilst Chapter Four of this thesis covers the outcomes of the Banbury outbreaks for individual families in detail, this chapter examines the specific effect of smallpox mortality at parish level in Burford and Banbury. In each case the study of the epidemic is centred in a longer period to offer a sound base for an analysis of its effects on the population spanning a 25-year period between 1746 and 1770 in Burford and a 40-year period from 1706 to 1744 in Banbury, encompassing both epidemics in the parish. The chapter also examines an epidemic in 1723-24 in Aynho, a small village with a population of around 350 in Northamptonshire, seven miles from Banbury, for which we have detail on survival chances and morbidity.[1]

[1] A local census taken in 1740 gives a population figure of 567 in 124 households including 24 servants of the squire, William Cartwright. See *Northamptonshire County Record Office*, 'A List of the Families and Number of Persons in the Parish of Aynho taken December 30 1740'. Local studies suggest an increase in the birth rate during the first half of the eighteenth century; this is borne out in the baptism figures from parish records for the period from 1711 to 1735. See P. Razzell, *The Conquest of Smallpox* (Firle: Caliban Books, 1977), 116.

3.2 Parish registers

The data used for this chapter mainly comprises parish registers. As discussed in Chapter One, the reliability of Banbury parish registers was confirmed in 1997 when they were included as part of CAMPOP's sample of 26 parishes chosen for family reconstitution for a demographic study.[2] The church of St. Mary's remained the only parish church in Banbury until 1846 and registers are described as being written in a 'beautiful and legible hand combined with a detailed and meticulous style'.[3] Four generations of the Barnes family held the post of parish clerk consecutively between 1704 and 1786.[4] Less is known about the registers for Burford, but records also appear of good quality and evidence presented later in the chapter demonstrates that in the mid-eighteenth century the local community exercised sound approaches towards ecclesiastical registration. Broadly speaking the analysis of the two parishes presented in this chapter proceeds along similar lines to facilitate robust comparison. Precise duplication of the methodology between the two parishes is not possible, due to the difference in the duration of each epidemic. For example, a daily analysis of smallpox burials in Banbury would be too cumbersome given the longer duration of the epidemics. The discussions reveal, however, some important trends in baptism and marriage patterns, behavioural change under epidemic conditions and the effects on the family and community of sudden and unexpected loss of life.

Before moving on we need to consider a few aspects of parish registers as a source for demographic study. Baptism figures have been used as a proxy for births and burials for deaths. The latter assumption is fairly robust. The ritual burial of corpses, even if delayed, was mainly guaranteed.[5]

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[2] E. A. Wrigley, R. S. Davies, J.E. Oeppen and R. S. Schofield, English *Population History from Family Reconstruction 1580-1837* (Cambridge: Cambridge University Press, 1997), 31 & 86.

[3] *Marriage Register of Banbury, Oxfordshire part one 1558-1724* (ed.) J. S. W. Gibson (Oxford: Banbury Historical Society, 1960), vi; *Baptism and Burial Register of Banbury, Oxfordshire part two 1653-1723* (ed.) J. S. W. Gibson. (Oxford: Banbury Historical Society 9, 1969), ix & x.

[4] *Baptism and Burial Register of Banbury, Oxfordshire part two 1653-1723*, ix & x.

[5] It was unusual for children to be buried outside their parish of residence. For example, in a snapshot of a study of burials in Bedfordshire the proportion of adults and children buried outside their parish was 2% and zero respectively. See P. Razzell, *Population and Economy in England, 1650 – 1850* unpublished. Razzell quotes

Assessing the number of births, compared to the number of baptisms under normal circumstances can present more difficulties. Any lengthening of the period between birth and baptism means that more children may have died in the interval and therefore never appear in parish registers, or, at least, only in the burial register.[6] In Banbury, between 1707 and 1745, 2,796 child baptisms were recorded; 89 of these include the date of birth of the child. Of these, 39 per cent were baptized within two weeks of birth and 53 per cent within one month.[7] This snapshot is commensurate with a detailed study of Colyton in Devon where the number of baptisms within one month of birth was 50 per cent.[8] In Burford, where birth dates are unknown, there is no reason to believe that trends were vastly different. Generally, baptisms could be performed publicly or privately, all to be entered in the registers and sometimes public baptism succeeded a private event. In her study of baptismal procedures in York between 1735 and 1752, Rebecca Probert has suggested that private baptisms were particularly popular for the children described as 'base' or illegitimate.[9] It is possible that baptisms were held privately in Burford and Banbury but there is no evidence to support this. Nine baptisms in Banbury in the period under investigation were carried out posthumously. Although this is a very small percentage of the total child baptisms, it informs us that ecclesiastical procedures were

proportions taken from a database of Bedfordshire for the period 1538 – 1850 constructed by the Bedfordshire County History Society.

[6] Previous research indicates a gap between birth and baptism of no more than one month in the early eighteenth century although a lengthening of the delay did occur later, towards the end of the century (outside the scope of the smallpox epidemics in Banbury). See Wrigley et al, English *Population History*, 229; B. M. Berry and R. S. Schofield, 'Age at baptism in pre-industrial England' *Population Studies* 25 (1971): 453-63. The Anglican Book of Common Prayer required that children should be baptised on the first or second Sunday after delivery. Baptisms did not always include the mother, whose recovery involved a 'lying-in' period after which she attended a 'churching' ceremony of purification and thanksgiving after childbirth. Godparents or sponsors, the midwife and 'gossips' who supported the mother through her labour were the most likely to be present at baptisms of infants. See A. Wilson, *The Making of Man-midwifery, Childbirth in England, 1660-1770* (USA Cambridge: Harvard University Press, 1995), 27-28.

[7] We also have further evidence from Banbury from the rare amount of extra detail, including the dates and times of all 12 children born to the family of the parish clerk. Entries between 1724 and 1742 show that none of his children were baptised more than 11 days after birth. Whilst we do not know if the clerk's family was representative of the normal patterns adopted by Banbury parents in the interval between birth and baptism, this source supports historiographical evidence.

[8] E. A. Wrigley, 'Family Reconstruction' in *Introduction to English Historical Demography,* (ed.) E. Wrigley (Weidenfeld and Nicolson, London, 1996), 156; Wilson, *Making of Man-midwifery*, 27-28.

[9] R. Probert, *Marriage law and Practice in the Long Eighteenth Century, A Reassessment* (Cambridge: Cambridge University Press 2009), 114.

in place in Banbury to baptize infants after death, most likely signifying the importance to parents of a naming ceremony and a belief in a secured after-life. Illegitimacy levels in Banbury were in keeping with other parishes and in both parishes there are a few cases of adult and sibling group baptisms which further suggest that record keeping in the parish was robust, and baptism an important function in religious and social lives. We can therefore be reasonably secure in taking baptisms as a rough proxy for births in this study.

Historians consider that the rise of religious non-conformity was not responsible for under-registration of baptisms, marriages and burials in the eighteenth century in Anglican registers. This point is supported in the analysis of Burford and Banbury.[10] In Burford, Quakers or 'Friends' were the most conspicuous non-conformists in the period but although this group was first recorded in the parish in 1677 and a Meeting House completed in 1709, no registers for the mid-eighteenth century appear to have survived.[11] According to local records the Quaker congregation in 1759 (the year after the smallpox epidemic) consisted of 30 adults falling to 22 in 1768.[12] A Quaker burial ground was in existence by 1768 but it is most likely that births and burials were entered in the Church of England parish registers. No references to the smallpox epidemic appear in the Quaker minute book for that year.[13] In Banbury, Quakers were active from the mid seventeenth century and their births and burials are identified in the parish registers as such.[14] Quaker marriages, however, are listed in the Banbury non-parochial Quaker registers. Annual marriages in Banbury averaged 26 in this period. Between 1706 and 1744, 38 Quaker marriages took place in the parish (just under one a year).[15] These have

[10] See, for example, P. Razzell, *Population and Disease: Transforming English Society 1550-1850* (Caliban Books, 2007), 39.
[11] B. Harley, *Burford's Quaker Meeting House,* (Burford Preparative Meeting, 1999), 3; R. & J. Moody, *A Thousand Years of Burford* (Burford: Hindsight of Burford, 2006), 46.
[12] Moody, *Thousand Years*, 46
[13] Harley, *Burford's Quaker Meeting House,* 5 - 8.
[14] *Baptism and Burial Register of Banbury*, *part two*, x (burials - October 1714, August 1715. baptisms – December 1714, September 1715).
[15] *OHC*, 'Banbury Quaker Registers of Quarterly meetings of Banbury 1632-1837'.

been included in the analysis of marriage trends in this chapter to present a picture which truly reflects these life events. Monthly meetings of local Quakers involved those from a wide geographical area from the border with Northamptonshire in the north to Chipping Norton in the west and Rousham in the south, however, Quakers actually residing in Banbury 'appear to have been confined to a very few families'.[16] There is little evidence of other non-conforming sects conducting their own baptisms, marriages and burials, and several entries in the Anglican registers show that such activity as there was, was recorded there. Overall, non-conformity in the two parishes can be viewed as a grafted-on sector of the Anglican church; its presence will not skew data used in this thesis although it does imply that we may see burials but not baptisms of the same person due to the non-conformist custom of adult baptism only.

3.3 Burford and Banbury in the eighteenth century

The economic and social background of the two Oxfordshire parishes are now considered. Burford is a small town in Oxfordshire about twenty miles west of Oxford, situated on the side of a hill that leads down to the River Windrush. The township of Witney, Curbridge, and Hailey, the largest parish by population size in the county, lies approximately six miles to the east.[17] Banbury is approximately 20 miles to the north-east and Cirencester, to which Burford is linked by an ancient Roman road, 15 miles to the south west. In 1637 Burford was bought by William Lenthall, Speaker of the Long Parliament and the family continued as Lords of the Manor until 1828.[18] From the dates of the Oxfordshire 'Inclosure' Awards it appears that enclosure was not particularly active until the last quarter of the eighteenth century.[19] In the parish prior to this time, land was divided into small portions, separated

[16] *Baptism Register of Banbury, Oxfordshire' part three 1723-1812* (ed.) J. S. W. Gibson (Oxford: Banbury Historical Society 16, 1978), viii.
[17] Population taken from 1801 census, see *Victoria County History Oxfordshire*, Vol II (1907), 213-224. http://www.victoriacountyhistory.ac.uk/counties/oxfordshire.
[18] Moody, *Thousand Years,* 9.
[19] *VCHO,* Vol II (1907), 200.

by stones and allocated on the drawing of lots.[20] Harmonious schemes such as this ensured fairness of opportunity and helped to encourage a peaceable lifestyle.

Evidence demonstrates that in the mid-eighteenth century the local community exercised sound approaches towards local financial management and was active in providing a caring environment for its inhabitants. Alms-houses were established through charitable bequests and local philanthropic schemes and community support was embraced through the provision of funds for apprenticeship training, the purchase of tools and supporting the poor generally.[21] In 1758, the year of the smallpox epidemic, two reputedly astute men had recently been appointed as overseers of the poor.[22] The vicar of Burford, known as Lord Banbury, remained in the parish throughout the smallpox epidemic.[23] This suggests an attempt to contain the parish during the outbreak, a point which is supported by its approach to community responsibility and the parish's instructions, under Quarter Session minutes, ordering some surrounding parishes to pay additional taxes to support the town during the smallpox outbreak. Trinity Session Minute Book in June 1758 records the following:

> The inhabitants of Burford, being unable, owing to devastations of smallpox to raise sufficient sums for relief of their poor; ordered that Witney be taxed 15 shillings a week to be pd to chwdns of Burford during their inability … and Asthall and Asthally ordered to be taxed 10 shillings a week for same purpose.[24]

After the epidemic local surgeon, James Hunt, campaigned vigorously in favour of inoculation, and with another local doctor, William Chavasse, established two inoculation houses on the edges of the parish.[25] However, there is no local evidence of the use of pest-houses for the purpose of containing contagious diseases at the time of the smallpox outbreak.

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[20] *VCHO,* Vol II (1907), 100 & 101.
[21] Moody, *Thousand Years,* 82 & 83.
[22] *Ibid*., 87.
[23] *Ibid.*, 35, 36, 88 & 89.
[24] *OHC*, 'Oxfordshire Quarter Session Rolls/Minute books' Vol. 3 (Trinity 1758: 2 & 3, 2/6/1758).
[25] Moody, *Thousand Years,* 95.

The occupational structure of Burford was built strongly on traditional manufacturing industries supported by the surrounding rural economy, and employment was also provided by three mills used for corn-milling, cloth manufacturing and water pumping.[26] As in other towns on major communication routes, commerce and social events supported the inn-keeping trade and there is evidence of at least six inns operating in the town in the period.[27] At the time of the smallpox epidemic in 1758 the population has been estimated to be around 1,600.[28] The census of 1801 gives Burford's population as 1,516 with a further 209 people living in the hamlets of Upton and Signet, all within the parish boundary.[29] Wrigley *et al.* have suggested an average English parish size in 1801 of about 860; by general standards, therefore, Burford was a sizeable community for a rural market town in the mid-eighteenth century.[30] By 1811, however, the total figure was only 1,584 and it is likely that this decline in population had already begun by 1801.[31] Moody has intimated that the smallpox epidemic contributed to the town's lost energy and drive although the later decline in the nineteenth century was almost certainly connected to the expansion of the railways elsewhere, the subsequent failure of the coach trade, and the gradual disappearance of open downland following enclosure, creating a collapse in the horse-racing economy.[32] The local weaving trade, also, was badly hit by increased mechanisation. Despite significant numbers of weavers in the marriage register earlier in the century, by 1792 only four appear in a list of 59 tradesmen and craftsmen in the town.[33] This decline may also have contributed to the falling prosperity of the town later in the century. However, in the mid-eighteenth century Burford was a prosperous and busy market town, enjoying a heyday of prosperity within a flourishing local economy.

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[26] *Ibid*., 124.
[27] *Ibid*., 127.
[28] J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight of Burford, 1998), 34.
[29] *VCHO*, Vol II, (1907), 215.
[30] Wrigley et al., *English Population History,* 20.
[31] Moody, *Thousand Years,* 137, 138.
[32] Moody, *Great Burford Smallpox,* 29.
[33] Moody*, Thousand Years*, 124.

Banbury is a market town lying in the Cherwell valley 23 miles north of Oxford, enjoying historical significance and good access. In the eighteenth century the parish was served by good communication links, being situated in a river valley and close to an established road system. The area's antiquity is demonstrated by the presence of several ancient sites; the Rollright Stones, for example, are situated some 14 miles to the south west of the town suggesting activity in pre-historic times. The town is located within a wide area of gently undulating topography surrounded by a network of ancient roads.[34] Part of the parish lay in Northamptonshire until 1889. However, the Northamptonshire hamlets of Grimsbury and Nethercote were dependent on the parish church in the eighteenth and nineteenth centuries and the names of residents from these areas appear regularly in the parish registers.[35] In the eighteenth century, and particularly at the time of the first smallpox outbreak in 1718, local governance was weak but the infrastructure of the town and the welfare of its inhabitants appears to have been well supported by its patrons. Some of the town's children were educated at a time of non-compulsory education. In the first half of the century the demand for wool created a flourishing agrarian economy which was supported by specialist food production. The town was an active trade centre and participated in a high level of social activity. As previously proposed, this factor contributed to a higher risk of contagion and subsequent disease than some more remote areas.

Banbury received Charter of Incorporation status in 1554 which supposedly gave autonomy to the local Corporation although in reality it subjected the town to royal interference in local government. In 1717 the Charter was forfeited over a dispute over the election of a mayor and the Corporation subsequently lost any right to govern the town. It was reinstated a year later (in 1718, the year of the first smallpox epidemic) whilst giving the people of the town no jurisdiction on how local affairs should be run. The Corporation took no responsibility, for example, for health matters, the relief of the poor

[34] W. Potts, *A History of Banbury* (Banbury: Gulliver Press, 1978), 1.
[35] *VCHO*, Vol X (1992), 22. Also, see Parish register transcripts of Banbury (1706-1745).

or condition of the roads or drainage systems.[36] For most of the eighteenth century the North family, as political patrons, played a significant role in the running of the town. (Lord North, also known as Earl of Guilford, was Prime Minister of Great Britain from 1770 to 1782.) Banbury was described by North's Parliamentary Secretary as a 'family borough' in this period.[37] The population of the town at the time of its first Charter in 1554 was about 1,500.[38] Growth occurred in the final two decades of the eighteenth century by attracting people from surrounding rural areas and by 1801 it had reached 2,722, with a further 1055 people living in the surrounding hamlets.[39] A figure of 3,000 has been estimated for the population of the parish throughout most of the eighteenth century, although the completion of the Oxford to Coventry canal in 1790, linking Banbury to a national economy, probably resulted in the rapid population growth seen particularly at the beginning of the nineteenth century.[40] This makes it a significant parish with one of the largest populations in the county, excepting Oxford and its university and Witney and its surrounds.

Banbury's economy was mainly dependent upon agriculture and its industries. The market was a centre for trade in corn, beef, sheep and horses with wool, cheese and cake production bringing prosperity to the area in the eighteenth century.[41] The town also established itself as a weaving centre in this period and from 1701 a webbing and horse cloth factory existed there too, employing land-owning yeomen.[42] Seven public houses helped to support the regular markets, annual celebrations and race meetings.[43] Transport was by coach or wagon; the first reference to a regular passenger

[36] B. Little, *Banbury: A History* (Chichester: Phillimore & Co., Ltd., 2003), 39-42.
[37] *VCHO*, Vol X (1992) & XI (1983). Parliamentary Papers of John Robinson.
[38] S. Stewart, 'Bastardy and the family reconstitution studies of Banbury and Hartland' in P. Laslett, K. Oosterveen, R.M. Smith, *Bastardy and its Comparative History* (London: Edward Arnold, 1980), 122.
[39] S. Stewart, 'Bastardy', 122.
[40] P. Kitson (2004) *Family formation, male occupation and the nature of parochial registration in England, c. 1538–1837*, 39. Phd Thesis, Downing College.
[41] Stewart 'Bastardy', 122; M. Stacey, *A Study of Banbury* (London: Oxford University Press, 1960), 4; Potts, *History of Banbury,* 49 & 159.
[42] *Baptism and Burial Register of Banbury, part two,* ix & x; C. Bloxham, *The Book of Banbury* (Chesham: Barracuda Ltd., MCMLXXV), 93.
[43] Potts, *History of Banbury* 3, 9 & 229: Bloxham, *Book of Banbury,* 119.

service to London refers to the year 1731 (the first year of the second smallpox epidemic) and the road from Buckingham to Banbury was turnpiked in 1743-4.[44] Evidence of military activity appears in registers from the start of the period until 1709 and again between 1713 and 1716.[45] Parish records verify the existence of a workhouse in the early eighteenth century; register entries in 1713 include the baptism of the daughter of 'Master of ye Work House'.[46] A new workhouse was erected and opened in 1731 with £440 bequeathed by a local Puritan, Joshua Spriggs who also supported the day-to-day running of the building.[47] Two schools had been established in the town by the early eighteenth century, one through an endowment from the North family and a second for the teaching of poor children; registers note the baptism of a son of a 'charity school master' in 1713.[48] The North's contributions also included the rebuilding of alms-houses in the town in 1711.[49]

To assess the social composition of Burford and Banbury we can examine the employment structure from the occupations of male marriage partners. The two 10-year snapshots in Table 3.1 have been taken for the periods immediately after the smallpox epidemics, in order to provide a comparative analysis. The marriage registers of Burford and Banbury show a total number of trades and occupations of 47 and 49 respectively. Overall, the mid-range of social tiers represent the bulk of the population in both parishes, with the majority of employed males working in industry. In Burford small-scale skilled industries provided the backbone of the economy. Overall, the most common occupation in Burford was that of labourer (14). However, those working in industry were in a considerable majority and within this group the most common trade was weaving (12), followed by tanning (8). Banbury's industrial employment comprised mostly weavers (16), followed by tailors (8) and bakers (6). However, the most common occupation in Banbury was that of farmer (32). Banbury

[44] Potts, *History of Banbury,* 224; VCHO, Vol. X, (1972), 12.
[45] *Baptism and Burial Register of Banbury, part two*, xiii.
[46] *Ibid.*
[47] Little, *Banbury,* 42 & 43.
[48] Little, *Banbury,* 41; Potts, *History of Banbury,* 226; *Baptism and Burial Register of Banbury*, *part two*, xi.
[49] Little, *Banbury,* 41.

did not suffer from a decline in the late eighteenth century in the same way as Burford; on the contrary, it grew substantially in the final two decades of the century. Although local industry was the mainstay of employment, with an occupational structure built on traditional manufacturing industries, the town was not dependant on the weaving trade in the same way as Burford, with farmers substantially comprising the highest individual occupation.

	Burford 1760-1770		Banbury 1735-1745	
Occupation	Number in marriage register	Percentage	Number in marriage register	Percentage
Industry	73	60.3	81	44.1
Labourers and servants	22	18.2	29	15.8
Agriculture	10	8.3	39	21.2
Dealing, retailing, services	11	9.1	28	15.2
Upper tier	4	3.3	3	1.6
Government services	1	0.8	3	1.6
Wanderers and paupers	-	0	1	0.5
Total	121	100.0	184	100.0

Table 3.1 *Male occupational structure, Banbury 1735-45; Burford 1760-70*[50]
Source: Banbury and Burford Marriage Registers

[50] Occupations are as follows: Burford, **Industry**: glover, miller, weaver, shoemaker, painter, baker, silversmith, stay maker, toolmaker, carpenter, roper, slattier, goldsmith, tailor, cooper, last maker, joiner, hemp dresser, blacksmith, tanner, garter weaver, wheelwright, maltster, tallow chandler, chandler, collar maker, mason, brazier; **Agriculture**: grazier, yeoman, farmer, gardener, shepherd; **Government Services**: serving men; **Upper Tier**: gent; **Dealing, Retailing and Services**: butcher, innkeeper, warehouseman, apothecary, clerk, mercer, barber, minister, horse dealer, grocer, linin draper, currier.
Banbury, **Industry:** saddler, tucker, papermaker, weaver, cloth worker, blacksmith, shoemaker, chandler, slatter, stay maker, flax dresser, tanner, carpenter, apprentice, collarmaker, whitesmith, farrier, cordwainer, clothier, wheelwright, taylor, coach maker, ironmonger, coachharness maker, ropemaker, dyer, millwright, cooper, mason, sack weaver, scribbler; **Agriculture:** farmer, shepherd, gardener, husbandsman; **Dealing, retailing and services:** fishmonger, grocer, innholder, baker, druggist, miller, victualler; **Upper tier:** Reverend, surgeon, **Government services:** soldier.

Note*: The categories are based on S. Stewart, 'Bastardy' in Laslett et al, Bastardy and its Comparative, 132. However, in the table above tertiary trades and services and transport have been incorporated into dealing, retailing and services*.

3.4 The Burford smallpox outbreak of 1758

Before we can build any picture of the effects of an epidemic on the community or an individual we need to know what proportion of the population of that community experienced a particular disease and how many cases were fatal. In August 1758, the *Oxford Journal* reported of Burford that, '… Very nearly the Whole of the Inhabitants of that Place have at length had the Small Pox' and the register identifies 185 burials (78 adults and 107 children) attributed to smallpox between 10 April and 28 July of that year.[51] The total population is estimated at approximately 1,600 at that time, therefore the epidemic probably killed around 12.5 per cent of the population. Evidence does not indicate any previous outbreak earlier in the century and it is probable that Burford comprised a large pool of susceptible people not previously exposed to the disease and it was, in fact, experienced by most people in the community as the *Journal* suggests. The figure would equate to a case-fatality per cent of 11.6, which is fairly low, especially for a population with little prior immunity. However, it is speculated that the population of the town, under normal conditions, was comparatively healthy. An approximate crude death rate, outside the smallpox year, assuming a population of 1600 in 1758, is 22.5 per thousand. This can be compared to Banbury, where Susan Stewart has estimated a crude death rate of above 35 per thousand for each year between 1727 and 1730.[52] Albeit, the years in Banbury identifed by Stewart saw particularly high mortality generally, but this does suggest that Burford's mortality, outside an epidemic or high fatality event, was moderate. This was possibly due to its characteristics identifed above; a thriving economy coupled with a responsible approach to supporting its poor. At this point in the century, inoculation played no part in the incidence of smallpox

[51] *Jackson's Oxford Journal* (19 August 1758); *OHC*, Parish burial register transcript of Burford (1758).
[52] S. Stewart, 'Bastardy', 65.

mortality, the practice was carried out in Oxfordshire mainly from the 1760s and inoculations were performed in Burford from 1768 onwards.[53]

The next section looks at the demographic implications of smallpox for the community. The breakdown of smallpox burials between adults and children is important because it helps to inform us on patterns of transmission and the susceptibility of adults in communities which appear to have escaped the disease for long periods. Figure 3.i shows all burials in Burford over the 25-year period, illustrating the unusually high number in 1758 (247). Average annual burials in the parish over a 24-year period, not including the smallpox year, was 36. Taking all burials in 1758 (smallpox and non-smallpox) the numbers of adult and child burials were 120 and 127 respectively. 1758 is the only year, apart from 1750 when the number of children buried was greater than the number of adults. The high number of child deaths in 1750 may indicate another low-level disease although this effect may also be partly due to low numbers; the higher numbers in 1758 provide more robust statistics. The course of the epidemic will be further investigated in a comparative analysis with Banbury later in the chapter.

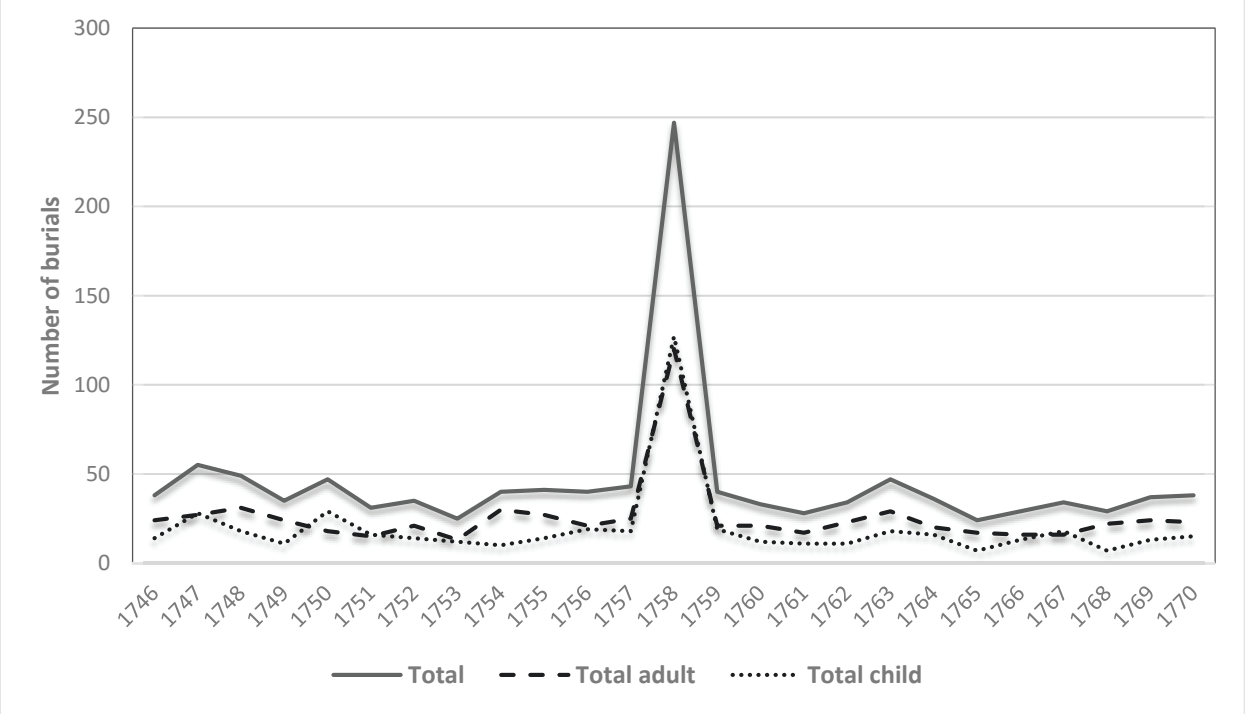

Figure 3.i *Burford: adult and child burials 1746-70*
Source: Burford Burial Register

[53] Moody, *Great Burford Smallpox, 20-24.*

Figure 3.ii shows all burials in Burford in 1758, with the proportion attributed to smallpox indicated, demonstrating that the disease accounted for nearly 75 per cent of all burials. The first smallpox burial was that of Thomas Wheeler, on 10 April. The following day, 7 year-old John Bridge was buried, followed, over the next three weeks, by his mother, Ann and her infant daughter, Betty.[54] Fifteen smallpox burials were noted in April, 45 in May, 91 in June and 34 in July. Between 1 May and 29 July total burials amounted to 184 and at peak of the epidemic, in a five-day period at the end of June, 24 burials were recorded.[55]

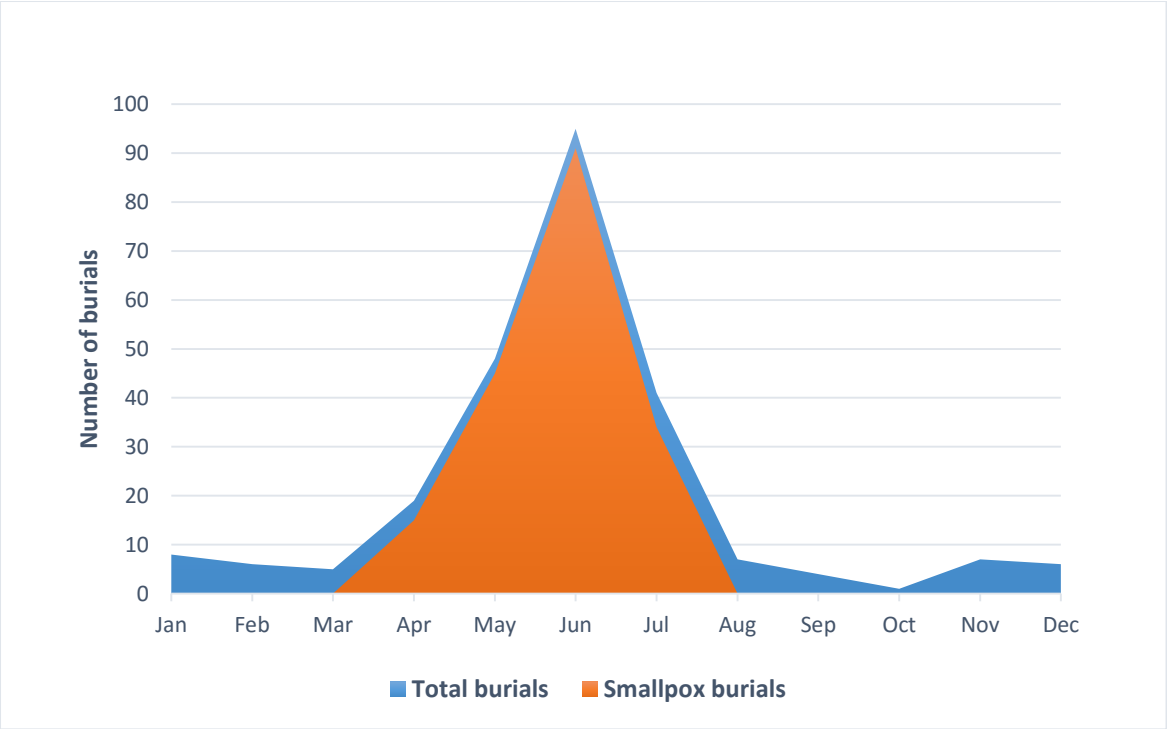

Figure 3.ii *Burford: total and smallpox burials 1758*
Source: Burford Burial Register

[54] *OHC*, Parish burial register transcript of Burford (10, 11, 25 April, 3 May 1758); Moody, *Great Burford Smallpox,* 32-33.
[55] It is logistically unlikely that gravestones were erected at the time of death, although in Burford, unconnected to smallpox, stones could be laid in later years. For example, in April 1767 churchwardens paid for 'Laying down stones on 2 Mr Chapmans children's graves,' who had died two and four years previously. *OHC*, MS D.D. PAR Burford C.36, Burford Churchwardens Accounts, 9 April 1767. Eighteenth-century gravestones in Burford churchyard are too eroded to be legible. One corner of the churchyard, locally described as a possible 'plague pit' may be the location of the smallpox burials.

Table 3.2 provides a breakdown of smallpox burials between adults and children, demonstrating the vulnerability of children (who comprise approximately 58 per cent of the total). However, although we do not know the age distribution in the parish, we see that it was not exclusively a killer of children, indicating the susceptibility of adults in a community not known to have been previously exposed to the disease earlier in the century.

Burford smallpox burials		
	Number of burials	Percentage
Adults	78	42.2
Children	107	57.8
Total	185	100.0

Table 3.2 *Burford: adult and child smallpox burials 1758*
Source: Burford Burial Register

We can compare the proportions of adult to child smallpox deaths with those of Aynho in 1723-4 when 133 people (approximately one third of the population) were affected, 25 fatally. A local census taken in Aynho in 1740 gives a population figure of 567 in 124 households including 24 servants of the squire, William Cartwright. An analysis of this census suggests that the population was fairly evenly distributed between adults and children, with children slightly outnumbering adults.[56] In this parish smallpox burials comprised 57 per cent of total burials in 1723 and 41 per cent in 1724. 50 adults and 81 children, ranging in age from one to 84 years (no infants were affected) caught the disease between September 1723 and December 1724.[57] The Aynho outbreak has been of interest to clinicians and historians due to the known ages of all sufferers, including survivors. Creighton extracted statistics compiled by the rector of the village, James Wasse, as 'a fair instance of what happened at intervals (usually long ones) in rural districts in the earlier years of the 18th century', noting the 'considerable

[56] *NRO.* 'A List of the Families and Number of Persons in the Parish of Aynho taken December 30 1740.'
[57] Children have been defined as all those under 21 years. Two cases are unknown.

proportion of attacks at the higher ages' and the 'fewness' of cases in the first five years of life.[58] Creighton's summary was analysed further by physician C. Dixon in 1962 in an investigation of attack rates and susceptibility. Dixon agreed on the proportionally large number of cases in people up to fifty years of age who caught smallpox in Aynho, considering eighteenth-century life expectancy.[59] More recently, Razzell utilized Creighton's Aynho figures to assess the periodicity of the disease, suggesting a U-curve distribution of case-fatality with peaks in the youngest (0-4) and oldest age groups (40+.) The group with the highest case fatality, the over 40s at 41 per cent, were an example of the possible 'penalty' for avoiding smallpox in childhood.[60] The following chapters will illustrate that by utilizing the Aynho account in a novel way to produce a detailed assessment of individual cases, these discussions can be developed further. In the meantime we can see from Table 3.3 that the case fatality percentage of those affected by smallpox in Aynho was lower in children than that for adults.

Aynho smallpox cases and burials				
	Number of cases	Burials	Proportion of age group affected dying of smallpox (%)	Percentage of smallpox burials
Adults	50	13	26.0	52.0
Children	81	12	14.8	48.0
Unknown	2	-	-	-
Total	133	25	18.8	100.0

Table 3.3 *Aynho: adult and child smallpox cases and burials 1723-24*

Source: Royal Society Cl.P./23ii/87. *Account of those who had ye smallpox from September 1723 – December 1724.* The account of the number and nature of smallpox cases was compiled by Wasse for Dr James Jurin, secretary of the Royal Society, as part of an enquiry in the 1720s into the safety of inoculation

This places into question some stereotypical assumptions about the particular vulnerability of children to disease, a topic which is investigated further in Chapter Four. Nonetheless, in Burford, more than in Aynho, at the peak of the epidemic children were most susceptible to smallpox fatality. Figure 3.iii

[58] C. Creighton, *History of Epidemics in Britain* Vol 2. Second Edition (London: Frank Cass and Co Ltd, 1965), 520-1.
[59] C. W. Dixon, *Smallpox* (London: J. & A. Churchill Ltd, 1962), 321-2. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.
[60] Razzell, *Population and Disease,* 184 & 185.

shows the percentage of burials attributed to smallpox in 1758 compared with the percentage of all adult deaths. In June, when the percentage of deaths due to smallpox was at its highest, the percentage of all adult deaths to total deaths was at its lowest.

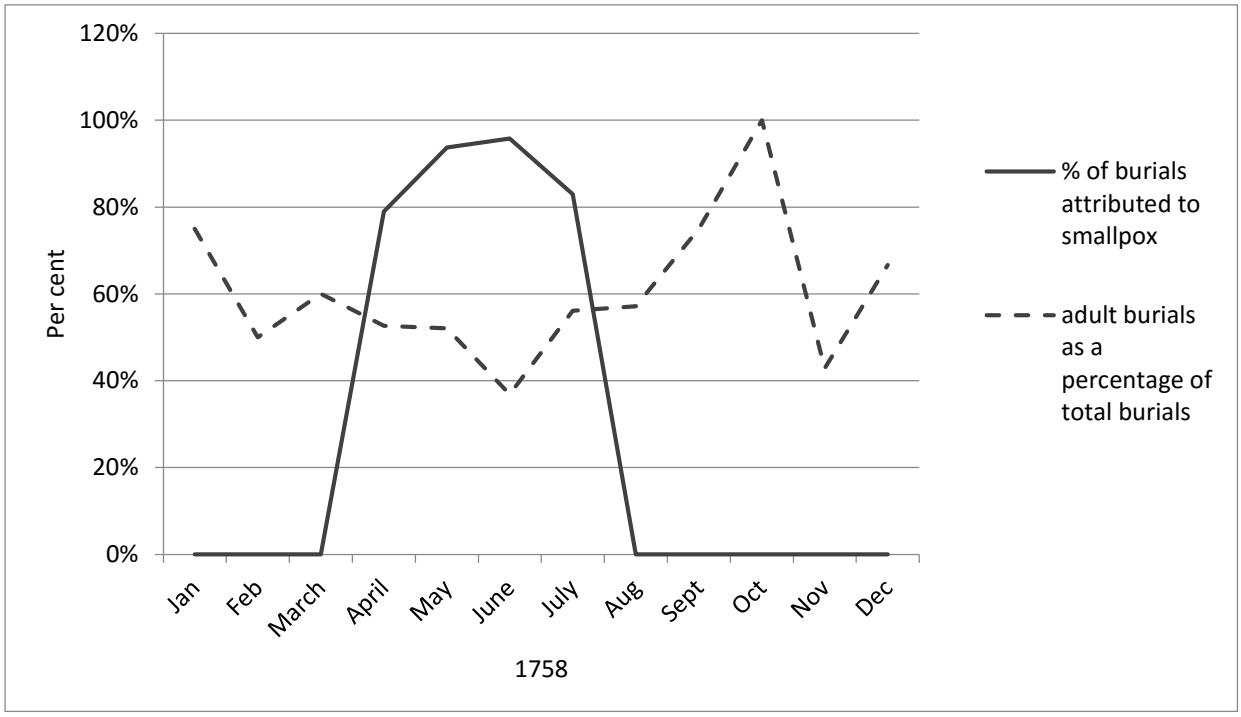

Figure 3.iii *Burford: percentage of burials attributed to smallpox compared to percentage of adult burials 1758*
Source: Burford Burial Register

Figure 3.iv shows the course of the four-month epidemic. Both adults and children were almost equally affected in the first month but at its peak children were most susceptible to smallpox fatality. These figures suggests that non-immune adults were caught quickly by the disease, a point which is returned to in Chapter Four. The course of the epidemic will be further investigated in a comparative analysis with Banbury later in the chapter.

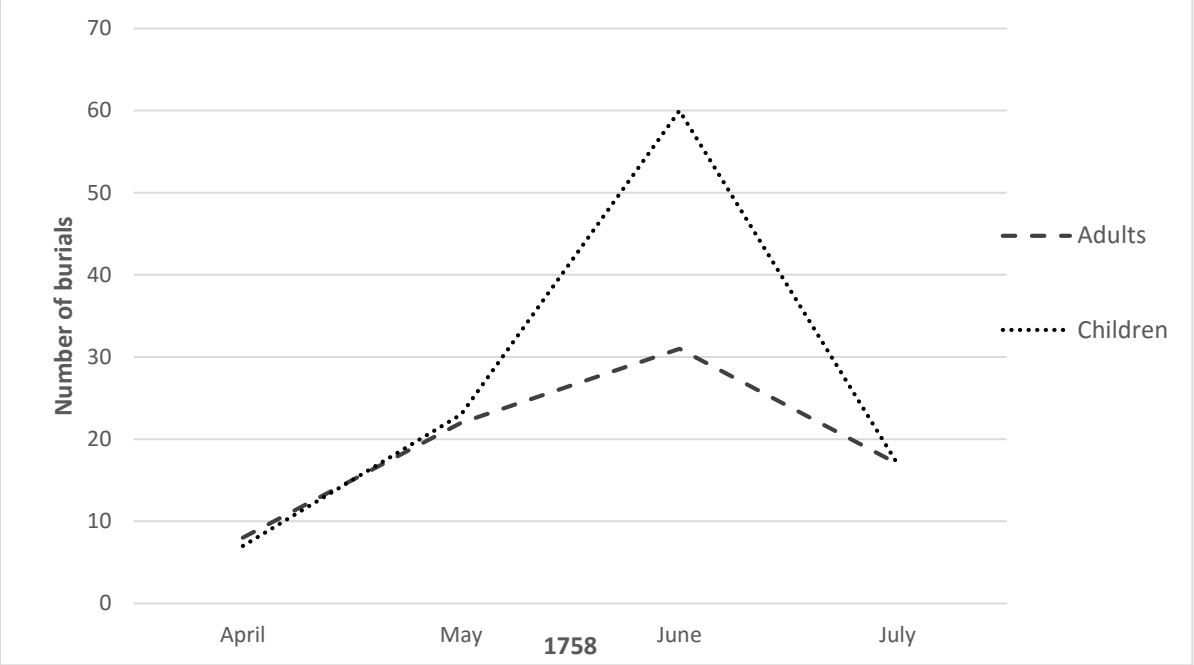

Figure 3.iv *Burford: adult and child smallpox burials 1758*
Source: Burford Burial Register

It is calculated for this thesis that the number of families with at least one smallpox death was approximately 138.[61] The population in 1758 was around 1,600 which, based on Peter Laslet's calculations of 4.7 per household, gives an approximate figure of 340 for the number of households in the parish.[62] With a total of 185 smallpox burials, on average, over forty percent of all households in Burford experienced a smallpox fatality. In some cases whole families could be fatally affected by the disease and the following three are examples. Three children in the Arnold family died between 24 May and 26 June and Benjamin Arnold, their father, died from smallpox and was buried on 2 July. In John Humphreys' family, four children died between 20 April and 11 May and John's wife, Mary, was buried on 13 May. James Strafford's wife, Mary and three children between the ages of nine and 13 were buried within 12 days of each other in June.[63]

[61] Calculated from Moody, *Great Burford Smallpox, 32-3.*Ages are known for approximately 35 per cent of smallpox deaths.
[62] P. Laslett, 'Size and Structure of the Household in England over Three Centuries', *Population Studies* 23 (July 1969), 200.
[63] Information derived from the deaths stated to be from smallpox in Moody, *Great Burford smallpox,* 32-33; *OHC*, Parish burial register transcript of Burford.

From 1765 the parish clerk of Burford kept a 'rough' register containing extracts taken from or to be entered into formal registers. Inside the cover an inscription reads, 'Died at Burford of the small Pox 185 persons from April 10th 1758 to July 28th following'.[64] The recorder was conclusive about the timing of the beginning and end of the outbreak. However, when all the smallpox deaths are taken out, 1758 still has the highest number of total burials over the 24 year period between 1746 and 1770. This is indicative of either an under-representation of smallpox deaths during or outside the outbreak or the presence of other fatal diseases at the same time. However, almost 100 per cent of the child burials over the epidemic period were attributed to smallpox, so there is very little room for under-recording of the disease during the epidemic itself.[65] It is probable that the attribution of the vast majority of child smallpox deaths between April and July 1758 was due to the disease over-riding deaths from other illnesses. C. W. Dixon has suggested that evidence of smallpox being associated with other diseases was 'scanty'; patients suffering from other disease tended to escape a concurrent attack of smallpox.[66] On this assumption the reverse could also be true. However, looking outside the epidemic months, 'fulminating' smallpox could be fatal before the appearance of a rash and therefore it is possible that some of the deaths prior to the epidemic were due to smallpox, when diagnosis was more likely to be confused. The high number of people apparently dying from other causes outside the epidemic months in 1758, therefore, is likely to be related to the under-representation of smallpox deaths, although it is possible that 1758 was a particularly unhealthy year in Burford.

In 1759 total burials in Burford were still above average. Moody has suggested that complications or stress may have played a part in the high number of burials in the aftermath of the epidemic, quoting the example of the Keylock family. Henry Keylock, a miller, died of smallpox in June 1758, leaving his

[64] *OHC*, MS D.D. PAR Burford, e.1'Register Book 1765'.
[65] Total child deaths in the smallpox season were as follows, with the smallpox deaths in brackets: April - 9 (7); May - 23 (23); June - 60 (60); July - 18 (17).
[66] Dixon, *Smallpox,* 313.

wife, Jane, and their 11 children. Although the community helped in providing financial support for her to continue in business, her death due to suicide was reported in the local press 14 months later.[67] Research for this thesis also identifies the risk, particularly for children, following a maternal or sibling death. William Winfield, aged 14 months, died in November, 1758, from an unknown cause after the smallpox deaths of his mother and three year old brother, Thomas, earlier in the year. Richard, son of Jacob Andrews was buried in March 1759, eight months after the death of his mother the previous year. A further two children died from unknown causes in November 1758 after the smallpox deaths of siblings.[68] These deaths were probably not due to smallpox, but demonstrate the risk of a child dying after the earlier disintegration of the family. Such cases are reflected in burial registers and should be considered when assessing the overall effects of a virulent disease on a community.

3.4.1 Baptismal trends and deviations in sex ratios at birth

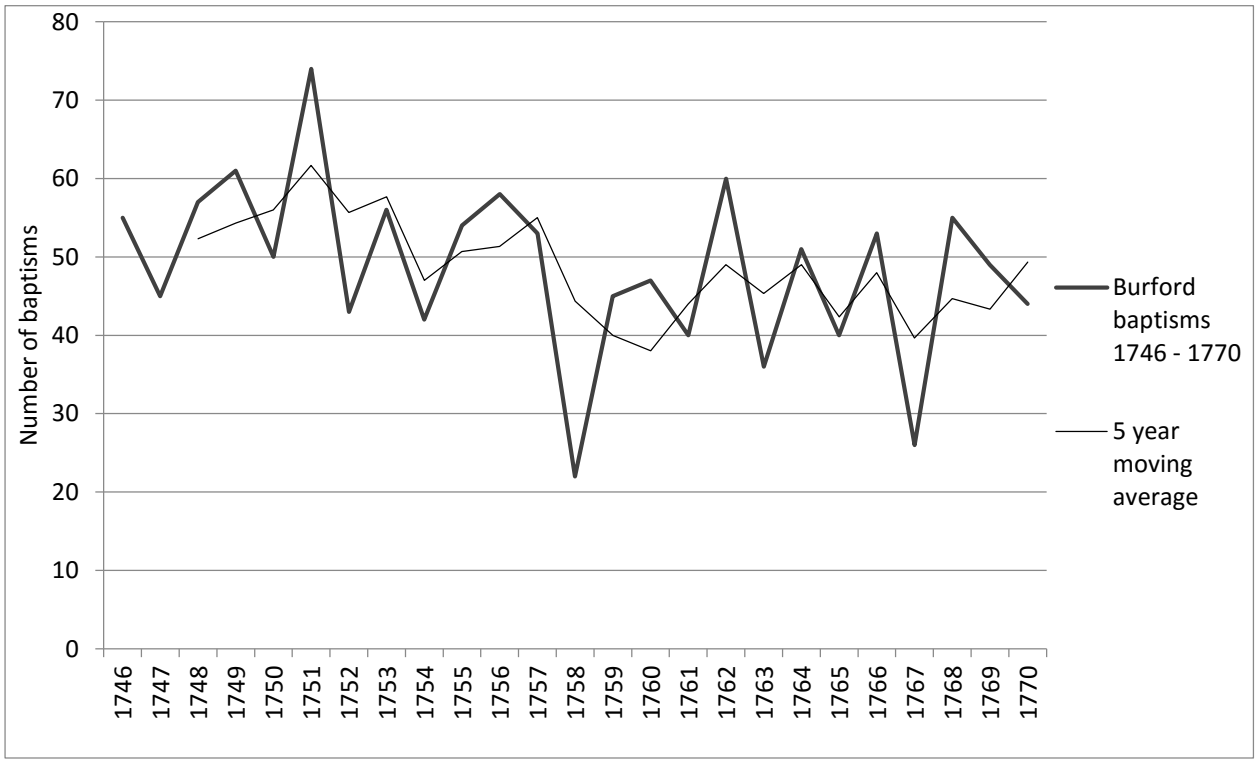

Figure 3.v *Burford: baptisms 1746-70. Source:* Burford Baptism Register

[67] Moody, *Great Burford Smallpox*, 18 & 35.

[68] *Ibid.,* 32-33; Parish burial register transcript of Burford (6, 24, 26 November 1758, 11 March 1759).

The chapter now investigates the effect of smallpox on baptisms in the parish. Figure 3.v shows the number of baptisms between 1746 and 1770 plus a five-year moving average. The general trend, taking out the smallpox year, demonstrates fluctuations with an overall slight decline, probably due to the economic decline of the town and the fall in the population as suggested earlier. However, the number of baptisms for the 24-year period fell to its lowest point in the epidemic year of 1758, dropping by more than half on the previous year. More than half of these baptisms took place in the three months prior to the first case of smallpox, emphasising the impact of the epidemic on baptisms in the later (epidemic) months. Furthermore, only three baptisms took place in the five months after the epidemic, the monthly average being four in a non-smallpox year. There are two possible explanations for this fall. Either fewer children were born during the epidemic or fewer children were presented for baptism. There appears to be no demographic reason why fewer children were conceived in 1757 (the year before the epidemic) than in any other year in the period, particularly as numbers had picked up again by 1762. The second, more likely, explanation of there being fewer children presented for baptism indicates premature termination of pregnancy or early infant death (prior to baptism). These conditions were highly likely; A. R. Rao's work in the 1970s identified a 72 per cent chance of foetal loss in early pregnancy and a 48 per cent chance of loss in viable pregnancies, when under other conditions, the child might have survived outside the womb.[69] In the light of further evidence from Burford and baptismal trends in Banbury, it is also proposed that fear of exposure to infection prevented parents from maintaining normal life routines, such as social gatherings, which might expose their families to contagion. This discussion is revisited later in the chapter in the context of the findings from Banbury.

[69] A.R. Rao, *Smallpox* (India Bombay: The Kothari Book Depot, 1972), 6. US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html, 121-123. Findings based on a study of 7,000 cases admitted to Madras Infectious Disease hospital between 1961 and 1972. See also R. Woods, *Death before Birth* (Oxford: Oxford University Press, 2009), 149-50 for a discussion on smallpox and foetal loss.

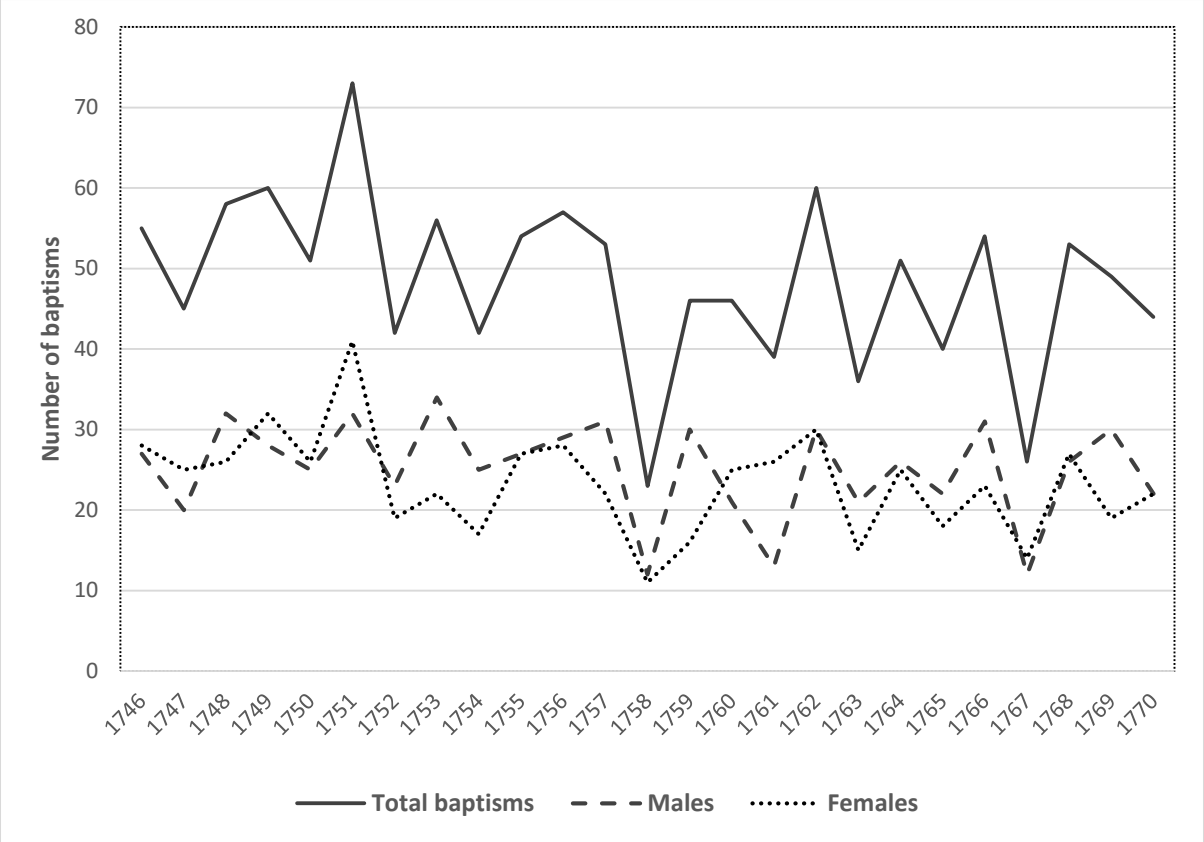

Figure 3.vi *Burford: infant baptisms by sex 1746-70*
Source: Burford Baptism Register

Note: Figures have been adjusted to preclude baptisms of older children and adults

When baptisms are separated into boys and girls we see that a significant change took place after the epidemic. Between 1746 and 1754 the numbers of boys and girls roughly experienced similar small peaks and drops. The biological normal ratio at birth is 104.3 boys to 100 girls[70] and overall there were more boys than girls baptised in the six-year period prior to the epidemic, at a ratio of 125 boys to 100 girls. In 1759 the trend remained the same. However, in 1760 the picture is reversed (see Figure 3.vi). This reversal continued into 1761, with a recovery in the baptism of boys in 1762, after which year there was a greater volatility in boys' baptisms than in girls'. One possibility for the reversal in the trend is that more boys were dying prior to baptism, particularly as boys have higher death rates

[70] R. Adair, *Courtship, illegitimacy and marriage in early modern England* (Manchester: Manchester University Press, 1996), 36.

earlier in life. Generally, however, under non-epidemic conditions, parents were anxious that their children should receive baptism, particularly if death was threatened (see Banbury section). It appears that there was a higher incidence of female baptisms after the smallpox epidemic in Burford in 1758 which leads to the speculation that one consequence of the epidemic was a change in the balance between births of boys and girls, that is, more girls than boys were conceived and/or born alive in the two-year period after the outbreak. This adds to previous studies that natural and man-made disasters, such as earthquakes, floods and terrorist attacks, produce reduced odds of male live births in humans, although those investigated do not extend to periods beyond the event or three months after it.[71] The balance between the number of boys and girls presented for baptism is re-visited with reference to Banbury later in the chapter.

3.4.2 The effect of smallpox mortality on marriage practices

The following section examines marriage trends in Burford, 1746 to 1770 - to establish how far they were affected by the smallpox epidemic. Totals are shown in Figure 3.vii with a five-year moving average. The overall trend indicates a decline at mid-century followed by an upward movement until the mid 1760s, the figure being particularly low in 1753. This may be due to Hardwicke's Marriage Act (1753), which required a marriage to take place in a church or chapel and the names of witnesses to be formalised, although prior to the Act marriage in church was yet the norm.[72] In 1758, the year of the smallpox outbreak, the number of marriages fell. Numbers are small, however, and a similar drop

[71] Danish research indicates that psychological stress related to severe stress could have an impact on hormone levels and sperm quality. In a study of 3,072 babies conceived during traumatic events the proportion of boys conceived was 49 per cent compared to that of a control group of 51.2 per cent. See *IOL Scitech* 26 August 1999. http://www.iol.co.za/scitech/technology/fewer-boys-born-after-traumatic-events-1.10688#.VSjmjuFIPx5 Studies in California following the terrorist attack in USA in 2001 also indicate reduced odds of male live births following a traumatic event but attribute this to excess male foetal deaths. *Human Reproduction* Vol. 20, No. 5. (2005) 1221-1227. http://humrep.oxfordjournals.org/content/20/5/1221.full.pdf

[72] Probert, *Marriage Law and Practice*, 122.

occurred before the epidemic; further evidence is needed to establish a causal link between the epidemic and changed marriage practices.

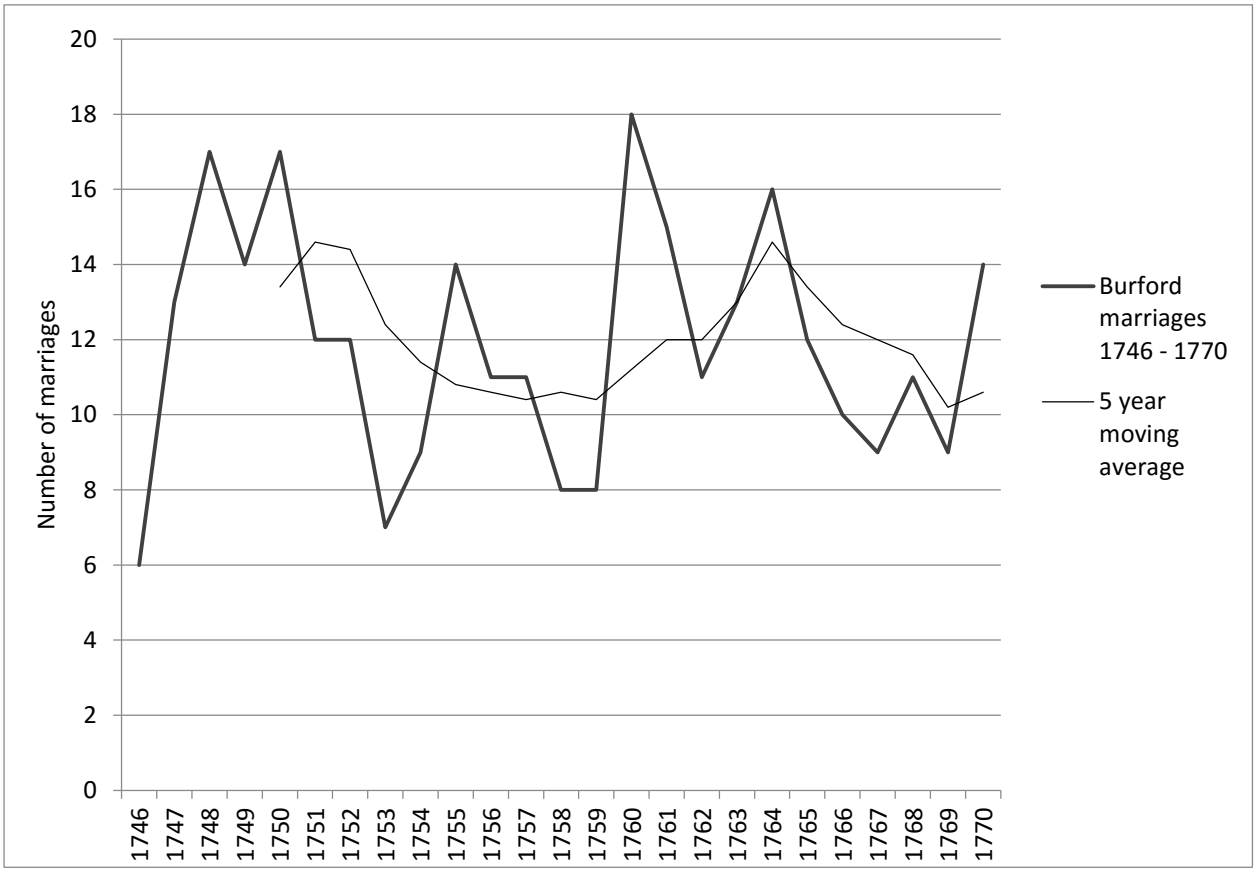

Figure 3.vii *Burford: marriages 1746-70*
Source: Burford Marriage Register

Firstly, the fall in marriages during the epidemic (April to July) may have been due to seasonality; in other words, these months were not popular ones for marriage in any case. When compared to other years the most popular month, commonly, was October. However, as shown in Table 3.4 marriages also took place in April, May, June and July (the smallpox months in 1758) in 'normal' years with regularity throughout the period. The table shows total marriages by month for the eight year periods either side of and excluding the smallpox year. The minimal number of marriages that took place in March would be expected and is almost certainly connected to the church's prohibition on marriages in the 'closed season' of Lent, likely devoted to a time of spiritual reflection. Therfore, the fall in

marriages during the epidemic does not appear to be due to a general unpopularity with these months.

Month	Total marriages	Month	Total marriages
Jan	17	Jul	16
Feb	17	Aug	13
Mar	1	Sep	18
Apr	16	Oct	34
May	12	Nov	9
Jun	24	Dec	19
		Total	196

Table 3.4 *Burford: monthly marriage totals 1750-66 (excluding 1758)*
Source: Burford Marriage Register

One indicator of change in Burford in the epidemic year is the administrative process by which couples entered matrimony. Marriages were conducted either after the publishing of banns or through an alternative route of the issuing of a licence, which was a quicker, but a significantly more expensive process. Marriages by banns in Burford were charged at 18d. [approximately 7 pence] or 20d., of which 4d was passed to the parish clerk. Marriages by licence cost 5s. [approximately 25 pence].[73] Marriages by licence, therefore, cost over three times as much as marriages by banns. After the 1753 Act banns of the intention to marry had to be read on three occasions in the parish church of both parties although couples did not need to be present. Ministers expected seven days' notice of publication and banns could only be called on a Sunday, therefore the process could be a prolonged

[73] Moody, *Thousand Years*, 34 & 35.

one.[74] Marriage by licence avoided the usual three weeks' delay whilst the banns were being read and providing one of the persons had resided in the parish for at least one month, the marriage could go ahead.[75] Figure 3.viii shows the percentage of marriages by licence in Burford for each year from 1746 – 1770 and a five-year moving average. Numbers are small, however the trend shows a slight overall rise over the whole period. Although not without precedent in a non-epidemic year (1751), 1758 saw the highest proportion of these marriages from 1752 to the end of the period. This suggests that those who chose to marry either during or immediately after the epidemic (seven out of a total of eight for the year) did so with the minimum delay and social interaction. It is unclear whether this initiatve was lead by the church, pressure from the community or individual preference. Marriage by licence is often seen as driven by the desire for privacy so the avoidance of crowds was likely a desirable option, suggesting changed practices as a result of the epidemic.

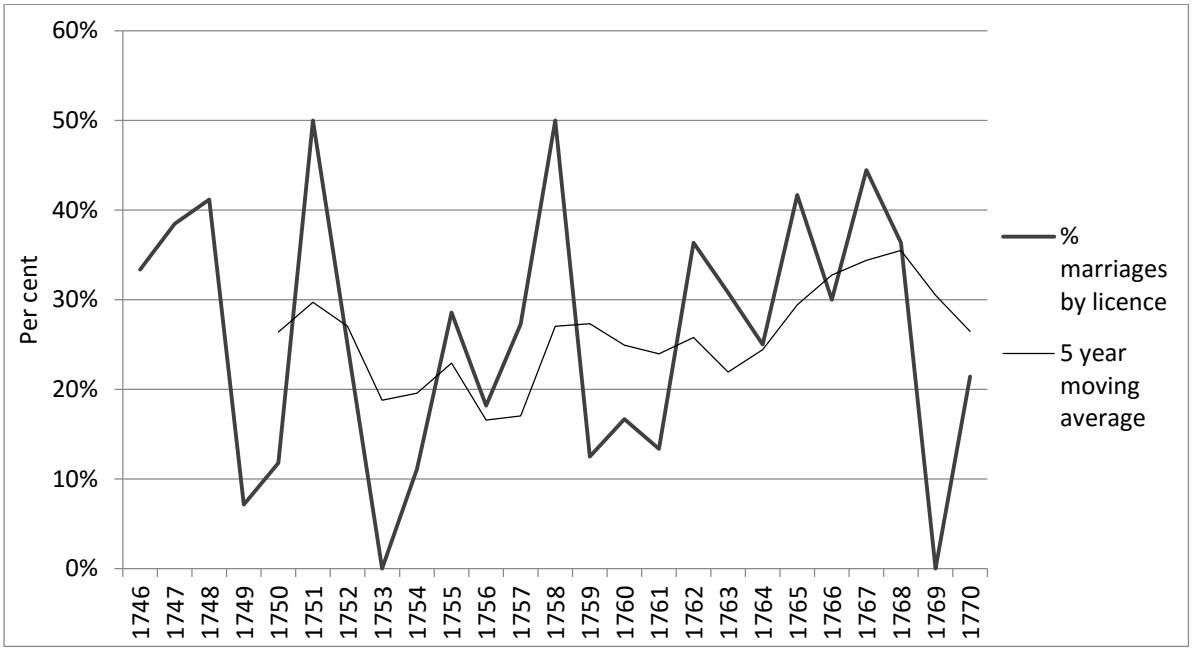

Figure 3.viii *Burford: marriages by licence 1746-70*
Source: Burford Marriage Register

Note: Total numbers are as follows:

[74] Probert, *Marriage Law and Practice,* 222-223.
[75] *Ibid.*, 223.

Year	Total marriages	Marriages by licence	Year	Total marriages	Marriages by licence
1746	6	2	1759	8	1
1747	13	5	1760	18	3
1748	17	7	1761	15	2
1749	14	1	1762	11	4
1750	17	2	1763	13	4
1751	12	6	1764	16	4
1752	12	3	1765	12	5
1753	7	0	1766	10	3
1754	9	1	1767	9	4
1755	14	4	1768	11	4
1756	11	2	1769	9	0
1757	11	3	1770	14	3
1758	**8**	**4**	Total	297	77

Generally, eighteenth-century 'mixed' marriages (those between persons resident in different parishes;[76]) were common. Eversley estimates that up to half of all marriages in the eighteenth century were of people from different parishes, falling gradually until the early nineteenth century when these marriages became considerably rarer, possibly as a result of the operation of the settlement laws. (Application of these laws from the mid seventeenth century onwards made people's movement between parishes more accountable to the authorities in order to minimise the risk of immigrants becoming chargeable to a new parish).[77] Furthermore, Rebecca Probert has suggested that a likely 'sizeable minority' of eighteenth-century marriages took place in parishes in which neither party

[76] Residency did not depend on place of birth or settlement. See Probert, *Marriage Law and Practice,* 222, f.n.97.

[77] D. E. C. Eversley, 'Exploitation of Anglican Parish registers by Aggregate Analysis' in *An Introduction to English Historical Demography*, (ed.) E. A. Wrigley (London: Weidenfeld and Nicolson, 1966), 64. In rural parishes settlement laws were applied to a large proportion of the population, including those not necessarily unemployed and/or poor, in order to regulate immigration. See N. Landau, 'Who was subjected to the Laws of Settlement? Procedure under the Settlement Laws in Eighteenth-Century England', *The Agricultural History Review 43* II, (1995): 139.

belonged.[78] The number and percent of 'mixed' marriages compared to all marriages in Burford over a 25-year period is shown in Table 3.5. Although with slightly lower than average percentages for mixed marriages, Burford was not extra-ordinary in following this trend over the whole of the 25-year period. (The reason for the fall in the early 1760s and the spike in 1765 may be connected to a change in trends due to remarriage in this decade, as discussed later.) Although numbers were small, the smallpox year of 1758 produced the lowest percentage of mixed marriages (25 per cent) in twelve years. Only one marriage took place during the epidemic; this was by licence and both parties lived in the parish suggesting a reluctance to inter-mingle between parishes during the outbreak and the desire for speed and privacy.

Year	Total marriages	Mixed marriages	Per cent	Year	Total marriages	Mixed marriages	Per cent
1746	6	0	0	1759	8	4	50.0
1747	13	7	53.8	1760	18	4	57.1
1748	17	10	58.8	1761	15	3	20.0
1749	14	7	50.0	1762	11	5	45.5
1750	17	8	47.1	1763	13	4	30.1
1751	12	7	58.3	1764	16	2	12.5
1752	12	6	50.0	1765	12	9	75.0
1753	7	3	42.9	1766	10	4	40.0
1754	9	6	66.7	1767	9	4	44.4
1755	14	4	28.6	1768	11	3	27.3
1756	11	9	81.8	1769	9	3	33.3
1757	11	5	45.5	1770	14	6	31.6
1758	**8**	2	**25.0**	Total	297	125	42.1

Table 3.5 *Burford: mixed marriages 1746-70*
Source: Burford Marriage Register

[78] Probert, *Marriage Law and Practice,* 196.

Re-marriages would be expected following an unusually high number of adult deaths, such as occurred during the smallpox epidemic. 78 adults died in the outbreak, the majority of whom were likely to have left a widow/er. To place remarriages in the period within the context of overall trends, no widows or widowers are recorded in marriage registers between 1747 and 1758. In the next six years, the number of remarriages is as follows: 1759, 2; 1760, 4, 1761, 2: 1762, 0, 1763, 1; 1764, 1; 1765, 1. No further remarriages are recorded before 1770. Roman civil law forbade re-marriage for women with a year of their husband's death. Although this was later revoked, unless remarriage took place, the established one year's mourning for spouses remained customary in the eighteenth century.[79] It is probably unsurprising, therefore, that the first re-marriage in Burford did not take place until the end of 1759, 16 months after the last smallpox death. In this year two smallpox widowers in Burford, papermaker Stephen Wood and weaver Jacob Andrews, remarried in 1759.[80] Both married widows; Wood to Elizabeth Hill, from Witney, and Andrews to Jane Beezley, likely to be the widow of Jeremiah Beezley who died of smallpox in May the previous year. In 1760, there were 18 marriages, four of which involved widows or widowers, three as a result of the smallpox deaths of their spouses. The following year, 1761, saw the marriage of another likely smallpox widow.[81] Several years later, in 1764 and 1765, two further smallpox widows re-married. Pairings such as these may have been considered a vital part of the restoration of familial stability in providing, for example, childcare for widowed families. Eight marriages took place in the parish in 1759, two of which were re-marriages, which make the number of first marriages (six) particularly low. In 1760, however, marriages rose to their highest figure over the 25-year period. It is proposed that first marriages decreased whilst a re-grouping period occurred initiated by the high number of adult deaths. On the other hand, re-marriage was swift, the extra-ordinary high number of marriages in 1760 being brought about by the combination of first and re-marriages.

[79] R. Houlbrooke, *Death Religion and the Family in England, 1480 – 1750* (Oxford: Clarendon Press 2000), 249.
[80] *OHC*, Parish marriage register transcript of Burford (1 November and 29 December 1759).
[81] *OHC*, Parish marriage register transcript of Burford (2 February, 22 May, 13 July (2) 1760, 26 January 1761).

This section has exposed the effects of a smallpox epidemic on mortality in an Oxfordshire market town and the way in which it hit families and the wider community. It has also uncovered some of the measures at the disposal of the community in order to accommodate major changes in the normal life and death balances for its inhabitants, such as the adjustment to loss of a spouse and parent via rapid remarriage. The chapter continues with a comparative study of Banbury in assessing the effects of the two epidemics in an ostensibly similar parish.

3.5 The Banbury smallpox outbreaks of 1718-19, 1731-33

This section focuses on the two smallpox epidemics in Banbury in the eighteenth century. Apart from the occasional violent death, smallpox is the only cause of death noted in the register between 1706 and 1745. A smallpox outbreak occurred in Banbury from March to July 1744, with 11 deaths and there were minor outbreaks involving one or several smallpox fatalities later in the century. The town was badly hit, however, earlier in the century. One hundred and nineteen people (51 adults and 68 children), were labelled as dying of smallpox between 20 August 1718 and 26 July 1719.[82] Approximately 13 years later, between 19 December 1731 and 29 October 1733 a further 93 (33 adults and 60 children) were fatally affected.[83] Average annual burials for Banbury in this period were approximately 72. We do not know exactly how many people in Banbury experienced the disease, although this point is investigated further in Chapter Four. The two epidemics in Banbury probably accounted for the deaths of approximately seven per cent of the population, compared to 12.5 per cent in Burford and seven per cent in Aynho.

Figure 3.ix places the epidemic years in the context of overall mortality in Banbury over a 39-year period. The two smallpox epidemics are identified by two out of the three peaks in the number of

[82] *Baptism and Burial Register of Banbury, part two.*
[83] *Burial Register of Banbury, Oxfordshire part three 1723-1812* (ed.) J. S. W. Gibson. (Oxford: Banbury Historical Society 18, 1984).

burials. There was also a peak in the late 1720s, years that experienced particularly high mortality generally.[84] The specific reason for this is unknown although, unlike smallpox, in Banbury in these years mortality was more deeply felt by adults than children whereas in the two smallpox outbreaks the number of child burials was greater than that of adults. The peak in 1742 does not appear to be connected to smallpox and may account for another low-level disease.

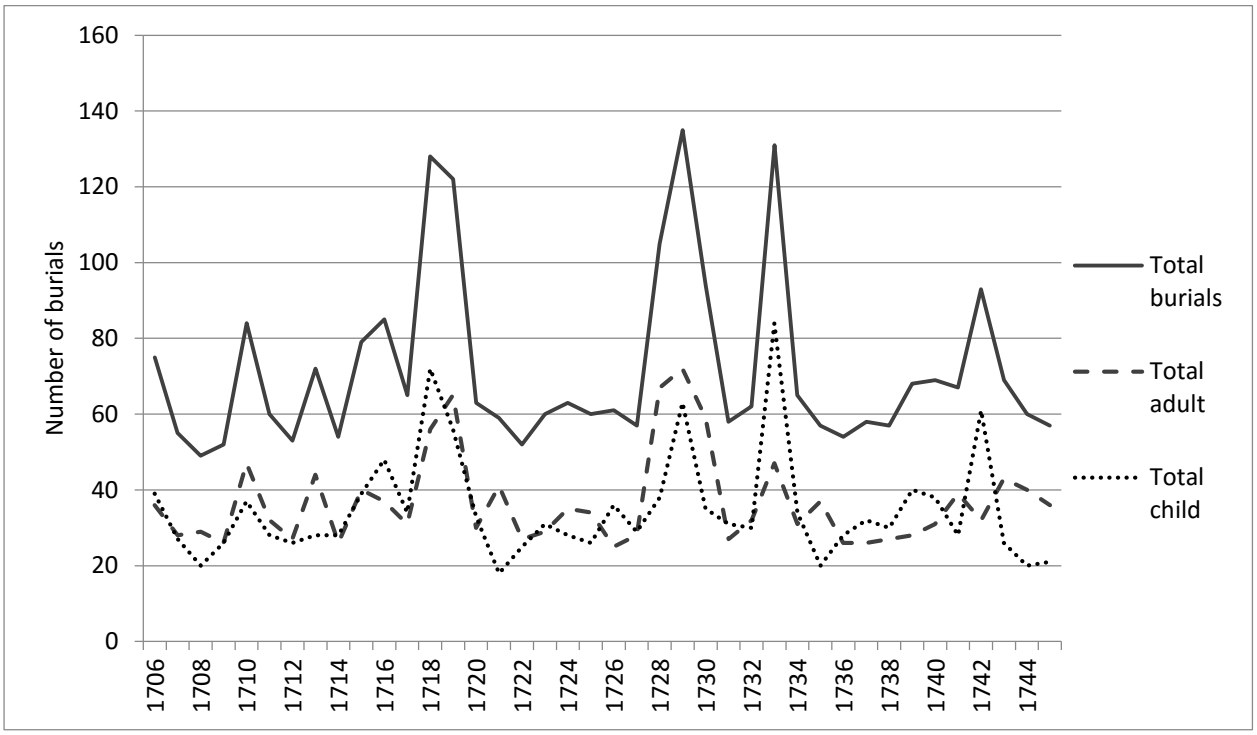

Figure 3.ix *Banbury: adult and child burials 1706-44*
Source: Banbury Burial Register

Figures 3.x and 3.xi compare smallpox burials with total burials in the two 'epidemic seasons'. At its peak, smallpox accounted for a very large proportion of all deaths; 69 per cent in 1718-19 and 48 per cent in the period December 1731 – October 1733. In the second epidemic smallpox mortality was low in the first twelve months although between April and August 1733 the disease accounted for nearly 81 per cent of all deaths. The first smallpox death in 1718 was that of Elizabeth Osborne, aged

[84] See M. Dobson, *Contours of Death and Disease in early modern England (*Cambridge: Cambridge University Press, 2002), 383-449.

4 years, daughter of wheelwright John Osborne. In the second outbreak the first to be fatally affected was Joseph Wilson, aged 2 years, son of surgeon and apothecary, Mr Thomas Wilson, in December 1731. The Wilsons were one of three families that experienced child smallpox deaths in both epidemics.[85]

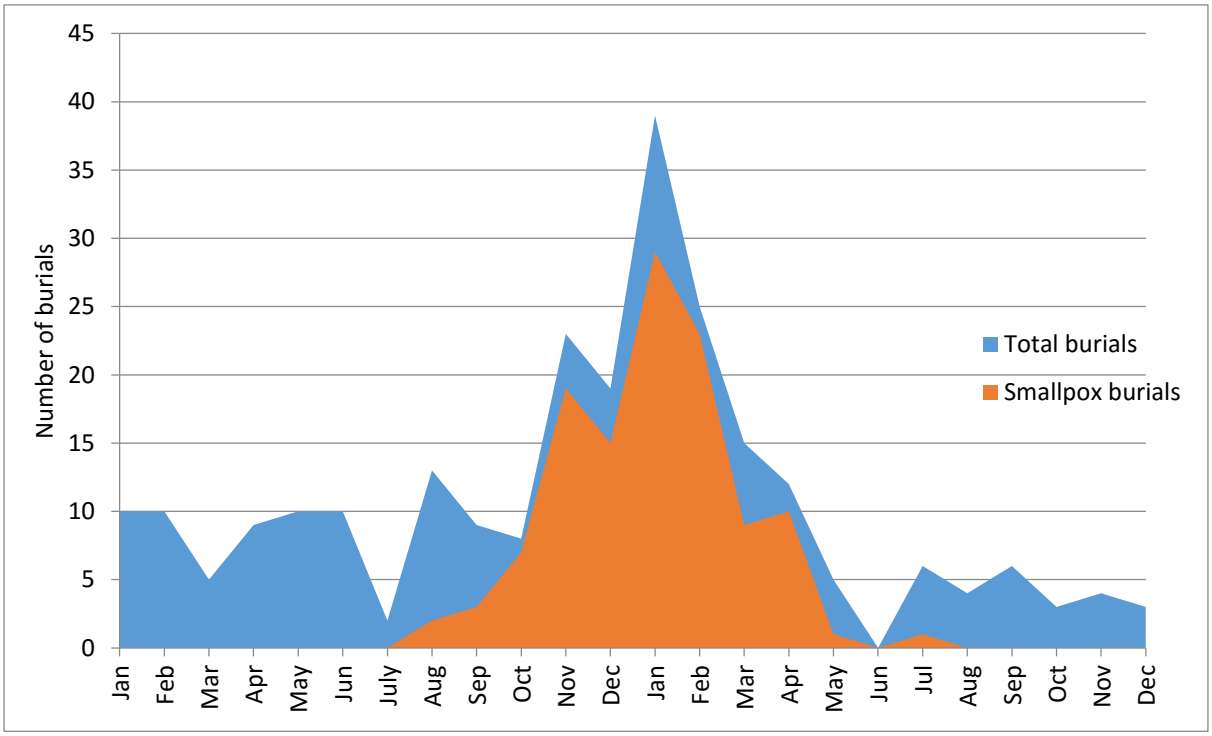

Figure 3.x *Banbury: total and smallpox burials August 1718-July 1719*
Source: Banbury Burial Register

[85] Family connections, ages of children and occupations are taken from family reconstitution data provided by CAMPOP.

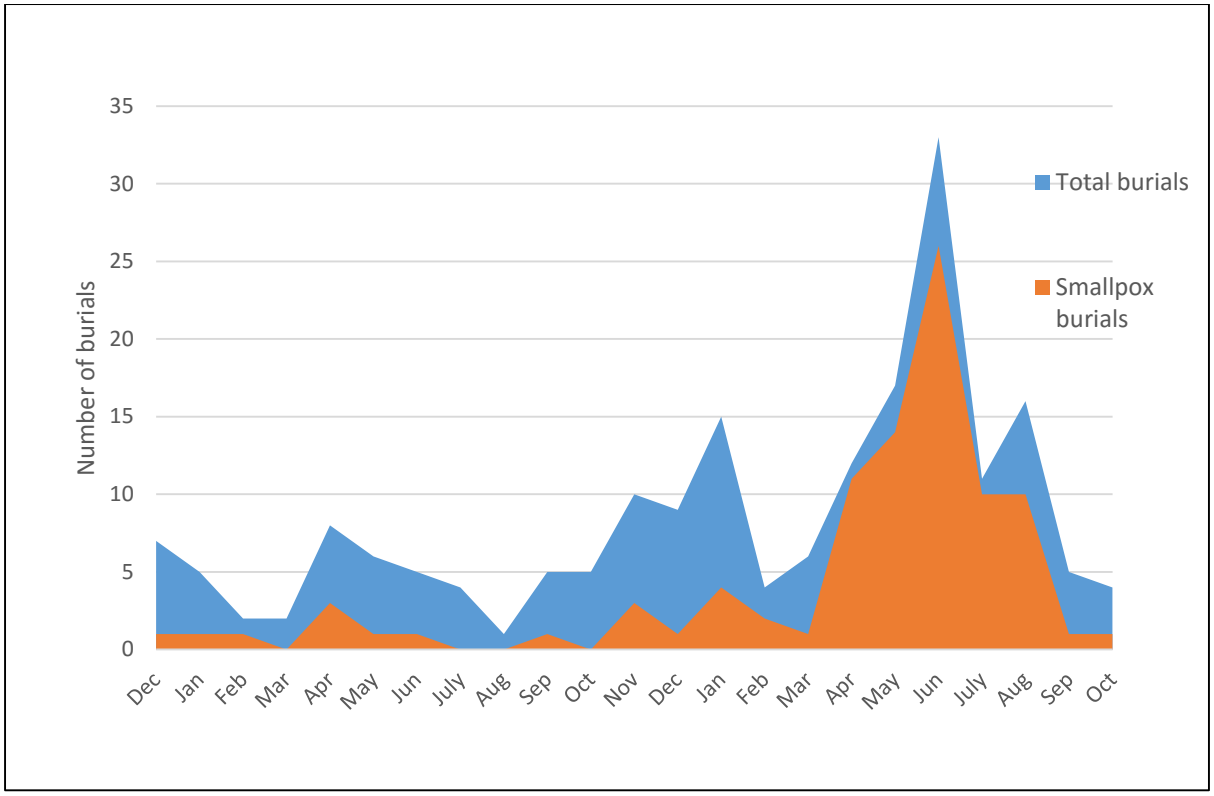

Figure 3.xi *Banbury: total and smallpox burials December 1731-October 1733*
Source: Banbury Burial Register

Table 3.6 shows the breakdown of smallpox burials for each epidemic, showing the vulnerability of children who comprise the largest groups of approximately 57 and 63 per cent, compared to Burford (approximately 58 percent) and Aynho (48 per cent)

Banbury smallpox burials				
	1718-19		1731-33	
	Number	Percentage of smallpox burials	Number	Percentage of smallpox burials
Adults	51	42.9	34	36.6
Children	68	57.1	59	63.4
Total	119	100.0	93	100.0

Table 3.6 *Banbury: adult and child smallpox burials 1718-19; 1731-33*
Source: Banbury Burial Register

High familial fatalities included maltster, Ambrose Dixon, his wife Joane and two children, Ambrose and Ann, in January and February 1719 and labourer Leonard Goode's daughter, Elizabeth, son Thomas, and wife, Elizabeth, dying between June and September 1733. The effects of the outbreaks on affected families are discussed in detail in Chapter Four.

Figures 3.xii and 3.xiii show the course of each epidemic by month in relation to adult and child smallpox mortality. The number of smallpox deaths, particularly of children, rose swiftly during the first epidemic, peaking after the first three months, whilst adult mortality peaked in the middle months, both falling as the outbreak subsided. The second 'rumbled' for approximately 11 months, rising to a peak by June 1733. Here, insignificant numbers of adults were fatally affected in the first 15 months and at its peak child mortality was higher. Overall the ratio of child to adult deaths was greater in the second epidemic (1718-19, 136:100; 1732/33, 174:100). This is unsurprising. The epidemics were only 13 years apart; by 1731 many adults had been exposed previously, and so were more resistant to the disease whilst in children, not previously exposed, mortality was high. In both cases children were fatally affected first in the course of the outbreaks.

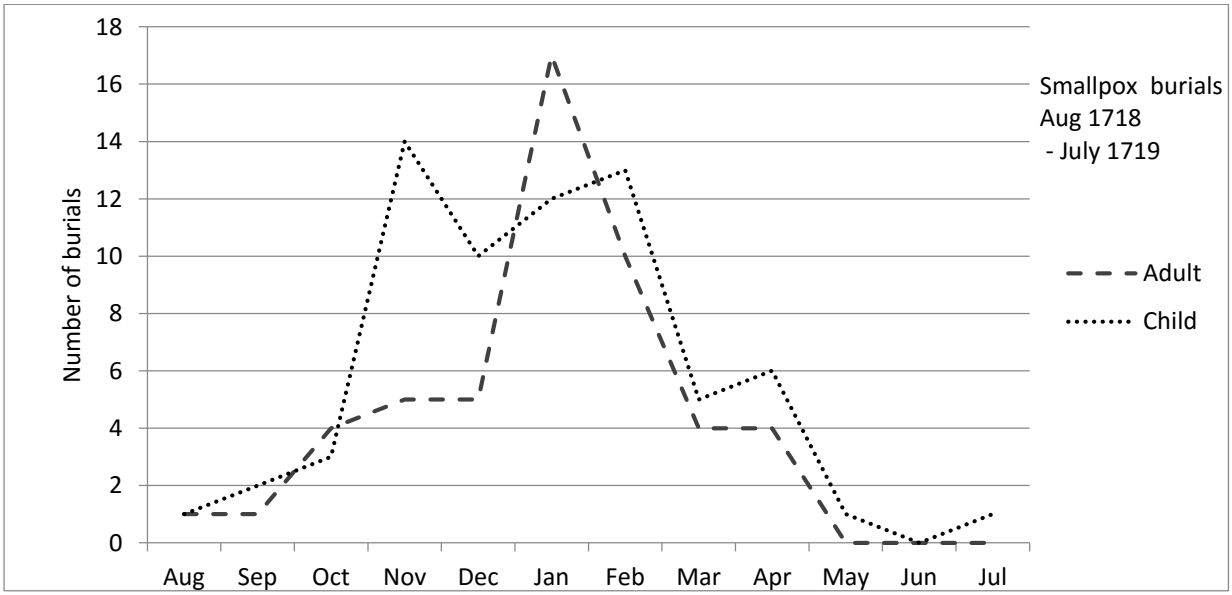

Figure 3.xii *Banbury: adult and child smallpox burials 1718-19*
Source: Banbury Burial Register

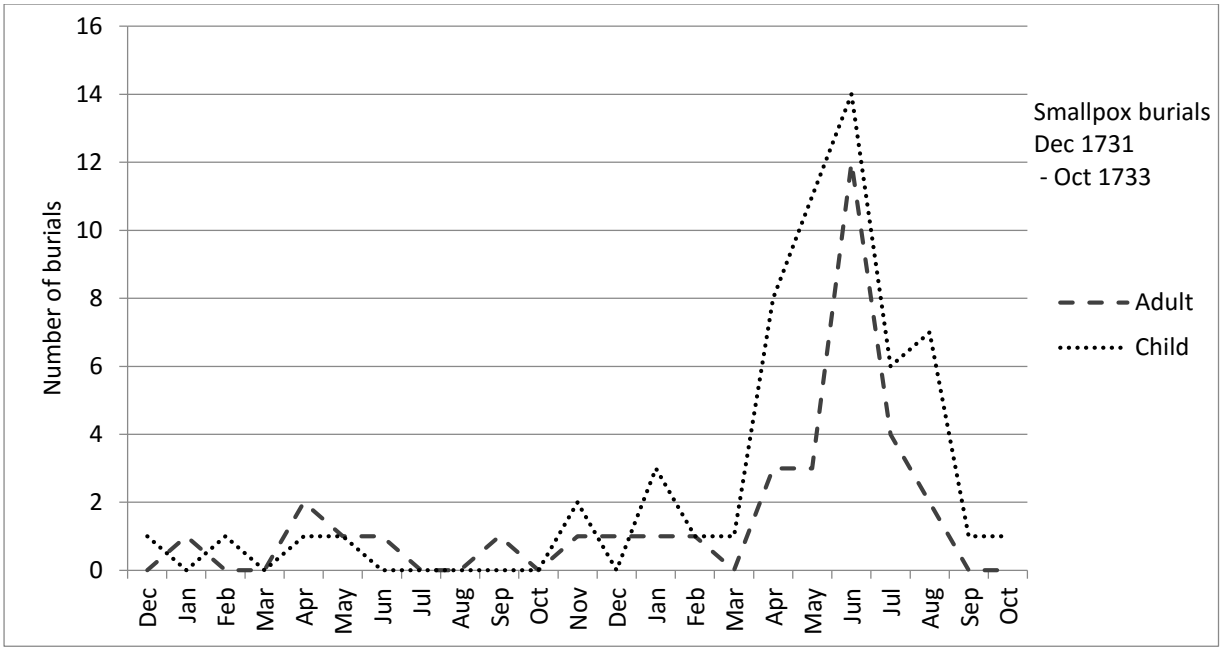

Figure 3.xiii *Banbury: adult and child burials 1731-33*
Source: Banbury Burial Register

The number of non-smallpox deaths in Banbury was higher than average in 1718. This hike comprises a high number of burials in the seven months preceding the epidemic, particularly in children. Under-representation of smallpox deaths may be a factor here. In the second outbreak, the number of non-smallpox deaths in adults and children was normal. However, the number of non-smallpox deaths during the epidemic itself is not extraordinary in Banbury for either outbreaks, suggesting that smallpox was not overriding other potentially fatal diseases which contrasts with Burford.

3.5.1 Baptismal trends and deviations in sex ratios at birth

The chapter now investigates any effect of the two smallpox epidemics on baptisms in Banbury. As stated previously, intervals between births and baptisms in the parish were in accordance with national trends and register keeping has been deemed to be reliable. Figure 3.xiv shows the number of child baptisms in the period 1706 to 1745 and a five-year moving average. The major change is the rise between the two epidemics. Nevertheless, the outbreak in 1718-19 saw a fall in the number of children baptised. Baptisms had risen two years previously, and the fall from 1718 to 1719 was not as

severe as in the previous period. In the second epidemic the drop was even less keenly felt. The significant fall in baptisms in 1730 may signify the high number of adult non-smallpox deaths the previous year.

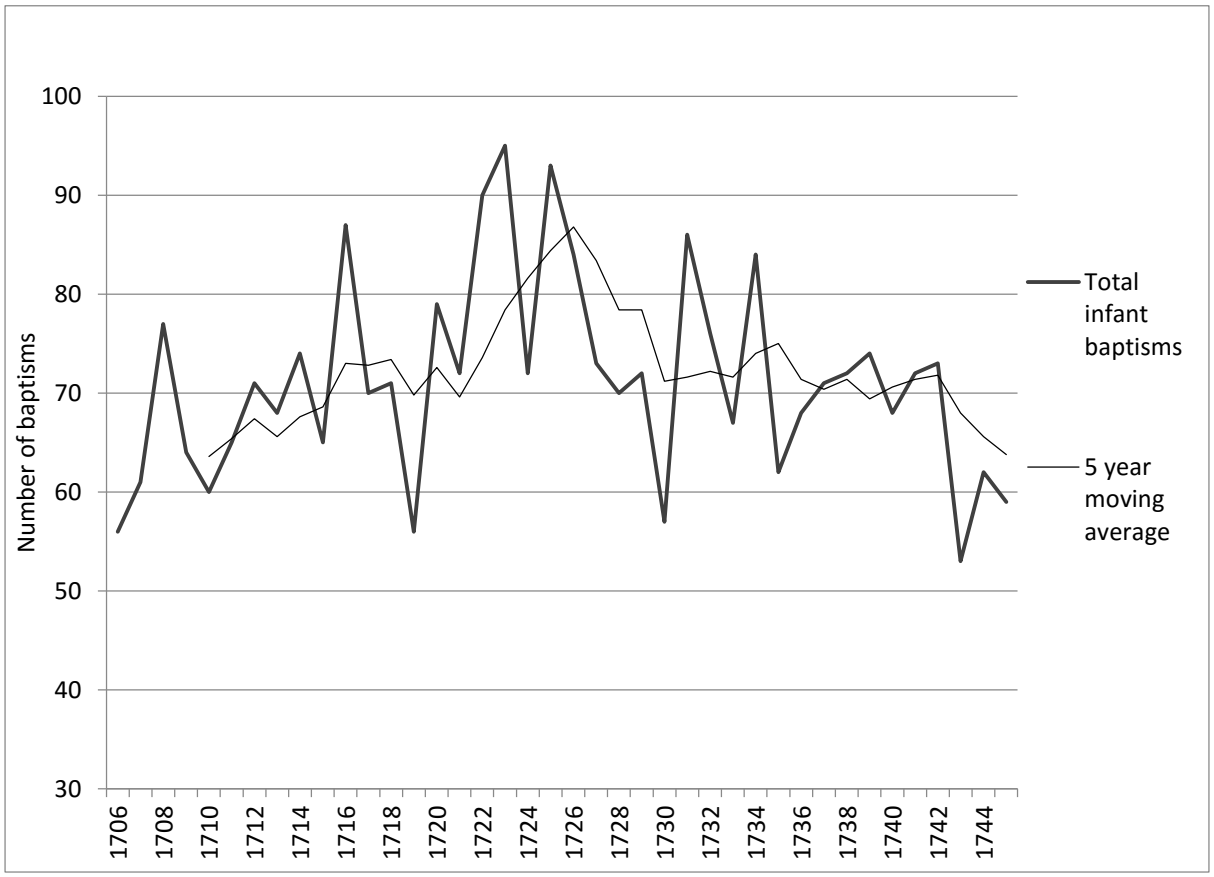

Figure 3. xiv *Banbury: infant baptisms 1706-44*
Source: Banbury Baptism Register

Baptisms are now examined in greater detail in the two periods.

1718-19

From January to July 1718 (the seven months immediately preceding the epidemic), the number of child baptisms was 45 compared to 37 for the same period the previous year and an average of approximately 41 for the same months in all years since 1706, that is, baptisms were particularly high immediately preceding the epidemic. Given a high number of baptisms in the first seven months of

1718 under what we think were normal conditions, we would expect to see a high total figure for the whole year. However, this is not the case; the later part of the year - August to December - produced an unusually low number of baptisms (26, compared to the totals in the same periods in the previous two years of 42 and 33). The drop in the number of baptisms in these months (the first five months of the epidemic) may be explained by fewer children being born or early infant death. Intervals are too short for an association of smallpox with fertility or conceptions. Returning to Rao's findings showing a high risk of premature birth among pregnant women with smallpox, it is at least possible that foetal loss or early infant death in Banbury is the reason for the drop, a conclusion which adds to the general findings on the high risk of smallpox to the foetus and the susceptibility of pregnant women.[86] However, there are caveats to this assumption. If foetal loss or early infant death were the sole causes we would expect to see firstly, more posthumous baptisms in the register and secondly, a continued fall in the number of baptisms in the second half of the epidemic, particularly as more women would have been infected by this stage. However, this is not the case; baptisms in the second half of the epidemic period were, at 40, almost back to normal. Although parents may have had the option of private baptism, it is speculated that the inhabitants of Banbury responded quickly to the early substantial rise in burials caused by the epidemic by not presenting their new-borns for baptism and therefore not exposing them to the risk of infection, whereas in the later stages the community was becoming de-sensitised and parents were baptising their children again. However, fewer conceptions or early foetal loss may also have been present by this time because this 'normal' figure would include the backlog from the previous six months.

Moreover, there was a significant drop in the number of baptisms in the five months after the end of the epidemic, with the lowest number of child baptisms in that part of the year of any of the other years under investigation. One particular note is an absence of baptisms in August 1719, the first

[86] Rao, *Smallpox*, 121-123. Findings based on a study of 7,000 cases admitted to Madras Infectious Disease hospital between 1961 and 1972.

month after the last case of smallpox. Under normal conditions this would be unusual as average baptisms for August were 4.8. Noting that under normal conditions Banbury baptised their children promptly, it seems unlikely that people held off baptism for a period of more than five months, until 1720. Given the 12-month duration of the epidemic it is likely that a fall in conceptions or early foetal loss occurred in the first stage of the epidemic the previous year. In summary to this discussion, three conclusions are made; firstly, foetal loss was a significant factor in the fall in baptisms during the epidemic; secondly, after a cautionary period of six months, the community became de-sensitised and resumed normal behavioural patterns in baptising their children (perhaps partly from a fear of prolonging baptism too far); thirdly, a fall in baptisms in the six months after the epidemic indicates a fall in the number of conceptions, probably associated with a high number of adult deaths the previous year.

1731-33

The second epidemic in Banbury lasted 23 months, from December 1731 to October 1733. There was a fall in the number of baptisms from 1731 to 1732 but this was unremarkable when compared to the whole period (see Figure 3.xiv). Average annual baptisms were 71.3. In 1732 baptisms were above average (at 76) although they dropped to below average (67) in 1733. The higher than average number of baptisms in 1732 - a smallpox year - is surprising given the high susceptibility of pregnant women and their unborn children; it is suggested that immunity in some of these families, and particularly mothers, after the first outbreak, may account for this variation. Furthermore, unlike the earlier epidemic, the number of baptisms in the five months after the final case of smallpox was unremarkable compared to the same period in the other years, so a link between smallpox and the number of conceptions or early foetal loss is at best tenuous, possibly applying to the lower than average number of baptisms in 1733. The effect of immunity in the second outbreak is discussed more fully in Chapter Four.

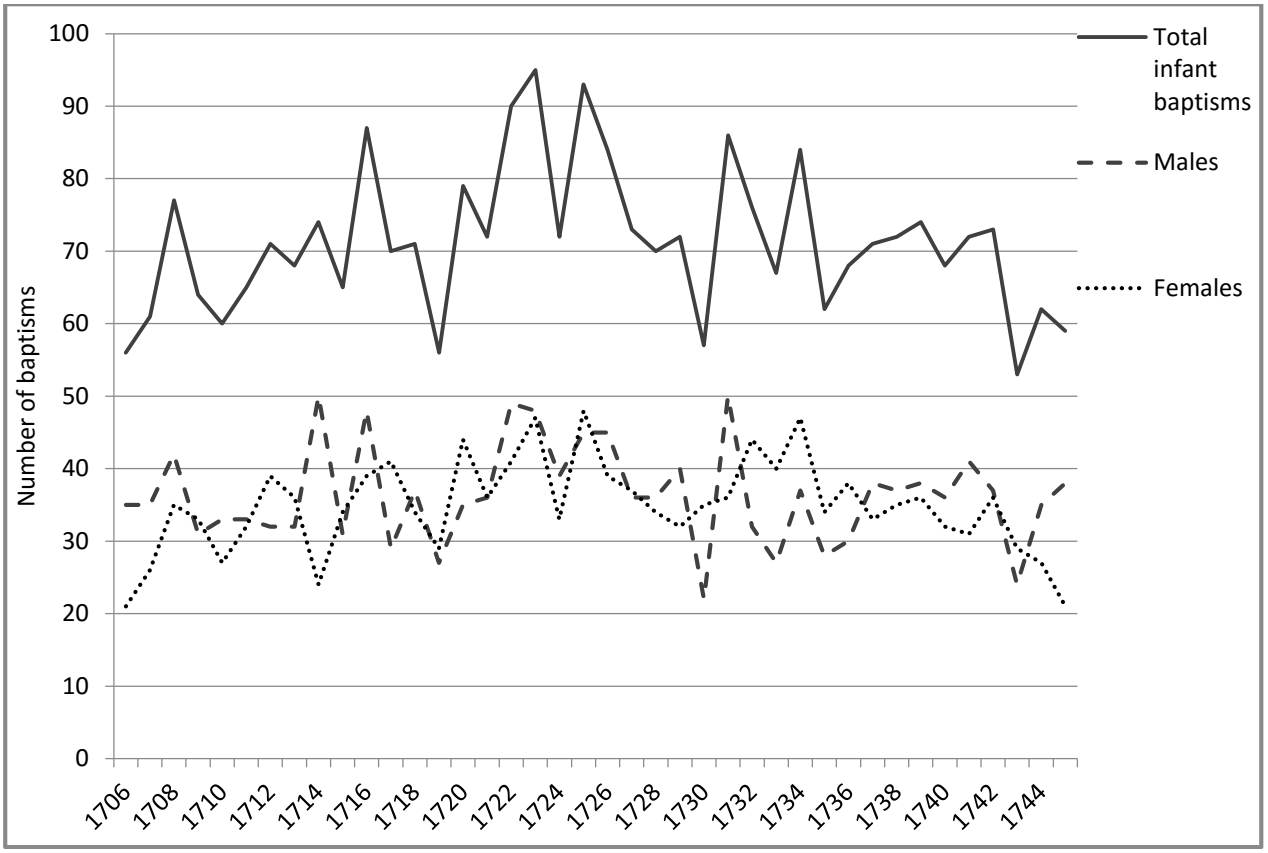

Figure 3.xv *Banbury: infant baptisms by sex 1706-44*
Source: Banbury Baptism Registers

Figure 3.xv shows child baptism by sex in the years between 1704 and 1744. When baptisms are divided into boys and girls we see that a significant change had taken place after each smallpox epidemic. The figures for children born in Banbury in the period 1706 to 1745 are 1,458 boys to 1,392 girls, a ratio of 104.7 to 100, compared to a general ratio of 104.3 boys to 100 girls.[87] This is very comparable to general trends. The ratio of boys to girls born in Banbury during the whole period under investigation roughly follows the same course throughout the period, with similar peaks and falls. The diversity in 1714 is unexplained, although it still follows the trend of a higher number of boys baptised than girls. However, in 1720, the year after the first epidemic, the number of girls baptised rose sharply, from 29 in 1719 to 43 in 1720, a rise of approximately 48 per cent, whilst in the same period the number of boys only rose from 28 to 34, a rise of approximately 21 per cent. The rise in the number

[87] Adair, *Courtship, illegitimacy and marriage,* 36.

of girls baptised in 1720 is the highest percentage rise in the whole of the 39 year period. One explanation for this rise is that more boys were dying prior to baptism in the year following the epidemic. However, there is little obvious reason to suggest this and as we have already seen, under normal conditions children in Banbury appeared to have been baptised promptly.

The spikes in the baptism of girls compared to the number of boys occurred in 1720 and 1734. Both these years followed smallpox epidemics. Furthermore, these are the only periods in which girls outnumbered or equalled boys for three consecutive years or more. Table 3.7 illustrates this point. Highlighted text shows the years when girls outnumbered or equalled boys. Epidemic years are shown in red.

Year	Boys under one yr	Girls under one yr	Ratio of boys to girls where girls = 100	Total
1706	35	21	167	56
1707	35	27	130	62
1708	42	36	117	78
1709	31	32	97	63
1710	34	26	131	60
1711	33	33	100	66
1712	31	39	79	70
1713	35	34	103	69
1714	49	26	188	75
1715	31	33	94	64
1716	48	39	123	87
1717	30	41	73	71
1718	37	34	109	71
1719	28	29	97	57
1720	34	43	79	77
1721	36	36	100	72
1722	49	42	117	91
1723	46	45	102	91
1724	39	33	118	72
1725	45	48	94	93
1726	45	39	115	84
1727	36	37	97	73
1728	36	34	106	70
1729	40	32	125	72

1730	22	35	63	57
1731	50	36	139	86
1732	32	43	74	75
1733	27	40	68	67
1734	39	47	83	86
1735	28	34	82	62
1736	30	38	79	68
1737	38	33	115	71
1738	37	35	106	72
1739	39	36	108	75
1740	36	33	109	69
1741	40	30	133	70
1742	37	36	103	73
1743	24	29	83	53
1744	36	27	126	63
1745	38	21	181	59
Total	**1458**	**1392**	**105**	**2850**

Table 3.7 *Banbury: sex ratio at baptism 1706-45*
Source: Banbury Baptism Register

Note: There are some instances of baptisms of older children (one year and over). In these cases, where ages are given, baptisms have been taken out or moved into the year of birth to give a truer reflection of the number of children born.

It is likely, therefore, that there was an increase in girls being conceived and/or born alive during the second year of the epidemic which resulted in a change in the boy/girl ratios, a similar scenario to that seen in Burford in 1758, and complies with the modern medical evidence discussed above.

3.5.2 The effect of smallpox mortality on marriage practices

Trends and practices in marriages in Banbury are now investigated. The number of marriages between 1706 and 1745 is shown in Figure 3.xvi with a five-year moving average. 1728 saw one of the lowest number of marriages over the whole of the 39-year period. This was likely to be related to high mortality of adults, unconnected to smallpox, in these unhealthy years. Overall, marriages rose to a peak in the mid-1720s, dipped until the mid-1730s and then rose during the 1740s. 1718 and 1719 (smallpox years) saw the lowest number of marriages over a period of 18 years. Annual average marriages in a non-smallpox year were 29.8 and in the two smallpox years marriages totalled 18 and

21 respectively. In the second outbreak, the number of marriages dropped sequentially from 47 in 1731 to 24 in 1733 but the fall is less pronounced compared to years either side. Both sets of data suggest that couples were putting off marriage to varying degrees during the two smallpox epidemics, although this change is more pronounced in the first occurrence.

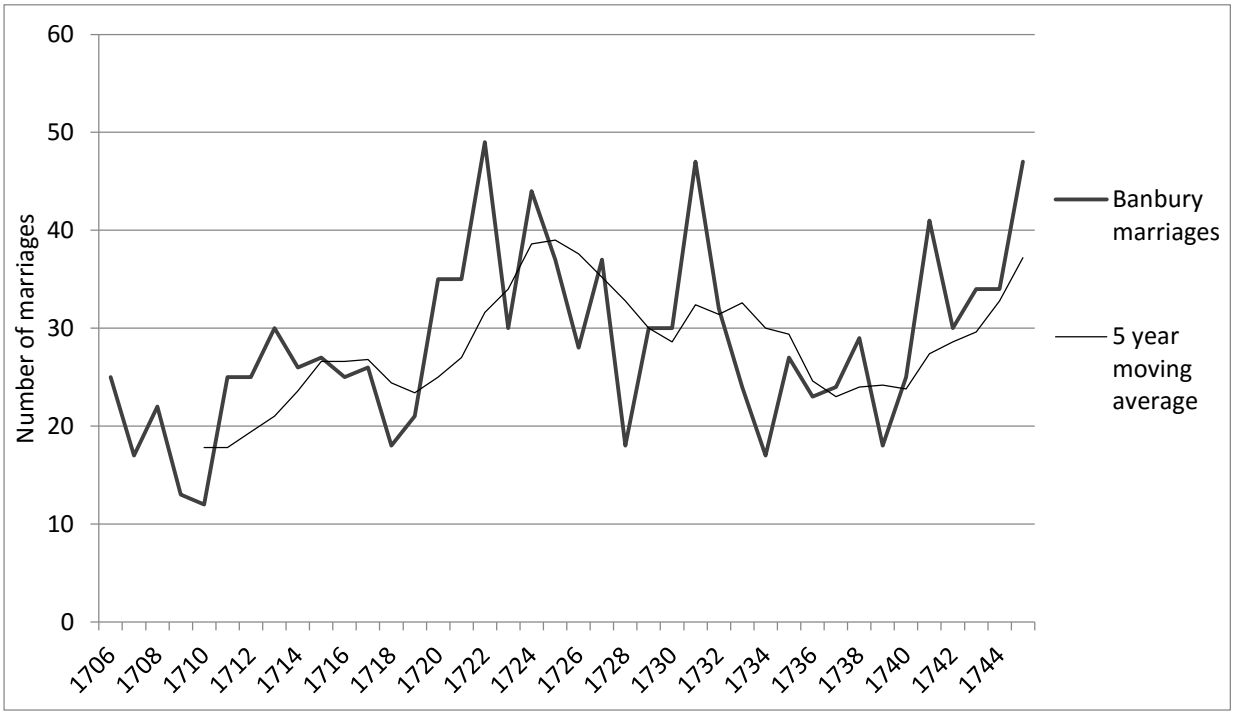

Figure 3.xvi *Banbury: marriages 1706-44*
Source: Banbury Marriage Register

One characteristic of Banbury was the 'popular custom' of couples from nearby villages marrying in the local market town, a practice which ended with the conditions of the Marriage Act of 1753 requiring residency in the parish of at least one party.[88] Over the forty-year period there were 1137 marriages. It is only possible to measure rough trends in the number of 'mixed' marriages of both or one party living in the parish because entries in the register do not always positively confirm residency in Banbury. However, from the 17 marriages during the first epidemic only two were of both partners

[88] *Marriage Register of Banbury, Oxfordshire part two 1724-1790* (ed.) J. S. W. Gibson. (Oxford: Banbury Historical Society, 1960-63), v.

resident outside the parish, indicating that this 'popular custom' was waived when smallpox was present in the parish. However, five of the 17 marriages involved one local partner (in all cases, the bride), so there is little evidence to suggest that one party to a marriage ceased to travel to marry in the parish during the smallpox epidemic. In 1732, the complete year of the second epidemic, marriages of outsiders was also not extra-ordinary indicating that, apart from those marriages where both parties were outsiders, trends in the prevalence of mixed marriages were unchanged.

Overall, the percentage of marriages by licence in Banbury remains fairly constant over the 39-year period. In contrast to responses to the Burford epidemic in 1758, the community of Banbury demonstrated no change in mode of marriage registration during the first smallpox outbreak in 1718-19. However, in 1733 the percentage of marriages by licence rose to one of the highest figures over the period, (79 per cent), followed by 67 per cent in 1728. Marriages by licence fell subsequently in the late 1730s so this was not part of a wider trend. The reason for this apparent ambiguity is unclear but the high number of marriages by licence after the second smallpox epidemic is comparable to other years of high mortality in Banbury. One of the highest percentages of marriages by licence occurred in 1728 which was a particularly unhealthy year for adults (for unknown reasons) in the parish.

Re-marriage appeared to be minimal from 1706 to 1736, generally with under two a year and with no change in the trend in either epidemic. Between 1737 and 1745 numbers rose to over six a year However, these figures need to be treated with caution; changed practices in the amount of detail recorded may account for this apparent rise.

Conclusions: a comparative study of research findings

The parishes of Burford and Banbury in Oxfordshire had many similar features. Both were busy market towns with significant populations, offering nurturing environments for their inhabitants, particularly the poor. Both relied on small-scale local industry for economic viability, although Burford perhaps more so, with a higher proportion of males employed in this sector. Both parishes, however, enjoyed revenue from industries supporting leisure activities. Under normal conditions both parishes enjoyed robust ecclesiastical processes organised by competent administrators. There is no reason to suppose long intervals between birth and baptism of infants and baptisms of adults and older children were minimal. The incidence of illegitimacy was very similar in the two parishes.

In relation to the three smallpox epidemics in Oxfordshire there are certain other similarities in the two parishes. In each occurrence children were most severely affected by smallpox mortality, comprising 58 per cent of all smallpox burials in Burford, 57 per cent in Banbury in 1718-19 and 63 per cent in 1731 – 33. However, adult smallpox mortality was high, bearing in mind a study of smallpox deaths in Penrith, a Cumbrian rural community (population 2000, similar to Burford) conducted by S. R. Duncan, Susan Scott and C. J. Duncan. They suggest that in this parish smallpox was mainly confined to young children aged one to six.[89] Razzell also made this conclusion for the north of the country where the majority of smallpox deaths were of children under ten, although this pattern is not seen in the south of Britain which tended to experience higher adult smallpox mortality.[90] In Aynho adults comprised the largest percentage of fatalities; this point is revisited in Chapter Four. The higher percentage of children in the 1731-33 outbreak in Banbury probably relates to a smaller pool of susceptible adults after gaining immunity 13 years earlier. In both parishes a consequence of the

[89] S. R. Duncan, Susan Scott, C. J. Duncan, 'The Dynamics of Smallpox Epidemics in Britain, 1550-1800'. *Demography*, 30 (August 1993): 411-414.

[90] P. Razzell*, Population and Disease: Transforming English Society, 1550-1850*. (Caliban Books: 2007), 179-181. Razzell included Burford in 1758 and Banbury in 1718-19 in his findings.

epidemic was a change in the male/female birth ratios, that is, more girls than boys were born alive in the two year period after the outbreaks.

Marriages in both communities fell in the epidemic years although, again, this was considerably more pronounced in Burford. The contrasting modes of formalising marriage is intriguing. Although no changes in the percentage of marriages by licence occurred in 1718-19 in Banbury, the number of these marriages increased significantly during the other two outbreaks. We also see this trend in Banbury in 1728 which experienced one of the highest percentages of marriages by licence in this unhealthy year. Marriages by licence fell again in the late 1730s in Banbury and in Burford the high percentage of marriages by licence was not reached again in the whole period under investigation. The rises, therefore, were not part of a wider trend. There appears to be a relationship between marriage by licence, customary norms and sudden rises in adult mortality, possibly linked to the desire for speed, privacy and a disinclination to gather for parochial administrative purposes such as the reading of banns.

However, there were also significant differences between the two parishes. Figure 3.xvii shows the course each of the three epidemics in the two parishes in Oxfordshire. In 1758 in Burford, the disease was responsible for a very large proportion of raised mortality in this year. We do not see the families with high smallpox fatalities in Banbury that we see in Burford, where one experienced five smallpox deaths, two families experienced four, and three, three fatalities. In Banbury, in 1718-19 five families experienced three fatalities and in 1731-33 only one family saw as many as three smallpox fatalities, all others, two or one. Furthermore, we only see smallpox over-riding other causes of deaths in children in Burford. In Banbury the figures for non-smallpox deaths during the two epidemics are not extra-ordinary.

These factors are important in assessing levels of behavioural change in response to the epidemics. In Burford, although marriages were particularly low in the year after the epidemic whilst a re-grouping occurred, the high number of adult deaths created a spike in marriages two years after the epidemic, caused by a combination of first and re-marriage. These points demonstrate a 'closing-in' of the community during the epidemic whose shared experiences in adversity affected marriage choices in wanting to re-create stable families. The repercussions of the epidemic in Burford, brought about by disturbances associated with familial mortality, are also characterised by continued high mortality in the five months after the epidemic and in the following year, 1759, when burials were still slightly above average, even though one eighth of the population had already recently perished.

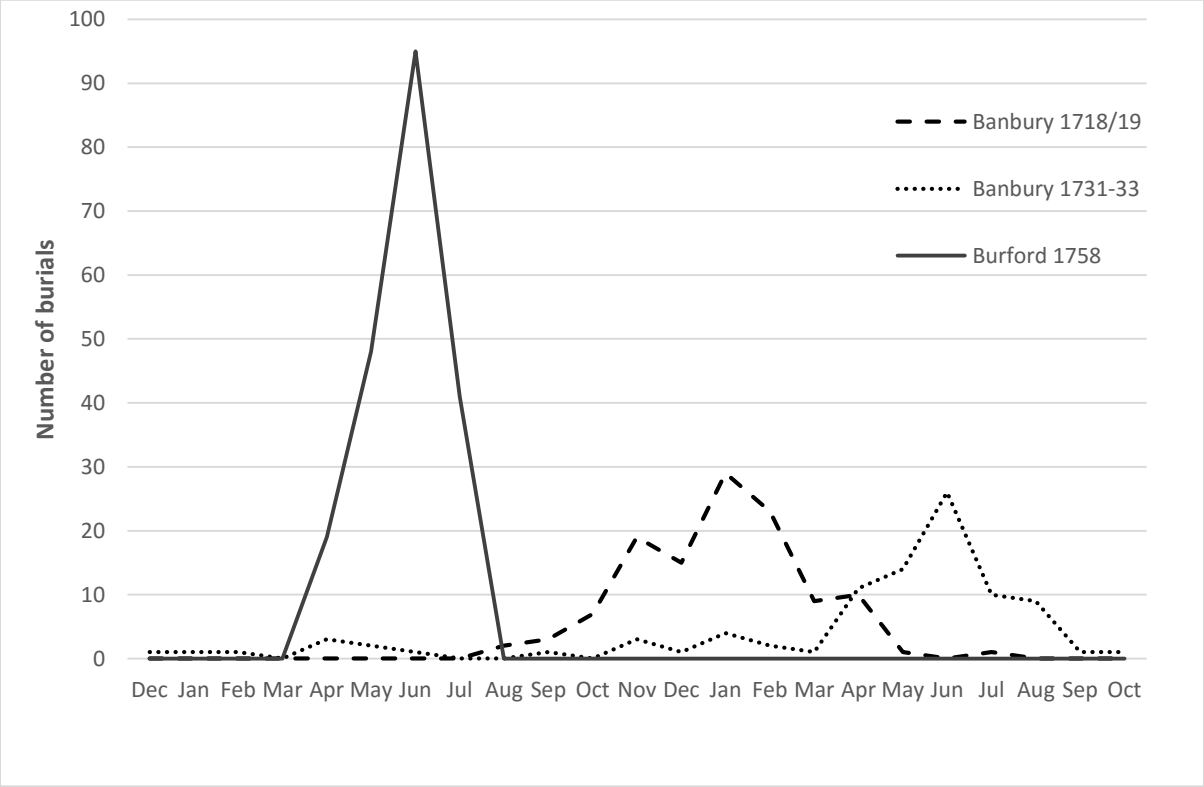

Figure 3.xvii *Banbury and Burford: smallpox burials*
Source: Banbury and Burford Burial Registers

The two parishes also experienced different trends in the courses of the epidemics. In Burford, at the start of the outbreak, numbers of smallpox deaths of adults and children were similar, rising proportionally to each other, reflecting the high vulnerability of adults and Razzell's findings on the

vulnerability of adults in the south who had avoided the disease in childhood.[91] As the disease progressed, child mortality increased substantially, both in numbers and in proportion to the total. During the peak of the epidemic in June, the number of child burials rose significantly, showing the susceptibility of children to smallpox mortality as they became exposed to higher levels of contagion through their households and the wider community. After the peak, adult and child burials fell mainly proportionately to each other. This trend is different to the course of the epidemics in Banbury earlier in the century where, in both epidemics, children were fatally affected first in the course of the outbreaks. It is noted that levels of disruption occurred in direct relation to the proportion of adult deaths. In Burford, adult mortality was high in the early stages of the epidemic accompanied by higher levels of disruption to normal life, behavioural patterns and administrative processes. For example, falls in baptisms and marriages were more pronounced in Burford, which, it is suggested, is partly related to the avoidance of exposure to disease.

In Burford, baptisms fell during and immediately after the epidemic perhaps indicating initially, evidence of premature termination of pregnancy and/or early infant death. Similar trends are seen in Banbury, although higher than average baptisms in the later stages of the first epidemic suggest that this was not the only element. Although as in Burford, foetal loss may have been a factor in the first outbreak in Banbury, possibly accompanied by a fall in the number of conceptions in this more long-lasting outbreak, it is speculated that the community responded quickly to the early substantial rise in burials caused by the epidemic by not presenting their new-borns for baptism and therefore not exposing them to the risk of infection. However, this behavioural change was short-lived as people became de-sensitised and, by the second stage of the outbreak, were baptising their children again, perhaps due to a feeling that the risk of dying unbaptised was worse than the risk of smallpox. In the second epidemic in Banbury change was less pronounced, which again may reflect perceptions of risk.

[91] Razzell, *Population and Disease,* 184.

Falls in baptisms were unremarkable, in fact, 1732 saw above average baptisms and the months after the final case were also unremarkable, therefore no link is made with a fall in conceptions or foetal loss. It is likely that these low figures were due to a large proportion of adults and some children being immune to the disease which had occurred in the parish some 13 years previously.

It is not clear why Burford was more severely affected than Banbury, when neither parish had experienced the disease severely for a long period of time. There is no evidence of smallpox in Burford earlier in the century and Banbury appears to have been clear of any major smallpox epidemic since 1669.[92] The answer may lie partly in the use of infection control mechanisms. In 1722 Will Wyatt of Banbury was paid 1s for 'removing a man who had ye smallpox to Neithrop'.[93] Neithrop was included within the parish boundary so it is likely that the sufferer was being removed to a place of isolation rather than returned to his settlement parish. A pest-house operated in Banbury from 1724 when overseers spent 11s on the house, including 1s 6d. for 'cleaning ye wall' and a year later, £2.6.6d. for further maintenance.[94] These entries suggest that isolation practices were in place in Banbury by the early 1720s. In Aynho, also, it is probable that smallpox patients were transferred to a pest house; in this parish smallpox mortality was low compared to the size of the population. On the other hand, there is no evidence of the use of a pest-house to control the outbreak in Burford. Furthermore, the parish was a closely-knit community with high numbers of adults working in small-scale industry, affording a spatially compact environment which allowed optimum conditions for disease transmission. On the other hand, Aynho village, revolving around rural activities, under the influence and control of the squire, and Banbury's large farming community were not as keenly exposed to contagion.

[92] *Victoria County History Oxfordshire* X (1972) http://www.british-history.ac.uk/report.aspx?compid=22804&strquery=smallpox#n480 .
[93] *OHC*, PAR21/2/A/1 'Banbury Vestry Book' (1722).
[94] *OHC,* PAR21/2/A/1 'Banbury Vestry Book' (October 1724 and 8 July 1725).

We may also use the burial data from the two parishes to infer something about the levels of resources in time and manpower and emotion required to manage the consequences of an epidemic in a close-knit community. This is illustrated in Figure xvii. The Burford epidemic season of 1758 was the only period in the year during which there were more than two burials in one day. Five people (four with smallpox) were buried in the early stages of the disease on 20 April and at its peak in June we see between three and six burials a day on five consecutive days. We see likely under-representation of adult and child smallpox deaths in Burford, evidenced by the number of non-smallpox deaths, to a lesser extent in Banbury in 1718-19, and not at all in Banbury in 1731-33. The Burford epidemic was much shorter and sharper than in Banbury and perhaps, in Burford particularly, ecclesiastical procedures were under considerable strain with the vastly increased number of burials, reminding us of the reality of managing the disease. The inscription inside the 'rough' register kept by the Burford parish clerk in 1765, and referred to above, signifies an occurrence of magnitude in local memory, recorded at least seven years after the event.[95] Levels of adjustment to normal life patterns are also observed from other sources. In May 1758 the Duke of Marlborough, at Blenheim Palace near Witney, announced through the *Oxford Journal* '… the Fairs and Markets for Cattle and Sheep [at Witney] shall be Toll-Free during the Continuance of the said Disptember [smallpox] at *Burford'* and during the epidemic in July the *Burford Races* were postponed '… in consideration of Public Safety', both decisions directing trade and business away from the local community.[96] This sort of evidence starts to give us an insight into the management of the disease which will be explored more in later chapters.

This micro-study has not attempted to investigate major long-term demographic change brought about by the smallpox epidemics in these two Oxfordshire market towns. However, certain key factors are established. Firstly, foetal loss was likely in both Oxfordshire parishes. In Burford, baptisms

[95] *OHC*, MS D.D. PAR Burford, e.1. 'Register Book 1765'.
[96] *JOJ* (13 May, 8 July 1758).

recovered over a period of four years although the fall in population is most likely also associated with declining economic stability related to factors such as the expansion of the railway elsewhere and the decline of the weaving trade. Recovery after smallpox in demographic terms was, therefore, tentative but not dramatic. Banbury experienced high fluctuations in burials in the first half of the century as a result of sickness. However, recovery appears fairly robust. After the first outbreak, for example, 1720 represented the highest percentage rise in baptisms between 1706 and 1730 and by 1723 the number of baptisms had reached its highest peak since 1706. The effect of the second outbreak is likely to have been muted by greater immunity of adults and older children. This factor and other aspects relating to susceptibility and transmission are explored further in the investigation of smallpox and the family in the next chapter.

CHAPTER FOUR

THE IMPACT OF SMALLPOX ON FAMILY STRUCTURES: BANBURY

4.1 Introduction

Chapters Two and Three compared and contrasted smallpox epidemics in Burford and Banbury. This chapter takes a closer look at two smallpox epidemics in Banbury, made possible by the combination of the parish register analysis of smallpox data in the previous two chapters and CAMPOP's family reconstitution of the parish. This combination provides an enriched study of the community experience of smallpox by allowing an analysis of the disease at a family level.[1] Burford is excluded from this chapter because, without data on family size and composition in this parish, any confident comparative analysis would be inadequate. On this level therefore, the two parishes cannot be compared and contrasted. However, family reconstitution data on Banbury offers a rich source of material, from which the age-profile, size and composition of families affected by smallpox mortality can be extracted. This provides a base for robust research on the nature of familial transmission of the disease. Furthermore, the occurrence of two separate but well-documented epidemics in Banbury allows a comparative exploration of susceptibility and familial transmission within the parish.

Firstly, infant mortality rates are compared, both nationally and at a local level, with the rates in the epidemic years in Banbury to establish the typicality of these families. Secondly, the composition of the families experiencing smallpox is examined in relation to the nature of familial transmission. Many families experienced single or multiple child deaths, although the highest proportion of families had

[1] E. A. Wrigley, R. S. Davies, J.E. Oeppen and R. S. Schofield, English *Population History from Family Reconstitution 1580-1837* (Cambridge: Cambridge University Press (1997). The work of the Cambridge Group for the History of Population and Social Structure entailed the technique of family reconstitution which necessitates unbroken and consistently detailed parish registers to allow the reliable linkage of one individual through several different records of vital events. As outlined in Chapter One, CAMPOP selected Banbury as a parish with ecclesiastical records of sufficient quality to be included in a programme of research into English historical demography. These findings demonstrate the reliability of Banbury registers in this period.

the majority of their children survive the epidemics. The chapter also investigates the age incidence and timing of fatal attacks of smallpox, the effect of immunity and migration, the relationship between parental and child smallpox deaths, the significance of smallpox for mothers and their infants and levels of parental care and responsibility. It suggests that the incidence of smallpox in the sample was high and concludes that non-fatal smallpox was a significant factor in familial transmission. The disease was characterised by a mainly unchanged disease pathology despite two discrete epidemic periods, adding significantly to the picture of smallpox gleaned from burial registers alone.

The preliminary parish register analysis of Banbury for this thesis indicated that 119 people died of smallpox during the first outbreak in 1718/19 and 93 during the second from 1731 to 1733. The majority of these individuals can be traced within the full family reconstitution. The aim of this phase of the research was to shape complete or near complete pictures of the nuclear families that experienced smallpox deaths during the two epidemics (subsequently referred to as the smallpox sample) in order to explore the disease and its impact on families.[2] To do this, I combined the reconstitution data with my findings of smallpox deaths from parish registers by de-constructing the database to allow for the identification of individual smallpox deaths and then re-constructing the data, placing those who had died of smallpox into their family units, with the exclusion of all the children in the smallpox sample who had died before, or were born after, each of the two epidemics. For the calculations of infant mortality rates in the smallpox sample, infants who had died before the outbreaks or were born later were added back in. This allowed for an analysis of size, composition and transmission of smallpox mortality in these families.

[2] Nuclear families are defined as those in a common household with shared surnames. Although burial registers may identify servants and apprentices in particular households, generally parish registers and reconstitution does not allow the identification of other kin who may be sharing a household.

4.2 Smallpox and the reconstitution sample, 1718-19

101 of the 119 people who died of smallpox in 1718/19 can be grouped into 75 reconstitutable nuclear families, by extracting names of those who died of smallpox from parish burial registers and matching them with their families and burial dates as identified from CAMPOP's family reconstitution.[3] This gives an average of 1.33 smallpox deaths per family in the smallpox sample. Figure 4.i illustrates the percentage breakdown of smallpox fatalities by age and sex.[4]

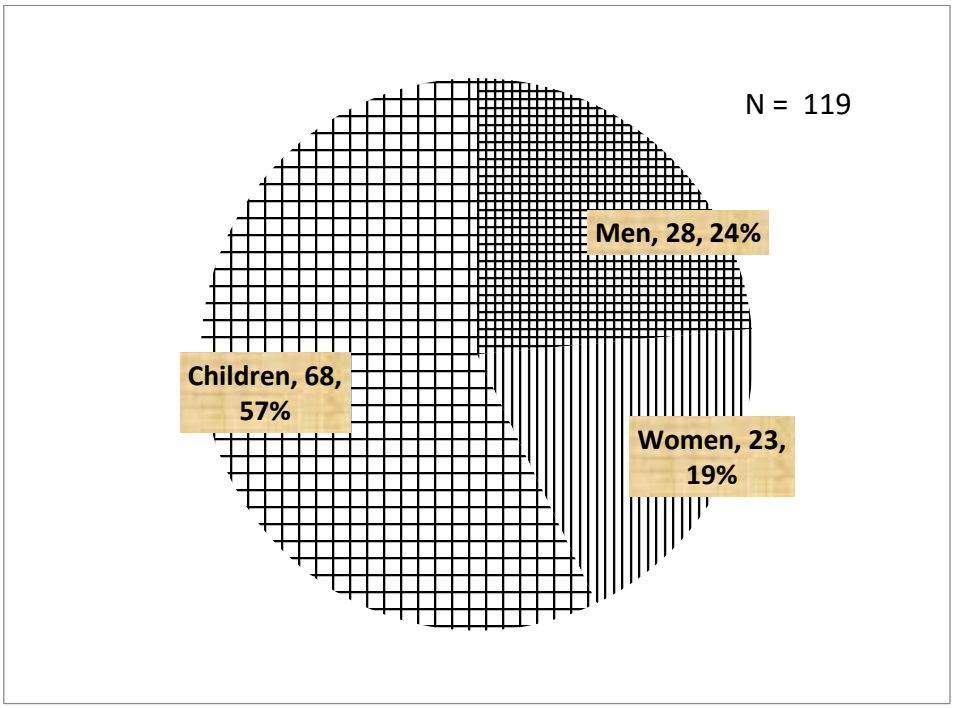

Figure 4.i *Smallpox deaths in Banbury 1718-19*
Source: Banbury Burial Register 1718-1719

Children were particularly prone to infectious disease and, as might be expected, they composed the largest group of fatalities in the 1718-19 epidemic, adding to the general findings on their susceptibility.

[3] Reconstitutable families are those with individuals on whom we have enough information from parish records to link them to a particular family.
[4] Children are all those identified as 'son of' or 'daughter of' in the register.

The following section of this chapter examines the composition of these smallpox families in more detail. 18 smallpox deaths cannot be linked to a nuclear family using the technique of reconstitution. These were people with no observable life events other than their deaths.[5] 70 out of the 75 families in the smallpox sample had living children at the beginning of the epidemic in August 1718. The remaining five families were childless when the outbreak occurred.[6] The 70 families comprised 239 children. Four fathers of smallpox families died (presumably of other causes) before the epidemic and four mothers or stepmothers. Some parental burial dates are unknown.[7] Despite the unknowns, we can fairly confidently estimate that the total number of people who made up the families affected by smallpox mortality at the start of the epidemic was at least 363 (men: 63, women: 61, children: 239) or an average of 4.8 people per family. This is similar to Laslett's figure of approximately 4.7 although in Banbury some older children may not have been resident in the family home.[8]

4.2.1 Transmission and case-fatality

Firstly, it is appropriate to examine the background evidence on the likelihood of transmission and smallpox case-fatality. Transmission was greatly influenced by frequency and intimacy of contact with others, being most frequent in the close association of the family group.[9] The risk of infection when it was introduced into a general population, however, depended on conditions such as density of

[5] These comprise: men (8), women (4), children of untraceable parents (4), servants or apprentices (2).
[6] Three of these had no recorded children and two families had children who died before or who were born after the outbreak. The five families who were childless at the time of the epidemic have been omitted from Table 4.2.
[7] The number of families for which we do not know the date of burial of the father is five. In two of these, later baptisms indicate that the fathers were alive at the time of the epidemic (although we cannot be sure whether they were actually present or not) and three others buried family members after the epidemic, indicating that the family was still in the parish. All details of the female parent in seven families are unknown. It is likely that in some of these cases marriages had taken place outside the parish or not taken place at all. In a further ten families the date of burial of the mother or stepmother is unknown although later recorded births confirm the continued presence of the mother in one family.
[8] See P. Laslett, 'Size and Structure of the Household in England over Three Centuries', *Population Studies* 23 (July 1969), 200.
[9] *Scientific Group on Smallpox Eradication.* 'Smallpox Eradication', World Health Organisation Technical Report Series No. 393.Geneva: World Health Organisation, (1968), 17. http://whqlibdoc.who.int/trs/WHO_TRS_393.pdf (accessed 28/4/2012).

population, social custom (for example, practices in visiting the sick), levels of mingling in the workplace and geographical barriers such as rivers.[10] According to clinician C. W. Dixon, chances of infection by casual contact, however, were 'impossible to determine'[11] although he assesses the risk of infection in an unvaccinated community by referring to two nineteenth century studies. In Sheffield in 1887, the all-age chance of being attacked through casual contact was 9.7 per cent, rising sharply in homes where smallpox was present to 75 per cent, whilst in Gloucester in 1893 attacks in the unvaccinated in the 0-30 age group in these households ranged from 75 to 80 per cent, depending on age.[12] The all-age Sheffield figure is likely to be an under-estimation of the chances of attack in the under 30s, because infection rates fall off with increasing age, (probably due to previous contact; 6.6 per cent of the population in Sheffield at that time had a history of smallpox and were likely, therefore, to be immune).[13] To illustrate the significance of close contact Dixon cites individual cases; in the early twentieth century a single person infected up to one hundred others in circumstances of close inter-mingling, (in this case by travelling together).[14] Several factors influenced case-fatality percentages, once infected, including age incidence, virulence and conditions of susceptibility; young children were particularly vulnerable and substantiated evidence indicates that pregnant women were particularly susceptible to severe forms of smallpox.[15] Razzell suggests that there was a U-shaped curve distribution of smallpox case-fatality, with children and adults being least susceptible to smallpox mortality between the ages of five and the mid-twenties.[16] Dixon has identified a smallpox mortality

[10] Dixon, *Smallpox,* London: J. & A. Churchill Ltd (1962), 196. US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html. 316.
[11] *Ibid*., 312.
[12] *Ibid*., 310-1, 314, 319.
[13] See for example Aynho (1723/4), Dewsbury (1904), Gloucester (1923) Liverpool (1901), London (1893). Dixon, *Smallpox*, 317-321.
[14] Dixon, *Smallpox*, 311.
[15] Case fatality in adults could be higher than that in children. See, for example, the Rev David Some (1725), 'that of young Children that have it one in six or seven commonly die of it; and of grown Persons, at least one in three', in P. Razzell, *The Conquest of Smallpox* (Firle: Caliban Books, 1977), 132. Razzell proposes a marked difference in the fatality of smallpox depending on age, reporting limited evidence of case fatality by age during the eighteenth century. On pregnancy, see A.R. Rao, *Smallpox* (India, Bombay: The Kothari Book Depot, 1972), 120-129. US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.
[16] P. Razzell, *Population and Disease Transforming English Society, 1550 – 1850* (Caliban Books, 2007), 185.

incidence of between 15 and 25 per cent in provincial towns in England between 1721 to 1730 and later, in the twentieth century, an overall case mortality incidence in an unvaccinated population of about 30 per cent and up to 50 per cent in pregnant women.[17] Calculations for this thesis show that in Aynho in 1723-4 the incidence of case fatality was 18.8 per cent. This is a low figure, particularly as the number of adult fatalities was high, and may reflect the use of a pest house there, in order to contain the disease.

In Banbury 64 children experienced smallpox fatally in 1718-19. If all 239 children in the smallpox families had contracted the disease this would equate to a case-fatality percentage of 27 or, if half the children were affected, nearly 54 per cent. It is possible, under severe epidemic conditions, that Banbury experienced exceptionally high smallpox mortality. However, given the susceptibility of an unprotected population and the conditions under which transmission was most likely (that is, those associated with close familial contact), if this was the case we would expect to see fewer survivors. It is more likely, although not certain, that case-fatalities were roughly commensurate with those compiled by Dixon for provincial towns, or other estimates by historians such as Schofield (30 per cent) and Razzell (16.5 per cent), all of whom place the incidence of case fatality at 30 per cent or under.[18] Moreover, a case fatality percentage above the average would still imply that the majority of the children in the smallpox families experienced the disease. If we take the likelihood of being attacked from the similar age profile in Gloucester as approximate, and bearing in mind the incidence of Burford in 1758, where 'very nearly the whole of the Inhabitants' had the disease.[19] the expected breakdown

[17] Dixon, *Smallpox,* 196.

[18] For overall case mortality and pregnancy in an unvaccinated population see Dixon *Smallpox,* 325-326. From 32 censuses taken between 1721 and 1731 (including 26 from market towns) Razzell also estimates an average overall case fatality percentage (adults and children) of 16.5 although considerable variations could occur from one epidemic to another. Razzell, '*Conquest'*, 130-31. R. Schofield proposes smallpox case-fatality at around 30 per cent. R. Schofield, 'An anatomy of an Epidemic' in *The Plague Reconsidered (*Matlock: Local Population Studies in association with the S.S.R.C. Cambridge Group for the History of Population and Social Structure 1977), 121.

[19] *Jackson's Oxford Journal* 19 August 1758.

of affected children in Banbury would be as follows: number of children in smallpox sample, 239; number of cases (assuming 80 per cent likelihood of infection), 191; fatal attacks in sample, 64; therefore non-fatal attacks, 127. This places the case-fatality percentage at a typical per cent. Based on these figures non-fatal attacks would have occurred in 127 (53 per cent) of 239 children in homes known to have been infected with fatal consequences for at least one family member. Given the practical problems associated with isolating young children living in close proximity it is likely that the majority of siblings in Banbury experienced smallpox but survived the disease. An example of the potential discrepancy between smallpox morbidity and mortality is seen in Aynho, where we have an account of all cases of the disease in 1723-24. Figure 4.ii shows the incidence of smallpox in Aynho by month. Cases increased from September to December 1723 as the contagion spread. The last case was recorded on 29 December 1724 but the last fatality occurred in August 1724. In this parish, if sufferers lived with the disease for two weeks or more, their chances of survival were good. The figure illustrates that mortality affected only a relatively small proportion of cases; approximately nineteen per cent of cases were fatal with none occurring in the last four months as the epidemic subsided.

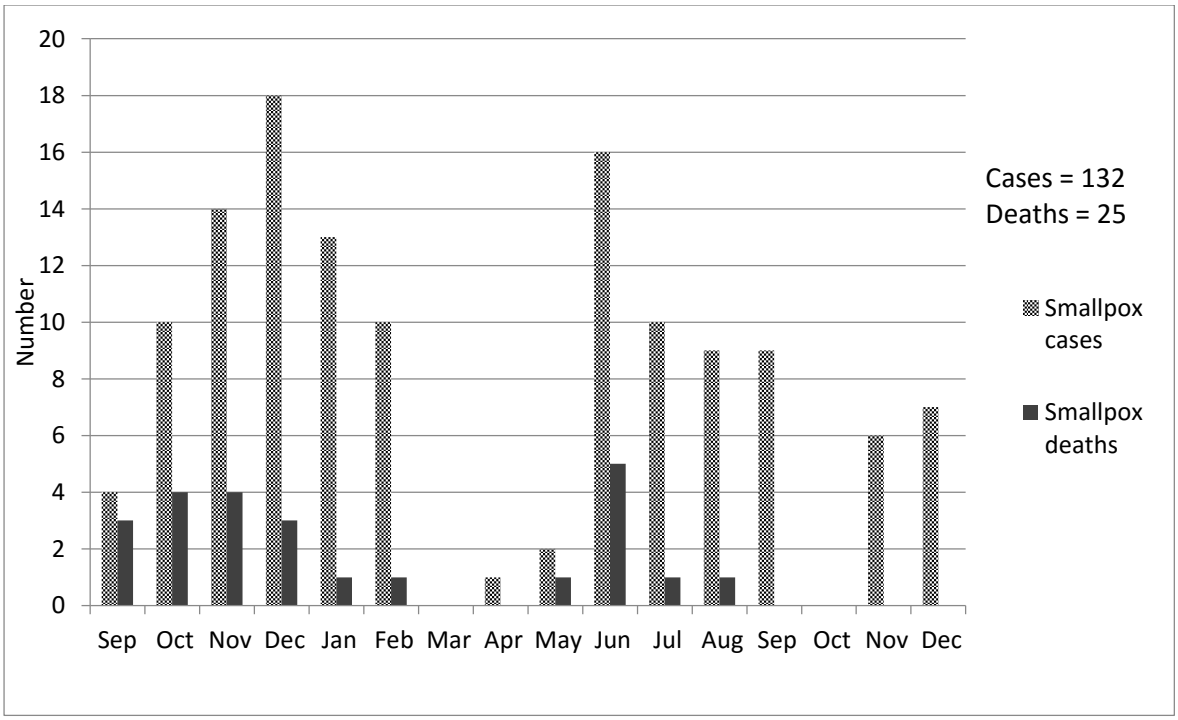

Figure 4.ii *Aynho: smallpox incidence and mortality 1723-24. Source*: 'Account of those who had ye smallpox from September 1723-December 1724'. Royal Society Cl.P./23ii/87

4.2.2 Infants' and children's susceptibility to smallpox and the risk of death

The following section examines infant mortality rates (IMRs) in Banbury and compares these with national trends.[20] Landers has estimated a rate of approximately between 350 and 400 per thousand live births from Bills of Mortality in London in the early eighteenth century and from a sample of sixteen London parishes from 1700 – 1749 Razzell estimates an IMR of 409.[21] In Banbury, Wrigley has supplied a rate for Banbury for the first half of the eighteenth century of 240 deaths per thousand (1 in 4.2).[22] Outside London, in rural areas, the IMR was more likely to be somewhere between 193 and 243 per thousand.[23] Razzell has estimated a rate of 214 per thousand in Banbury in 1700 – 1749, or approximately one in 4.7 of all infants born dying before the age of one, and 173 per thousand in 15 rural parishes in 1650-1837.[24] This variation between parishes could be influenced by various factors including, for example, level of urbanisation, geographical location, the proportion of multiple births and the presence or decline of a particularly destructive disease.[25] Representation of the true IMR is also subject to variations in the time elapsing between birth and baptism and the corresponding likelihood of a child dying before a baptism was recorded.[26] These estimates show us that the IMR for Banbury was lower than that of London but higher than the figures for rural areas. Banbury was an important market town in the period and, as discussed elsewhere in this thesis, the traffic in people and goods that this generated probably contributed to the town's susceptibility to disease.

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[20] Infants are categorised as those 0-12 months.

[21] J. Landers, 'Death and the Metropolis',192 quoted in Wrigley et al., *English Population History,* 218; P. Razzell, *Population and Economy in England, 1650 – 1850*, unpublished. Data kindly provided by P. Razzell.

[22] Wrigley et al., English *Population History*, 214, 218.

[23] *Ibid.*

[24] Razzell, *Population and Economy in England, 1650 – 1850* unpublished. The 15 parishes are Chalgrave, Poddington and Sandy, Bedfordshire; Weston Colville, Cambridgeshire; Canewdon and Stow Maries in Essex; Alcester, Aldenam, Austrey and Breamore, Hampshire, Cusop, Herefordshire; Woodchurch, Kent; Eaton Hastings, Oxfordshire; Kemerton, Worcestershire and Ackworth, Yorkshire.

[25] Wrigley et al., English *Population History,* 214, 218.

[26] See Wrigley et al., English *Population History*, 111 & 576 for a full discussion on birth/baptism delay.

Infants were a particularly susceptible group due to their lack of previous exposure to disease. To establish whether families in the smallpox sample were intrinsically biased towards higher levels of mortality their IMRs have been calculated for five years on either side of the epidemic as well as during the outbreak itself. Table 4.1 shows infant deaths from all causes in those families in Banbury experiencing at least one smallpox fatality.

Year	Live births	Infant deaths	IMR
1713	21	4	190
1714	13	2	154
1715	19	5	263
1716	18	3	167
1717	19	5	263
1718	**24**	**10**	**417**
1719	**16**	**14**	**875**
1720	10	3	300
1721	10	1	100
1722	12	2	167
1723	10	3	300
1724	6	0	0
Total 1713 - 1724	178	52	292

Table 4.1 *Smallpox sample: IMR 1713-24. Infant deaths from all causes*[27]
Source: Figures derived from Banbury Burial Registers and reconstitution

Notes:
i. Smallpox years highlighted
ii. Two smallpox families in which the father survived were in observation until 1722 and 1723 only. It is possible that these family had further children before 1724 who were born and/or died elsewhere

[27] The families are those with any smallpox death and infants born between 1713 and 1724. The number of infants in each year are those who died at under 12 months, therefore, for example, an infant born in 1714, and dying in in 1715, is included in the 1715 figure.

The number of live births in 1719 is lower than immediately before the epidemic which was probably due to the disruption caused by the high number of burials in 1718, and, as discussed in the previous chapter, the higher likelihood of foetal loss. In this sample the IMR was 292 per thousand for the years 1713 to 1724. This is higher than previous estimates for Banbury from 1700-1749 (214),[28] particularly so as the latter will include figures for the years of the second smallpox epidemic in 1731-33. However, if we take the five-year period up to the epidemic (1713-1717) then we see a more comparable IMR in the smallpox sample: 211. This figure is similar to but lower than previous estimates, which is a good measure of prior general health.[29] From these figures, therefore, there is little evidence that the families who experienced deaths from smallpox during this epidemic were already prone to high levels of infant mortality.

In the five years after the epidemic, the number of live births in the smallpox sample fell, which was probably due to the unusually high number of adult deaths during the outbreak. In the post-epidemic period the rate for the smallpox sample returned to just above its previous levels. The high IMR of 292 for the whole period 1713-1724 is unsurprising, given the fact that the sample consists of families affected by smallpox and some of the figures for sub-periods may be skewed by low numbers. It is speculated that the three infant deaths in 1720 may be connected to the disturbance to families caused by deaths of older children. Two of the three families with infant deaths in this year lost an older child to smallpox and one family, a servant (one of only four servants identified in burial registers who can be linked to a particular family). Notwithstanding, Table 4.1 demonstrates the dramatic rise in infant mortality for these families in the smallpox years, particularly during the second half of the

[28] Razzell, *Population and Economy in England, 1650 – 1850,* 14.

[29] In my sample, adjustments have not been made for under-registration due to deaths prior to baptism. However, for the period 1700 – 1729 CAMPOP calculated that the proportion of the total number of baptisms and burials to make good shortfalls in the registers for Banbury was zero, demonstrating the reliability of the registers. See Wrigley et al, *English Population History,* 78-87.

epidemic in 1719. It is probable that this later impact felt by infants was due to infection from siblings or parents acting as vectors, a point discussed in more detail later in the chapter.

We can usefully distinguish between infant mortality from different types of causes. Wrigley's IMR of 240 is divided into 118 stemming from endogenous causes (arising from heredity, conditions *in utero* and circumstances of birth conditions) and 122 exogenous deaths (arising in later infancy from other causes such as infectious disease).[30] In smallpox cases the incidence of intra-uterine infection was low so we would not expect it to be a precipitating factor for raised levels of endogenous mortality. Of the 17 infants who died of smallpox in the Banbury outbreak of 1718-19, three died within their first month or less, and in three cases baptism dates are unknown. However, none occurred at under eight days and it is likely that very few were cases of endogenous smallpox, thus emphasising further the high IMR as a result of infection after birth in the smallpox sample.[31] Moreover, pregnant women with smallpox fared badly and premature termination either during the course of the disease or immediately after recovery was high; there is no way of knowing how many terminated pregnancies had been infected with the disease.[32]

The chapter now investigates the spread of child deaths in individual families. Taking infants and children together, Table 4.2 shows the number of infant and child smallpox deaths in relation to the family size at the time of the outbreak. The notable point is the number of smallpox families which experienced single child deaths. 42 out of 51 families with child deaths are in this category, 35 of which had more than one child. Multiple smallpox deaths among children occurred in only nine

[30] E. A. Wrigley, 'Births and Baptisms: The Use of Anglican Baptism Registers as a Source of Information about the Number of Births in England before the Beginning of Civil Registration', *Population Studies,* Vol 2 No. 2 (July 1977): 286.

[31] Rao, *Smallpox,* 123. In a study conducted by A. R. Rao and colleagues in India in the 1960s congenital smallpox was found to occur in only 10 out of 116 [8.6 per cent] births to smallpox mothers, all infants dying after birth.

[32] Rao *Smallpox,* 123. Although the incidence of intra-uterine infection was low, pregnancy status increased susceptibility to early termination.

families. The average number of children per family at the start of the epidemic was 3.4, many having considerably more. 80 per cent of child mortality families with multiple children experienced one child death only.

	Number of infant and child smallpox deaths per family						
	1		2		3		Total
	Number	Per cent	Number	Per cent	Number	Per cent	
Families with one child	7	100					7
Families with multiple children	35	79.5	5	11.4	4	9.1	44
Total	42	82.3	5	9.8	4	7.9	51

Table 4.2 *Smallpox sample: smallpox deaths in relation to families with single or multiple children 1718-19*
Source: Figures derived from Banbury Burial Register and reconstitution

The table identifies 64 children ((1x42) + (2x5) + (3x4)) from reconstituted families dying of smallpox out of the total of 68. The remainder cannot be linked to a nuclear family using the technique of reconstitution. The total number of smallpox families with children is 70. The number of families above (51) excludes 19 with no child deaths, ie those in which only parent/s died. Parental death is discussed later in the chapter

The number of surviving children per smallpox family with children was between 0 and 7. What is more important, however, is to relate this to the total sizes of these families. Table 4.3 shows family size at the start of the epidemic in relation to infant and child smallpox deaths per family, showing very clearly that most families lost only one child regardless of their original size. For example, families with seven children were no more likely to experience higher child mortality than those with three or four, despite the potential for a greater degree of close contact between individuals in an infected household. Another notable point is the high number of three and four-child families that experienced single child deaths only, that is, the majority of their children survived.

Family size (children only)	Number of families	Families with one child death	Families with two child deaths	Families with three child deaths
1	7	7		
2	6	5	1	
3	15	14	1	-
4	7	7	-	-
5	4	2	-	2
6	8	4	2	2
7	3	3	-	-
8	-	-	-	-
9	1	-	1	-
Total	51	42	5	4

Table 4.3 *Smallpox sample: infant and child smallpox deaths relative to family size 1718-19*
Source: Figures derived from Banbury Burial Register and reconstitution

Note: In two smallpox families a sibling died from unknown cause during the epidemic. These have been excluded. All other child deaths from unknown causes during the epidemic were from non-smallpox families and are not included here

Numerically, the most common scenario for affected families was the survival of two out of three children. Clearly there were differences in the risk of death among children, which may have related to levels of contagion associated with family size, background health and isolation factors but it was rare for a family to lose all its children. Differences in the risk of death are well-exemplified in the family of Thomas Wright in Yorkshire in 1782, who will be returned to in later chapters. Wright's five children, aged between five and 14 years were 'attacked by that dreadful distemper', smallpox.[33] Wright recounts the following:

> Betty's [14] was of a most malignant kind, and she was rendered one of the most deplorable objects I ever saw, and was literally flayed from head to foot. However, it pleased God to spare her life, contrary to the expectations of all who saw her, and even of the physician who attended her' …. However, her life, her eyes, and limbs were spared. Tommy [11] was more favourably dealt with; his pocks were of a better kind, his countenance little or none altered

[33] T. Wright (ed.) *Autobiography of Thomas Wright of Birkenshaw*. London: John Russell Smith, 1864, 152. http://archive.org/stream/autobiographyoft00wrig#page/n7/mode/2up

> and he got through them the easiest of all the three. John, [7] was very full; his lovely countenance much altered, yet he got through them with much less trouble and danger than his sister did ... Sally [9] got very favourably through them but they proved fatal to my youngest son Willy [4].[34]

In 1838, physician G. Gregory suggested that smallpox particularly severely affected those in otherwise good health, whilst concurrent diseases, or experiencing another disease during exposure to smallpox, appeared to give some protection from smallpox.[35] More recently and to the contrary, in 1962, Dixon purported that smallpox mortality in the extreme ages of life could be influenced by general hygiene and poverty.[36] In 1967 The World Health Organisation (WHO) reported that there was no evidence that nutrition, general health status, and concurrent infection influenced the likelihood of infection.[37] Researchers have also tentatively suggested that certain members of similar 'physical type' in a family were predisposed to contract the disease.[38] Historian C. Creighton suggested that proclivity ran in families, quoting families with no fatal cases compared to one where the disease was '… wont to prove calamitous as if by heredity right'.[39] There is little evidence to substantiate these claims. The Bray family of Great Barrington, Gloucestershire, for example, appear to be an example of familial predisposition with ten family members dying of smallpox between 1674 and 1720.[40] It is likely that children from a particular smallpox family experienced similar levels of nutrition and general health, however this thesis shows that the risks of smallpox death within individual families were clearly different. This point appears to contradict Dixon's suggestion but endorses the WHO findings. In summary, although there is no substantial evidence on pre-disposition (except in the case of pregnancy which will be considered later) we can confidently conclude that smallpox was likely to be

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[34] Wright, *Autobiography of Thomas Wright,* 152-3.
[35] Dixon, *Smallpox,* 313. Dixon quotes G. Gregory (1838) 'Lectures of Eruptive Fevers'. American edition, *Cyclopaedia of Medical Practice*.
[36] Dixon, *Smallpox,* 326.
[37] *Smallpox Eradication*. Report for WHO Technical Report Series 1968, 18. http://whqlibdoc.who.int/trs/WHO_TRS_393.pdf.
[38] Dixon, *Smallpox,* .313.
[39] C. Creighton, *History of Epidemics in Britain* Vol 2 (London: Frank Cass and Co Ltd, 1965. First published 1894), 549 – 556.
[40] J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight of Burford, 1998), 37-38..

most contagious within the close family unit because of shared living conditions. However, only 64 out of a possible 239 children died of the disease. An investigation into age incidence, sibling status and parental smallpox mortality follows, in order to probe these patterns of infection more closely.

4.2.3 Age incidence of infection

Table 4.4 shows the age incidence of child smallpox deaths in relation to the 239 children living in the smallpox families.[41] The cohort with the highest portion of smallpox deaths (65.4 per cent) is clearly the under-12-months age group.[42] Children in this group were twice as likely to die of smallpox as any other childhood group. The four-to-five year olds also experienced a high fatality rate but this should be treated with caution. Since this was a small cohort with a maximum 40 per cent error margin (due to a lack of information on baptism dates and the necessity of applying probable ages). The same applies to the three-year-olds who experienced a low proportion of smallpox deaths (11.1 per cent). This may also be accountable to a particularly small cohort in which the proportions can be easily skewed. The figure for the under-1s is more secure since numbers in this age group were higher. There is no common trend across the whole age spectrum, however figures suggest that children in smallpox families became somewhat less susceptible to smallpox mortality with each subsequent year of their age until they were four. At the other end of the age spectrum their chances of dying of smallpox diminished from the mid-teens onwards, although it is necessary to be cautious in assuming that all family members still lived at home.

[41] Ages are taken mainly from the date of baptism.

[42] The total of 17 infants includes three with assumed or 'dummy' birth dates; they have been allocated parallel birth and burial dates by the rules of family reconstitution, where no date of birth or baptism is recorded in parish registers. Even allowing for the maximum number of errors, (all three dummy birth dates being incorrect), the highest percentage of smallpox deaths reduces to 53.8, remaining considerably higher than in all the other age groups.

Age	Number of child smallpox deaths 20 Aug 1718 - 26 July 1719 in traceable families	Child deaths from unknown cause (in the same period)	Total number of children in all smallpox families at beginning of epidemic	Number of surviving children in smallpox families at end of epidemic	Proportion of age group dying of smallpox (%)
Infants (Up to 1 year)	17[I]	1	26	8	65.4
1	3	-	11	8	27.3
2	4[III]	-	18	14	22.2
3	1	-	9	8	11.1
4	5[IV]	-	15	10	33.3
5-9	10[III]	-	51	41	19.6
10-14	12	1[II]	44	31	27.2
15–19[v]	5	-	26	21	19.2
20+	5	-	38	32	13.2
Age unknown	2	-	2	-	
Total	64	2	239	173	26.7

Table 4.4 *Smallpox sample: breakdown of children by age 1718-19*
Source: Figures derived from Banbury Burial Register and reconstitution

Notes: I Includes three infants with assumed birth dates[43]
II Probable age
III Includes one probable age
IV Includes two probable ages
V Five of the 'children' who died of smallpox were 20 years or over. Three of these were recorded as 'daughter of' and may have been unmarried children living in the family household. However, a proportion of the over 20s were no longer fully integrated into a family unit and so we should not cite them as being fully representative of cases of familial transmission.[44] The same applies, although possibly to a lesser extent, to the 15–19 age group[45]

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[43] See Wrigley, 'Births and Baptisms' 53 & 286; Wrigley et al., *English Population History,* 112 for discussions on assumed and probable birth dates.

[44] One of the daughters had five older adult siblings, all or some of whom were probably living away from home. Another smallpox death involved a 21-year- old servant who was working away from her home and her adult siblings.

[45] For the purposes of the family reconstitution project, CAMPOP presumed children below the age of 15 to be normally resident in the parental household. See Wrigley et al., English *Population History,* 588. This presumption is applied here. For older children, see note V above.

Although the account of smallpox mortality of the three and four-year-olds is not complete, Table 4.4 shows that the risk of smallpox mortality in the 10-14 age group rose in Banbury, compared to the age groups either side. This pattern has also been found in other studies of smallpox. The apparent susceptibility of those aged 11-15 was claimed by historian J. Smith in 1987 to be 'somewhat puzzling'.[46] On assessing the transmission of smallpox, Dixon referred to those in the 15-25 age group as 'interfamily disseminator[s] of infection'.[47] Moreover, Dixon's research also shows that incidence (in the unvaccinated) peaked in the 10-15 group, quoting samples from Dewsbury, Yorkshire in 1904, Gloucester in 1923 and in Aynho in 1723-4 (although in these cases total population cohort sizes are unknown).[48] It is suggested in this thesis that children in the 10-15 age group were making their first reconnaissances away from the family home both socially and as casual wage earners and were therefore newly exposed to distinct forms of contagious disease in the wider environment. This speculation is supported by research by Wallis, Webb and Minns, who found that, although children were apprenticed mainly from the age of 14 onwards, child labour also occurred in the under-15 age group whilst they remained resident in the family.[49] Children under 15 were employed on a casual basis whilst still living in the family home in tasks such as gardening and running errands.[50] It is proposed here that this younger group, being newly exposed and independent, yet living in close familial contact, were also a significant factor in the inter-family dissemination of smallpox infection. There may also be a connection between infants and siblings with regard to older children providing some care for infant siblings, although, as yet, there is insufficient evidence to support this. Evidence

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[46] J. R. Smith, *The Speckled Monster* (Chelmsford: Essex Record Office Publication no 95, 1987), 64.
[47] Dixon, *Smallpox,* 314.
[48] Dixon, *Smallpox,* 314, 318-322.
[49] P. Wallis, C. Webb and C. Minns, *Age at Leaving Home and Entering Service: The Age of Apprenticeships in Early Modern London* (Submission to Continuity and Change, October 2009, working papers 125/09), 25. http://eprints.lse.ac.uk/27873/1/WP125.pdf. Age at leaving home could depend on family factors such as the occupation or status of the father and family income. However, Snell and Lane suggest a mean age of around 14 in the eighteenth century, (see Wallis et al., 14 & 6). Wallis et al estimate an age range of 14 – 17 with a mean age of just under 17 years, see 27.
[50] See, for example, Peter Kirby, *Child Labour in Britain, 1750-1870 (*Palgrave Macmillan, 2003*);* Jane Humphries, *Childhood and Child Labour in the British Industrial Revolution* (Cambridge Studies in Economic History, 2010). I am grateful to Jenifer Dyer for supplying these references.

from Aynho in 1723-24, however suggests that although those in the 10-14 age group experienced a high incidence of disease they suffered fewer deaths (see Table 4.5).[51] This appears to be in contradiction to Banbury, where, in 1718-19, smallpox was particularly fatal to this age group. However, both statistical sets show the vulnerability of this age group to the disease, even if the risk of mortality differed.

Age	Smallpox cases	Smallpox deaths	Case-fatality
0-4	13	3	23
5-9	15	1	7
10-14	33	3	9
15-20	14	1	7
20-24	16	3	19

Table 4.5 *Aynho: age incidence of smallpox cases and deaths 1723-24*
Source: P. Razzell, *Population and Disease Transforming English Society, 1550 – 1850* Caliban Books, (2007), 185

4.2.4 Identifying the groups susceptible to smallpox in larger families

We have seen that the smallpox epidemic in Banbury in 1718-1719 rarely killed all the children in one family. The following section looks further at which children were most vulnerable in families of several children. Table 4.6 shows the age incidence of the children in the 35 smallpox families experiencing one child death out of several children (the remaining seven families were those of single children) and the nine families experiencing multiple child smallpox deaths. The incubation period of smallpox is around 16 days, with a wider margin of 8–21 days, infection being most likely from between the third and eighth day after onset of the fever.[52] This is confirmed in Banbury where the intervals between the child deaths in the nine multiple child death families averaged 12.8 days. Dixon

[51] P. Razzell, *Population and Disease: Transforming English Society, 1550-1850* (Caliban Books, 2007), 97.

[52] Rao, *Smallpox,* 11 and 77-78.

quotes death from the disease ranging from several to 21 days since infection.[53] It is borne out in Aynho too, for example, where 25 died; half were sick for 11 days or less, although one patient, Thomas Gee, aged 28 'got cold' and died after 28 days.[54] Given these variations it is not always possible to establish clear patterns of transmission. However, in the nine families in Banbury experiencing more than one child smallpox death there was only one likely case of re-entry of infection into a household. A child in the 10-15 age group in the Welchman family died of smallpox after a time delay of 78 days since the previous death. This later death was likely to be as a result of a new infection.

	Single child deaths			Multiple child deaths		
	A	B		C	D	
Age	Number of smallpox deaths	Total number of children in families losing one child to smallpox	Percentage	Number of smallpox deaths	Total number of children in families losing more than one child to smallpox	Percentage
Under 1	13*	15	86.7	1	2	50.0
1-2	3	6	50.0	0	1	0
2-3	3	11	27.3	1	2	50.0
3-4	1	5	20.0	0	1	0
4-5	3	11	27.3	2	4	50.0
5-9	3	25	12.0	6	12	50.0
10-14	5	25	20.0	6	10	60.0
15-19	2	13	15.4	3	7	42.9
20+	2	20†	10.0	2	7	28.6
unknown	0	0	0	1	1	100.0
Total	35	131	26.7	22	47	46.9

Table 4.6 *Smallpox sample: infant and child smallpox deaths by age, in families with more than one child 1718-19*
Source: Figures derived from Banbury Burial Register and reconstitution

[53] Dixon, *Smallpox,* 88.
[54] *Royal Society* Cl.P./23ii/87. 'Account of those who had ye smallpox from September 1723 – December 1724'.

Note: This table does not include families with single children at the start of the epidemic

* Includes three infants with assumed birth dates.[55] Smallpox mortality in infants was not always recognisable.[56] Some infant deaths apparently due to convulsions (although this was a cause rarely identified in Oxfordshire parish registers, none appearing in Banbury or Burford during their epidemic period) and cases of fulminating smallpox, a form of the disease particularly affecting infants which did not give rise to the eruption of lesions, may have been unrecognised.[57] Findings from Chapter Three suggest an under-representation of smallpox in Banbury in 1718/19; the high smallpox mortality in infants here may be an under-estimation

† In the single child smallpox death families we have a large cohort (20) of children over 20 years. As already discussed these should not be considered when assessing familial transmission because it is likely that a proportion of these 'children' were living (and possibly dying) away from the family home and therefore not in close proximity to other family members.

Two points arise from this table. Firstly, the number of infants (13) who were the only child smallpox fatalities in their families (see column A) and secondly, the small number of children fatally affected in the 1-5 age group in the multiple child deaths (three out of eight, columns D-C) despite smallpox deaths of two, and in one case three, siblings. (Previous research suggests a mother's prior immunity could protect a new-born infant for up to one month.[58] Little research has been conducted on immunity to smallpox through breast-feeding, which may have been practiced by the mothers of some of the children in these group, although generally breast-feeding does not provide specific immunity to viral diseases such as smallpox.[59]) These two points are now investigated. Firstly, with one exception all the infants were living in families in which all siblings were under the age of 14. It is likely, given the susceptibility of the under-fives to infectious disease, particularly smallpox, and the likely

[55] Assumed or probable birth (baptism) dates apply in three per cent of all children in the smallpox sample. Isolating only the children who died of smallpox the proportion increases to ten per cent.

[56] Razzell, *Conquest,* 105-106. Razzell quotes the contemporary John Haygarth, 'A Sketch of a Plan to Exterminate the Casual Small-Pox' (1793). Haygarth observed 'the disease most fatal to infants is convulsions, arising from various causes; one of which is the smallpox … under one year old the proportion of deaths by the smallpox is less than in subsequent periods'.

[57] Razzell, *Conquest,* 102 104.

[58] *Scientific Group on Smallpox Eradication.* 'Smallpox Eradication', World Health Organisation Technical Report Series No. 393 Geneva: World Health Organisation, (1968), 18. http://whqlibdoc.who.int/trs/WHO TRS 393

[59] R. Davenport, L. Schwarz, J. Boulton, *The decline of adult smallpox in eighteenth-century London,* 26 & note 71.
http://www.geog.cam.ac.uk/people/davenport/davenport8.pdf

number of children affected overall, that at least some of these child survivors experienced the disease non-fatally, whilst transmitting it to infant siblings. Secondly, the low rates among the 1-5s in families where other children died show differences in levels of risk despite, presumably, similar living conditions and levels of intra-familial contact. This could support the theory that family members were pre-disposed to the disease if it is presumed that other children did not experience the disease. However, this research indicates that the majority of siblings experienced smallpox non-fatally for the reasons discussed earlier, a finding commensurate with the WHO findings of no evidence that underlying health status influenced the likelihood of infection.

4.2.5 Parental smallpox mortality

Having investigated the likelihood of smallpox mortality patterns among siblings smallpox in parents can be fitted into the picture of familial transmission. It is important first to examine the background evidence on the likelihood of adult immunity to the disease. There is no record of the disease occurring in Banbury between 1669-70 and 1718.[60] The incidence of smallpox in the population at large was low between 1695 and 1710, the disease becoming more virulent between 1710 and 1730.[61] This points to the likelihood of parents having contracted the disease between 1710 and 1718 rather than earlier, or being naturally immune. Three points indicate, however, that neither endemic smallpox nor natural immunity, affected families in significant numbers prior to 1718. Firstly, under endemic conditions, typically in large urban areas, smallpox was mainly a disease of children.[62] When an area had been free of the disease for a long time, however, (as Banbury had) then mortality in adults was higher. This scenario is evident in Aynho, where the risk of death for sufferers was greater for those over 16 years.

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[60] *Victoria County History Oxfordshire*, Vol X (1992). http://www.british-history.ac.uk/report.aspx?compid=63793&strquery=pest+house#n257;
No cases recorded in burial registers in the eighteenth century prior to 1718. See *Baptism and Burial Register of Banbury, Oxfordshire part two* 1653-1723 (ed.) J. S. W. Gibson. (Oxford: Banbury Historical Society 9, 1969).

[61] Dixon, *Smallpox,* 195.; Razzell, *Conquest,* 132.

[62] See Davenport et. al., *The decline of adult smallpox*, 4.

If smallpox had been endemic in Banbury in the early eighteenth century we would likely not see the high number of adult deaths (51, representing 43 per cent of the total) in 1718, that is, the pool of susceptible adults would have been smaller. This is borne out by the smaller proportion of adults (35 per cent of the total figure) mortally affected in the 1731-33 epidemic in Banbury when immunity from the earlier epidemic may have reduced the number of susceptibles, despite the numbers of 'at risk' immigrants likely to have moved into the area (discussed later in the section). Secondly, even when smallpox caused very few deaths in a community, they were often singled out for identification in parish registers. This was a regular feature of other Oxfordshire parishes (see Chapter Two) and areas beyond. In Riseley, Bedfordshire, for example, between 1690 and 1724 (around the dates of the Banbury outbreak) an average of just over two smallpox deaths a year were noted and recorded in registers.[63] Given the quality of the Banbury registers it is likely that individual or small numbers of smallpox deaths were faithfully recorded, and in a virgin population is it unlikely that any incidence would not cause any deaths at all. The third point concerns natural immunity. The contemporary consensus of opinion (in 1767) was that this condition occurred in only around five or six per cent in a population, again making this unlikely as a major explanatory factor in the patterns of familial transmission seen here.[64] In summary, neither prior nor natural immunity were likely among the adults in 1718.

In examining parental mortality, 14 fathers died of smallpox. Approximately 80 per cent of children in families with paternal deaths survived the disease. Six children died after their fathers and two before. Although transmission order cannot always be ascertained, the likelihood of re-entry of infection, is easier to determine; in two cases the gap between deaths suggest transmission between father and

[63] P. Razzell, *Conquest,* 118 and 178. Information taken from Bedfordshire Parish Registers.

[64] Razzell, *Conquest, 122.* In 1767 Italian physician Angelo Gatti measured immunity by the proportion of deaths in old age of persons who had escaped the disease, though equally exposed to their contemporaries. Gatti suggested inoculators met with much the same proportion of 'fruitless attempts'. However, Dixon suggests that failure to obtain a successful vaccination does not prove immunity, response to vaccination being 'imperfect' in measuring immunity in an individual. See Dixon, *Smallpox*, 186.

child did not occur, but that the second death was the result of a new infection. In the majority of families, however, infection appeared to pass from father to child. It is concluded from these figures that a high number of children survived the disease despite the deaths of their fathers, even in families with up to four children. This suggests, either, that parents experienced the disease more acutely, or that families found ways of protecting their children when a parent was sick with smallpox. There is some evidence to support the first theory. In Aynho in 1723-4, where adults appeared to be more severely affected by smallpox than children, seven adults, but only one child, were noted by nurses with additional complications, as shown in Table 4.7.

Adults	
1	Got cold
1	Great cold and raised blood. Bled at nose when taken ill
1	Miscarried by a fall
1	Very weak before (84 year old)
2	Nervous (survivors)
1	Bladder full of wind
Children	
1	Lost one eye

Table 4.7 *Aynho: smallpox cases with additional complications 1723-24*
Source: 'Account of those who had ye smallpox from September 1723-December 1724'[65]

Nonetheless, evidence collected for this thesis also supports the theory that containment strategies were in place to give as much protection as possible to children, a point returned to in an assessment of isolation practices in Chapter Six.

Turning now to the links between maternal and child deaths, 13 mothers from the 51 families with children died of smallpox (a further four had died prior to the outbreak). This is a low figure in the light of Dixon's findings of high fatality rates in mothers caring for their sick children, which included an

[65] *Royal Society* 'Account of those who had ye smallpox'.

example of a case in which all seven nurses caring for smallpox patients died from the disease.[66] The proportion of fatally-affected mothers to child deaths in Banbury is even smaller than that for the fathers. In families where the mother died, 90 per cent of children survived the disease.[67] Only one fatally-affected mother had an infant, who also died of the disease. Given the probability of close contact between mother and child and the likely dependence on breast milk this infant death is unsurprising. It is unexpected, however, that more mothers did not pass on the disease fatally affected if they had closer contacts than between fathers with their children. Although assessing order of transmission is problematic, we know from the Aynho data that children do not appear to have suffered for shorter or longer periods than adults. In this parish duration of illness ranged from between one and 45 days with an average of 13 days. 23 people were sick for over 20 days, 11 of whom were under 21.[68] Assuming, therefore, no correlation between length of sickness and age of patient, it is noted that in Banbury, of the maternal and child deaths, in all cases the mothers' deaths occurred first. This trend is also seen in the paternal and child deaths suggesting transmission from parent to child. (See Appendices 3.i and 3.ii for breakdowns of parental deaths in 1718 -19 in Banbury).

There was little difference in the risk of death to children aged 1-14, irrespective of which parent died of smallpox. This is significant as it demonstrates shared parental responsibilities when children were sick, a point supported in previous studies. Hannah Newton found 'no clear division in roles of parents as carers', contending that gender differences have been overstated and based on the bonds between mothers and infants and the assumption of more pronounced emotional responses of females than of males.[69] Furthermore, in an examination of breast-feeding practices in the eighteenth century, Valerie Fildes has provided pictorial evidence of young children being spoon-fed by mother

[66] Dixon, *Smallpox*, 311.
[67] By removing the children aged 15 and over from the total number of susceptible children the proportion is 12 per cent.
[68] *Royal Society,* 'Account of those who had ye smallpox'. Duration of illness is unknown in seven cases.
[69] H. Newton, *The Sick Child in Early Modern England, 1580-1720 (*Oxford: Oxford University Press, 2012), 4, 122.

substitutes.[70] The presence of mothers, therefore, may not always have been essential for their children's survival.

We might expect a higher number of maternal deaths among mothers of fatally-affected children, a scenario particularly noted by Dixon, with a high fatality rate in mothers and nurses caring for sick children.[71] However, while infant smallpox deaths in families with parental deaths were high, with four out of a possible five infants dying of the disease, maternal deaths were very low in families with fatally-affected children. Another noticeable point is that older children of fatally-affected mothers fared better than those of fathers where we might have expected the reverse to be true if mothers had closer contact with their children than fathers. However, evidence indicates this may not have been the case. Furthermore, this point suggests again that families instigated isolation practices to protect children when parents were sick with smallpox**.**

4.2.6 The relationship between smallpox and pregnancy

Discussions about maternal deaths from smallpox must include the relationship between the disease and pregnancy, a topic which has been previously well-researched.[72] Pregnant women are particularly vulnerable to fatal smallpox and the tendency towards premature spontaneous termination of the foetus was 'exceptionally high'.[73] The overall susceptibility of pregnant women to fatal smallpox in Banbury cannot be investigated here due to the unknown number of women who were pregnant when they died or who suffered unrecorded foetal loss, although an investigation into those who were known to be pregnant during the outbreak due to a subsequent live birth is possible. Twenty-six

[70] V. Fildes, *breasts, bottles and babies*, *a history of infant feeding* (Edinburgh: Edinburgh University Press, 1986), 224-226. Two illustrations by A.von Ostade in 1648 (246) and Hogarth in 1738 (240) showing infants being spoon-fed by mother substitutes, implying the use of breast milk substitutes in the form of 'pap' or 'panada', a consistency of milk or water and cereal. It is unclear, however, whether this form of feeding was particularly responsible for high mortality rates in infants, 217-219.
[71] Dixon, *Smallpox*, 311.
[72] See for example, Rao, *Smallpox*, 120-129.
[73] Rao, *Smallpox,* 121

women of the 71 mothers in the sample known to be alive at the start of the epidemic (37 per cent) delivered a total of 30 children during the epidemic or within nine months of the last smallpox death. The timing of the births means that all were pregnant at some point during the outbreak. One of these mothers and her child died of smallpox. Of the remaining 25, two cannot be traced to a later registration event (they were out of observation and may have left the parish), but for all of the remaining 23, there is evidence of continued residence of the family in the parish. With an absence of burial dates for these women but evidence of a later registration event in their families, it is likely that all 23 were alive for at least 11 years after the outbreak. We do not know, of course, the pregnancy status of the women who died of smallpox, whether female survivors contracted the disease non-fatally, or whether any experienced premature terminations, although findings in Chapter Three strongly suggest that this was the case. Figures imply, however, that close contact in fatally-affected families did not have a drastically detrimental effect on the lifespan of pregnant survivors and that, clearly, some pregnancies were not adversely affected by the disease.

Eight of the 23 pregnant survivors delivered their infants in the nine months following the last smallpox death (so the infants were only exposed to the disease before birth). All these families were in observation until their children reached the age of 13 by which time only one child had died prematurely, aged three years and the time elapsing indicates that it was not related to smallpox. A child mortality rate of one in eight was approximately normal for this period. Again, therefore, exposure to smallpox at close proximity during pregnancy did not have a detrimental effect on expected child mortality, reinforcing the suggestion above that there little relationship between smallpox and endogenous causes of death. This point also adds to previous studies which indicate that smallpox in pregnant women did not cause congenital disease, developmental abnormalities or a persistent post –natal infection in their children.[74]

[74] K. Nelson and C. Masters Williams, *Infectious disease epidemiology,* third edition (USA Burlington: Jones and Bartlett Learning, 2014), 25.

4.3 Smallpox and the reconstitution sample, 1731 – 33

The second major smallpox epidemic in Banbury occurred between 19 December 1731 and 29 October 1733 with 93 reported deaths from the disease. Figure 4.ii illustrates the mortality profile of the smallpox fatalities.

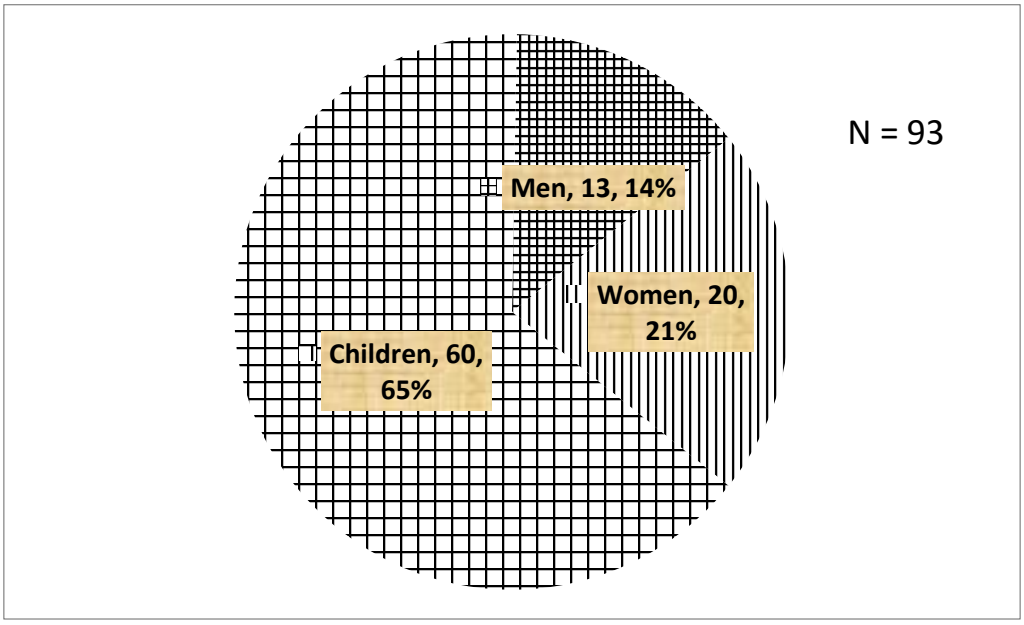

Figure 4.iii *Smallpox deaths in Banbury 1731-33*
Source: Banbury Burial Register 1731-1733

Fewer families experienced smallpox mortality in the second epidemic. Seventy-nine of the 93 smallpox deaths have been linked to 62 families in the Banbury reconstitution, using the same methodology as above.[75] In the two outbreaks the proportions of untraceable smallpox deaths were the same at 15.1 per cent. There was an average of 1.28 smallpox deaths per family in this sample, compared to 1.33 in the first outbreak. Sixty-one out of 75 (81 per cent) original reconstitutable families in 1718-19 were still resident in the parish in 1733. 14 of the original families were out of observation by that date. Only a very small proportion of the original families were mortally affected

[75] In the second outbreak, 14 people from 13 families cannot be linked to specific families using the technique of family reconstitution. These comprise: men (5), women (3), children (3) and female servants (3).

by both epidemics implying that prior immunity prevented further fatal attacks in the second smallpox outbreak, a topic that is returned to later in the chapter. Three out of 75 (four per cent) families experienced smallpox deaths in both outbreaks and all those were of children under five years at the time of death. The second epidemic, therefore, mainly affected different families from the first. The chapter now examines the effect of the second epidemic in Banbury and compares it to the first.

Of the 62 families, 59 had living children at the time of the second epidemic, comprising 214 children. This compares to 70 out of 75 families with a total of 239 living children in the first outbreak. Three fathers and one mother or stepmother died before the epidemic and some parental burial dates are unknown.[76] Overall we can fairly confidently estimate that the total number of people who made up the families affected by smallpox mortality at the start of the second epidemic was as follows; men 56; women 55; and children 214, making a total of 325 and an average family size of 5.2 people.[77] This compares to 363 people with an average family size of 4.8 in the first outbreak. The second group, therefore is smaller although family size was slightly larger. The percentage of adults compared to children in the two smallpox samples prior to the outbreaks was identical (adults, 34 per cent, children 66 per cent).

Table 4.8 shows the comparative proportions of smallpox deaths for the two epidemics. Again, children composed the largest group in 1731-33 while the proportion of adult smallpox deaths was lower than in the earlier outbreak, (35 per cent compared to 43 per cent in 1718-19). Men were less fatally affected in 1731-33 and this is further emphasised by the fact that four out of the eight men

[76] Three out of four deceased mothers were replaced by stepmothers before the epidemic. Nine families include fathers with unknown burial dates. Later baptisms in five indicate that the fathers were alive at the time of the epidemic (although we cannot be sure they were present or not). The presence of mothers or stepmothers is unknown in seven families although it is likely that in some of these cases mothers were unmarried and therefore unregistered.

[77] This figure includes families with unknown parental burials but subsequent baptisms, indicating their presence in the parish.

identified through family reconstitution were likely to have been in-migrants (they were not in observation in parish registers during the first outbreak). Of the families 'native' to Banbury, many adults were likely to be immune to the disease thirteen years after a previous outbreak because of exposure the first time around. This point is discussed later in the chapter.

	1718-19				1731-33			
Smallpox deaths	Men	Women	Children	Total	Men	Women	Children	Total
	28	23	68	119	13	20	60	93
Proportion (%)	24	19	57	100	14	21	65	100

Table 4.8 *Two smallpox samples: comparative smallpox deaths 1718-19 and 1731-33*
Source: Figures derived from Banbury Burial Registers and reconstitution

4.3.1 Transmission and case-fatality

In nine out of the ten families with multiple child smallpox deaths burials occurred within a maximum 18-day period of each other, indicating that fatal infection entered households once during the 23-month epidemic period. The same conclusion applies to the seven out of the eight parental and child burials where intervals between deaths were short, the one remaining interval being 58 days, indicating that this death was the result of a new infection. The order of transmission is inconclusive although in five out of eight cases of parental and child death, the parental death occurred first. Infant mortality rose dramatically during the later stages of the disease in 1733, with only one infant smallpox death in 1732, the remaining 11 (92 per cent) in the final eight months of the twenty-three month outbreak. This pattern is similar to that seen in the first outbreak when only three infant deaths occurred in the first three months of the epidemic, the remaining 14 occurred later, with the majority of these in 1719. This point is further emphasised in Aynho in 1723-24 where, although no infants were fatally affected, the first child in the under-five age group was recorded seven weeks into the outbreak and the first death in this group occurred approximately one month later, suggesting that

transmission for young children was through fatal or non-fatal familial links rather than the wider community.

To examine whether siblings suffered themselves but survived the disease we can return to the previous research on case-fatality. In the second epidemic 57 infant and child smallpox deaths are identified from the smallpox sample. If all 214 children from these families had contracted the disease this would equate to a case-fatality rate of 27 per cent, a proportion identified by previous research as typical. If half the children had had the disease, the case-fatality rate would have been 56 per cent, which is a high figure given the outbreak 13 years earlier. Although any immunity of older children is likely to be cancelled out by a new pool of susceptibles from migrant families (see later discussion) it appears likely that many previously unexposed siblings experienced non-fatal attacks of smallpox.

4.3.2 Infants' and children's susceptibility to smallpox and the risk of death

Table 4.9 shows the infant mortality rates for the families fatally affected by smallpox in 1731-33 plus the five years either side. The table shows that the smallpox years produced extra-ordinary levels of infant mortality, particularly in 1733. The IMR for the period 1727 – 1738 was 214 which is lower than that for the first epidemic (292) and very similar to Wrigley's estimate of 240. However, taking the five-year period up to the epidemic (1727–1731) the IMR in the smallpox sample was 82. This figure is substantially lower than previous estimates, although figures may be skewed by low numbers. However, again, families who experienced deaths from smallpox during this epidemic did not appear to be prone to high levels of infant mortality prior to the epidemic.

Year	Live births	Infant deaths	IMR
1727	19	1	53
1728	4	0	0
1729	20	2	100
1730	12	1	83
1731	18	2	111
1732	**19**	**4**	**211**
1733	**15**	**13**	**867**
1734	11	1	91
1735	4	2	500
1736	13	2	154
1737	9	2	222
1738	10	3	300
Total 1727-1738	154	33	214

Table 4.9 *Smallpox sample: IMR 1727-38. Infant deaths from all causes*[78]
Source: Figures derived from Banbury Burial Registers and reconstitution

Notes:

There was only one smallpox death in 1731 so this year has not been included as a smallpox year

Two families in which the father survived were not in observation until 1738. It is possible that these families had further children who were born and/or died elsewhere

Non-smallpox infant deaths (from smallpox families) were recorded in 1732 (3) and 1733 (2)

Table 4.10 shows the number of infant and child smallpox deaths in the second outbreak in relation to families with either single or multiple children. Forty-seven families experienced infant and/or child deaths, 37 of the families lost one child only and of these 30 had multiple children. In the families with multiple children 75 per cent experienced single child deaths only. These proportions are similar to those in the first epidemic when 80 per cent lost one only out of several children.

[78] The families are those with any smallpox death and infants born between 1727 and 1738.

	Number of infant and child smallpox deaths per family				
	1		2		Total
	Number	Per cent	Number	Per cent	
Families with one child	7	100			7
Families with multiple children	30	75.0	10	25.0	40
Total	37	78.7	10	21.3	47

Table 4.10 *Smallpox sample: smallpox deaths in relation to families with single or multiple children* 1731-33. *Source*: Figures derived from Banbury Burial Registers and reconstitution

The table identifies 57 children (37 + 20) dying of smallpox from reconstituted families. The remaining three cannot be linked to a nuclear family using the technique of reconstitution. The total number of smallpox families with children is 59. 12 experienced parental deaths only.

The number of surviving children per smallpox family was between 0 and 8. Table 4.11 shows family size at the start of the epidemic in relation to infant and child smallpox deaths per family. The patterns are similar to the first outbreak, with the largest proportion of families losing one out of three children and no clear correlation between family size and the number of child smallpox deaths.

Family size (children only)	Number of families	Families with one child death	Families with two child deaths
1	7	7	
2	6	5	1
3	10	9	1
4	7	4	3
5	3	3	0
6	7	5	2
7	5	3	2
8	2	1	1
Total	47	37	10

Table 4.11 *Smallpox sample: infant and child smallpox deaths relative to family size 1731-1733* [79] *Source*: Figures derived from Banbury Burial Register and reconstitution

[79] Seven children in smallpox families died from unknown causes during the epidemic. These have been excluded. All other child deaths from unknown causes during the epidemic were from non-smallpox families and are not included here.

4.3.3 Age incidence of infection and prior immunity

Table 4.12 shows the age breakdown of children living in families in the smallpox sample. Proportions dying in each age group in the first epidemic have been included in the final column by way of comparison.

Age	Number of child smallpox deaths 19 Dec 1731 - 29 Oct 1733 in traceable families	Child deaths from unknown cause (in the same period)	Number of surviving children in smallpox families at end of epidemic	Total number of children in smallpox families at beginning of epidemic	Proportion of age group dying of smallpox (%) 1731-33	Proportion of age group dying of smallpox (%) 1718/19
Infants (Up to 1 year)	12[I]	5[II]	5	22	54.5	65.4
1	12[III]	-	4	16	75.0	27.3
2	4	-	8	12	33.3	22.2
3	7[IV]	-	8	15	46.7	11.1
4	2	-	9	11	18.2	33.3
5-9	10	-	40	50	20.0	19.6
10-14	3	-	38	41	7.3	27.2
15–19	3[V]	-	17	20	15.0	19.2
20+ [VI]	2	2	21	25	8.0	13.2
Age unknown	2	-	-	2		
Total	57	7	150	214	26.6	26.8

Table 4.12 *Two smallpox samples: breakdown of children by age*
Source: Figures derived from Banbury Burial Register and reconstitution

Notes:
I Includes two infants with assumed birth dates
II Includes one infant with assumed birth date
III Includes two probable ages
IV Includes one probable age
V Includes one probable age
Vi The 'children' in the 20+ age group may have left home and/or died elsewhere. This group, therefore cannot be cited in discussions about familial transmission. See Chapter One, footnote 136 and this chapter, footnote 4 for definitions of children in parish registers

The overall proportions of children dying of smallpox in the sampled families was almost identical in 1718-9 and 1731-33: 26.8 and 26.6 respectively. As the second outbreak lasted for 22 months, the reason for the high proportions of children mortally-affected in the 1--3 age groups in this outbreak is partly due to some children moving from the infant group into the 1-3s. In 1731-33 infant deaths were more muted, although they still accounted for over 50 per cent of the age group. It is possible that the number of cases was higher; five infant deaths from other causes during the epidemic may have been due to undiagnosed smallpox. However, even if this was the case, the proportion of infant deaths did not rise significantly above that of the 1-2s. One explanation for the lower proportion of these infant deaths concerns levels of immunity in parents. This is an important aspect of the disease when epidemics occurred twice within a family's lifespan. If parents were immune due to exposure first time around, they could safely maintain households and attend their children without the risk of infecting vulnerable members of the family. Furthermore, smallpox mortality in the 10-14s dropped significantly in the second outbreak. Immunity levels are an important factor since all the children over 15 and some in the 10-14 age group were born before or during the first outbreak and were likely to have possessed immunity.

Although the second epidemic mainly affected a new group of smallpox families, for three families prior immunity did not protect them from a further attack of the disease. Carpenter William Bloxham and his wife, Ann, had three children at the time of the first outbreak. The youngest, Ann, died of smallpox as an infant in 1719. The Bloxhams had a further nine children, including twins, between 1720 and 1731. The two youngest, Jane and Nathaniel died of smallpox in the second outbreak, aged four and two years respectively. Francis Ward, a garterweaver and his wife Hannah had three children in 1719, the youngest, Francis, an infant, dying of smallpox. The Wards had five further children, two of whom, William and James, aged 11 and nine years, died of smallpox during the second outbreak in 1733. Finally, Thomas Wilson, surgeon and apothecary and his wife Anne had one child in 1718 who

died of smallpox, aged eight months. A second child was born during the later stages of this outbreak and survived. The Wilsons had a further six children; one, Joseph, died prior to the second outbreak aged four months and their youngest child, also Joseph, died of smallpox in 1731, aged two years. These three vignettes well-demonstrate the potential of smallpox to intensify child mortality in the early eighteenth century. They also demonstrate the resilience of these families. Four children of William Bloxham and three of Francis Ward are recorded as marrying in the parish later in the century, William Bloxham lived until the age of 73 years and Francis Ward, 83 years.

Another distinctive characteristic of the second outbreak is the potential influence of migration on the consequences of the disease.[80] It is possible to examine the effect of the second outbreak on two distinct groups; migrants and non-migrants. Table 4.13 show the breakdown of all infants in the migrant and non-migrant smallpox families in the second epidemic. In the non-migrant families, infants (the most vulnerable group) in families who were in observation in the parish during the first outbreak generally fared well. Only four (or possibly seven) out of a total of 11 infants died of smallpox from this group.[81] The high number of infant deaths in families likely to be migrants (those not in observation in parish registers during the first outbreak).[82] was higher in the migrant group; eight out of 11 infants died of smallpox, two died of other causes during the epidemic, which may have been due to smallpox, and one survived. The migrant families only comprised 19 out of 62 families yet eight (or possibly ten) out of 12 infant smallpox deaths came from these families. To summarise, infant mortality from smallpox was concentrated in migrant families but the comparatively small number of

[80] Susan Stewart has recognised a likely considerable movement of people in and out of the parish of Banbury in the period 1681 to 1760, by noting only 40 per cent of mothers of illegitimate children being themselves baptized in the parish. See S. Stewart, 'Bastardy and the family reconstitution studies of Banbury and Hartland' in P. Laslett, K. Oosterveen, R.M. Smith*, Bastardy and its Comparative History*, (London: Edward Arnold, 1980), 129

[81] This figure would include infant deaths from other causes during the outbreak which may have been due to smallpox.

[82] Migrants have been defined of those with no evidence of life events of any family members before 1719, the end of the first epidemic.

these families means that the proportion of infants dying of the disease remained below that seen in the earlier epidemic. Non-migrant families, comprising the majority, presented less of a risk of smallpox to their infants due to the likely immunity of parents who were not, therefore, liable of transmitting the disease.[83]

	Non-migrant families	Migrant families	Total
Number of families	43	19	62
Infant smallpox deaths	4	8	12
Infant deaths from other causes	3	2	5
Infant survivors	4	1	5
Percentage of total infant smallpox deaths	33.3	66.7	100
Total number of infants	11	11	22

Table 4.13 *Smallpox sample: composition of infants from migrant and non-migrant families 1731-33*
Source: Figures derived from Banbury Burial Register and reconstitution

The reconstitution indicates that eight men and 14 women in the second sample who died of smallpox can be identified as fathers and mothers of their own families. There were no smallpox deaths of both parents. One woman and two men had no children at the time of the epidemic, therefore 19 families with children (32 per cent) experienced a parental death. This compares to 26 families with children (37 percent) in the first outbreak. The proportions of children who died, where fathers and mothers also died, were eight and 17 per cent respectively, compared to approximately 20 per cent and 10 per cent in the first outbreak. A point to note is the reversed proportions in paternal and maternal deaths

[83] This was at a time when inoculation was barely known and not widely practiced. Later migrants to urban areas may have possessed immunity through inoculation in their original parishes.

compared to child deaths in the two outbreaks, which supports further the theories on joint parenting roles when children were sick.[84] (See Appendix 4 for breakdowns of parental deaths in 1731-33.)

4.3.4 The relationship between smallpox and pregnancy

The overall number of pregnant women among the smallpox deaths in 1731-33 is unknown. Twenty-six out of 58 (45 per cent) delivered a total of 36 children during the epidemic or within nine months of the end of the outbreak, that is they were pregnant at some point during the outbreak. Three mothers died of smallpox and one cannot be traced to vital events after the birth of her child. Otherwise 18 out of the remaining 22 (82 per cent) lived (or their families were in observation) for a further 11 years or more. Whilst this proportion is less striking than that in the first outbreak where all known pregnant survivors lived for at least this long, it implies again that if pregnant women survived the disease, smallpox did not have an immediate detrimental effect on their longevity. Seven of these women delivered eight infants during the nine months after the epidemic. One child (a twin) died in infancy, the remaining seven children lived at least until the age of 13 (or their families were in observation in registers until that point, suggesting that the child was still alive and present). Again, this is a normal child mortality rate, demonstrating no immediate detrimental effect on the longevity of these infants.

Conclusions

Two important factors play a key role in the conclusions reached in this chapter and help in broadening the wider historiography on smallpox. Firstly, the combination of the smallpox mortality sample with the reconstitution study means that we know the full cohort sizes, ages and position of almost all the

[84] For discussions on joint parenting roles, see, for example, J. Bailey, *Parenting in England 1760-1830: Emotion, Identity, and Generation* **(**Oxford, Oxford University Press, 2012), 37, 48, 131; Newton, *Sick Child*, 17-18, 120-122, 156-162, 188-189; A. Vickery, *The Gentleman's Daughter, Women's Lives in Georgian England* (New Haven and London: Yale Nota Bene for Yale University Press, 2003), 117-125.

children in the sample families. This vastly enriches previous studies where information on family composition is rarely available. Secondly, analyses of the demographic effects of two separate epidemics in one community, where economic prosperity, age profile and background health were likely to have remained fairly constant, provides a rich opportunity for exploring patterns of susceptibility and smallpox transmission as well as the impact of the earlier epidemic on levels of immunity. Approximately one in six of the population of Banbury lived in a family affected by smallpox mortality between 1718 and 1733.[85] Taking the epidemics separately there are striking similarities. Average family sizes were very similar and the proportions of adults to children in all families experiencing smallpox mortality prior to the two outbreaks were identical. The proportion of children in the smallpox families who succumbed to the disease in 1718-19 and thirteen years later in 1731-33 were 26.8 and 26.6 respectively. In both epidemics the largest proportions of families (80 per cent and 75 per cent respectively) lost one out of three children and in both there was no clear correlation between family size and the number of child smallpox deaths. The average number of smallpox deaths overall per mortally-affected family was 1.33 in 1718-19 and 1.27 in 1731-33. Other similarities in the two groups of smallpox families are seen in the absence of any tendency towards high infant mortality in the five years leading up to the epidemics, the number and survival chances of pregnant survivors and their infants, the general absence of re-entry of infection, the likelihood of non-fatal attacks of siblings in families with child deaths, the absence of fatal transmission between spouses and the timing of infant deaths within the range of the epidemic. These findings demonstrate that the pathology of the smallpox virus was mainly unchanged in the thirteen-year period between the two epidemics in Banbury, despite two major differences: the length of time the community was exposed to smallpox infection in 1718-19 and 1731-33 (11 months and 23 months respectively) and the (mainly) new batch of smallpox families affected in the second outbreak.

[85] This assumes of population of approximately 3,000. See P. M. Kitson, (2004). *Family formation, male occupation and the nature of parochial registration in England, c.1538–1837,* 39. PhD thesis. Downing College.

Pathways of transmission are not easy to establish due to the variable nature of infectivity, length of incubation period, and length of the period of sickness. A sufferer could be potentially infective from the onset of fever to last scab separation.[86] However, this chapter has attempted to address this issue, only made possible by knowing baptism and burials dates of most of those affected in the smallpox sample. In 1718-19 in 10 out of 12 cases of parental and child smallpox deaths the parental death occurred first, whilst in 1731-33 five out of eight parents died before their children. In 75 per cent of cases parents died before their children, suggesting a pattern of transmission of parent to child. In Banbury in 1718-9 only three out of the 29 under-fives were buried in the first eight weeks and only one out of 37 in the same period during the second epidemic in 1731-3. We already know that infants were a particularly susceptible group due to their limited robustness against infection.[87] However, it is proposed that this group were the least likely to be vulnerable to transmission outside the home, but became infected by other family members, due to the majority of infant deaths occurring at least three months into the course of the outbreak. This point is supported by Dixon's study of attack rates in Sheffield in 1887 where the risk of smallpox attack from the community (outside the home) in unvaccinated children aged three and under was only approximately nine per cent.[88] Infants were likely to be at the lower end of this approximation due to their limited social contacts. We now have knowledge, therefore, on the pathways to their exposure; their greatest risk being from within the home environment.

There were also differences, however. The second smallpox epidemic in Banbury from December 1731 to October 1733 saw a lower proportion of adult deaths than the first, the men being particularly less fatally affected. It is proposed that this was due to higher levels of immunity following the outbreak 13 years previously. Infants seem to have had a reduced risk of dying compared with the first outbreak.

[86] Rao, *Smallpox,* 77-78.
[87] For the susceptibility of infants to smallpox, see Razzell, *Conquest*, 104.
[88] Dixon, *Smallpox*, 311.

The reasons for this have to be speculative because numbers may be skewed due to cases of undiagnosed smallpox in infants. Otherwise, the effect of a higher proportion of immune parents, as demonstrated by the vulnerability of migrant infants, is likely to be a factor. In contrast to the first outbreak the proportion of deaths among children whose mothers were fatally affected was higher than that of fathers, perhaps due to proximity, although assumptions may be inconclusive due to the small number of paternal deaths.

Previous historiography has tended to take a broader perspective exploring wider geographical regions or areas of the country where smallpox was endemic, compared to a micro-study of two epidemics in one community with little evidence of smallpox in between. These results show that immunity through previous exposure was a key factor in protecting the whole family, particularly infants and young children who were not alive first time around. Each family comprised a smaller pool of susceptibles; parents and older children were likely to be immune and not acting as vectors into the household although it is noted that children in families affected in both epidemics were not protected in this way and may have caught the disease from others than parents. Although age-incidence has been previously explored in relation to the periodicity of smallpox (thus the longer the intervals between epidemics, the higher the number of fatalities in the older age groups), the 10-14s needed further investigation. Under conditions of non-immunity, and therefore susceptibility, this group was consistently affected, although this was not always relative to the number of their deaths. It is suggested that many older children experienced smallpox non-fatally and were a key factor in transmitting the disease within their families because of their new and potentially vulnerable interaction in the wider community. Again, however, the immunity factor is significant; the particularly low proportion of deaths in this age group in the second outbreak suggests that some of these children had experienced the disease in infancy or early childhood. This relevance of prior immunity is compounded by the effects of smallpox on the migrant families (in a period when local inoculation,

prior to migration, was not practiced). Infants in this group were particularly susceptible, being twice as likely to die of smallpox as those of non-migrants.[89] In these families, who may not have been previously exposed to smallpox, parents and siblings ran a greater risk of acting as vectors into the household.

The wider historiography on smallpox commonly highlights the dangers of the disease to pregnant women and their unborn children. However, although foetal loss was probably a factor in Banbury, there is evidence that many pregnant women were exposed to smallpox in their households and thus were potentially affected by it, but carried their children to term and that life chances for them and their offspring were unaffected. Pregnant mothers fared well if they survived the outbreak. This runs counter to evidence of poor outcomes for pregnant women exposed to smallpox.

Results from Banbury show no difference in risk of death to children no matter which parent died of smallpox and little risk of elevated mortality if they lost a parent in general. This suggest that fathers and mothers maintained close contact with their children, adding to more general findings that both parents took on caring roles and responsibilities when their children were sick. It is surprising that the transmission pathway between parents and children did not fatally affect more mothers and children. It is speculated that caring substitutes were sourced when mothers fell ill with smallpox, although sufferers may have been more efficiently isolated by the early 1730s when pest houses were known to be operational in the area. Furthermore, fatal transmission between spouses was very rare, partly because in Banbury adults were less at risk from smallpox mortality but it is also speculated that families handled smallpox in the their household by assigning one parent, or another carer, to the management of sick children. This will be explored further in Chapter Five.

[89] From the 1760 onwards many inoculation programmes were undertaken in rural areas. Migrant families often participated in these initiatives prior to moving into an urban area.

Historiography has commonly focussed on long-term demographic change brought about by smallpox mortality or, in some of the popular literature, concentrated on the more sensational aspects of the disease. Chapters Three and Four have attempted to redress the balance by combining an analysis of short-term demographic change, unhindered by factors such as rising or falling local economies due to industrial change, with a grounded approach towards the evidence on the characteristics and management of smallpox within the family environment. Although smallpox was a devastating illness, families recovered, confirmed by the longevity of pregnant survivors in smallpox households, the normal life-expectations of their new-borns and the mothers who went on to successfully deliver more children; the three families in Banbury that experienced child smallpox deaths in both epidemics had a further nine, five and six children. Four of the fathers who experienced familial smallpox deaths continued in undertaking parish responsibilities in the early 1720s, shortly after the first epidemic. John Welchman, for example, assumed mayoral duties in 1720 after the smallpox deaths of three of his five children, aged twelve, ten and six years, two years earlier. Overseers included George Robins and Richard Burford, both of whom lost children to smallpox. William Spurr was head overseer in April 1721, two years after his wife died of smallpox, and paid £4 that year 'for his faithfull service and expenses'.[90] However, even in close contact with the disease, death was not likely in the familial setting, even for children (except infants), irrespective of family size and the likely numbers of smallpox sufferers in close familial proximity. The chapters that follow now go further in investigating some of these effects and consequences at an individual level through life-writings.

[90] *OHC*, PAR21/2/A/1 'Banbury Vestry Minutes' (1720-1721).

CHAPTER FIVE

CARING FOR THE SMALLPOX SUFFERER

5.1 Introduction

The next two chapters of the thesis move outward from the close demographic study, using a national body of sources to investigate personal testimonies of smallpox sufferers and their carers. Ego-documents in the form of letters, diaries, memoirs and autobiographies have been effectively used recently in medical and cultural history in order to develop a better understanding of eighteenth-century family life. There are many aspects of ill-health which are captured in these texts, giving a different perspective on the experiences of illness, although correspondence will not necessarily provide a good picture of the treatments tried and feelings of the carers. For example, Walter Stanhope in Leeds delayed writing to relatives in 1753 when his son had smallpox and concerns were raised for a new baby, lest he should convey out-of-date information: '… I would have write you sooner, but waiting from post to post, in hopes to give you better tidings.' When the baby died the following month:

> I would have kept you advised how the little Babe went on, but really we have so often reason to change our opinion about it, that I should have been at a loss, what to advise you.[1]

Chapter Five begins with the assessment of what texts such as these can add by examining the management of smallpox, how far it followed the advice in published medical texts or whether there were economic, social or cultural constraints in providing high-quality care. The way the disease and the patient are described is examined in assessing contemporary understandings of danger to the life of the smallpox patient and its relationship to the management of nursing care from the perspective of the carer. The investigation into the carer's perspective is a novel field of research, mainly

[1] *West Yorkshire Archival Service,* Bradford Sp St 6/1/64. Letter W. Stanhope, Leeds, West Yorkshire (2 April 1753).

overlooked in the historiography on smallpox, and the documents show that they often felt burdened and isolated due to the infectious nature of the disease. The chapter looks at the role of mothers and examines care given by the wider family and collaborative nursing by a combination of family, community and the parish, challenging a popular view that smallpox sufferers were abandoned and stigmatised. By examining the way in which families managed smallpox, this chapter reassesses contemporary understandings in relation to etiology, diagnosis and transmission. The practice of inoculation had an impact on this understanding, particularly the transmission mechanism, whereby the disease was mainly believed to be spread through contagion from a recently inoculated person. Furthermore, the practice of 'airing' the patient after recovery was consistent with the understanding of the disease itself and its relationship with inoculation. These two points are discussed further in Chapter Six.

Much of the analysis is based on personal correspondence mainly written by carers, often for other family members. Evidence on collaborative care comes principally from diary and autobiographical evidence, supported by parish documentation. Although most of the writers belonged to the upper middling or middling social group, the texts cover a broader range; diarist James Woodforde was conversant with and empathetic towards his less-wealthy parishioners, cooper William Hart was what his editors term a 'respectable artisan',[2] Thomas Wright, a failed, and mainly poor, entrepreneur and Joseph Mayett, a rebellious soldier.

Family correspondence often discussed family members' illnesses and informants felt a sense of responsibility in providing correspondents with accurate information, helping recipients feel connected and engaged. After his wife's smallpox diagnosis in 1766 William Snooke in Bourton, Gloucestershire recognised the importance of his role as communicator: '… I can't be as cruel as not

[2] P. Hudson and L. Hunter (eds), 'The Autobiography of William Hart, Cooper, 1776 – 1857: A Respectable Artisan in the Industrial Revolution', *London Journal 7 (2),* 1981: 63.

to acquaint You and D[ear]r Sister by this Post with our present mournful situation'.[3] The desire to be kept appraised, however, could also be tempered by trepidation. When smallpox was suspected in the household of Edward and Elizabeth Leathes in Reedham, Norfolk, concerned grandparents, Rev James and Mrs Elizabeth Reading in Woodstock, Oxfordshire requested, '… pray let the Account be plain fact, & do not conceal anything from fear of giving alarm', finding it, '… impossible to express the care and anxiety we have been in and afraid to see the contents of a letter'.[4] In the case of smallpox the receipt of information by letter held a particular fear; the possibility of the correspondence itself being infected with the disease. In a letter written by Thomas Langton of Teeton, Northamptonshire in 1740, the writer previously '… returned only a verbal answer as ye Small Pox had been so lately in my family – fearing a written one might not be acceptable'.[5] William Ramsden, in London, wrote in a similar vein when his children were recovering from smallpox in December 1772. '… believe me when I say it was not without great Self-denial I have kept Pen from Paper so long from a place infected [with smallpox]… nor put it in the Power of Possibility to alarm we have now performed Quarantine more than sufficient …'[6] Overall, however, the letter-writers examined here were very prolific and this does not seem to be a problem in tracking the progress of the disease.

5.2 Reassessing contemporary understandings of smallpox

5.2.1 Manifestation and transmission

In order to understand the context of ego documents the chapter now reassesses contemporary perceptions of smallpox. In 2000 Hervé Bazin suggested that eighteenth-century thinkers believed

[3] *Private collection.* Letter W. Snooke, Bourton, Gloucestershire to R. Hall, London (19 May 1766). All letters used from this collection were kindly transcribed and provided by Michael Rendell.
[4] *Norfolk Record Office*, transcribed from BOL 2/26/10, Bolingbroke Collection. Letter E. Reading, Woodstock, Oxfordshire to E. Leathes, Reedham, Norfolk (30 March 1776). All letters used from this collection have been kindly transcribed and provided by Dr R. Michael James.
[5] *Northamptonshire County Record Office*, Th 1004, Thornton (Brockhill) Collection. Letter T. Langton to T. Thornton (11 December 1740).
[6] *Lancashire Record Office*, DDB 72/259. Letter W. Ramsden, Charterhouses, London to Mrs Shackleton, Alkincoates, Lancashire (Xmas Eve 1772).

the 'germ' of smallpox to be almost innate, transmitted at conception and manifesting itself by 'evacuation' associated with menstrual blood, amniotic fluid or the umbilical cord, all associated with the purging of the body. Bazin concluded that these theories led to the 'official opinion of the day, accepting the spontaneous appearance of smallpox amongst humans and even of regarding the evacuation, linking it to menstruation and birth, as a good thing!'[7] Personal testimonies occasionally allude to Bazin's conclusions of smallpox being viewed as a 'good thing' for the constitution and health more generally. In 1784 Lincolnshire apothecary, Mathew Flinders hoped that the 'favourable' type of smallpox suffered by his son, John would, 'alter his constitution as to render him more healthy'. Seven months later, Flinders reported on John as follows: "since having the small Pox, [he] has been much more healthy and is a fine boy. He has behaved much better than we expected".[8] Flinders appears to have believed smallpox had a cleansing effect. In a similar vein William Hart, a cooper in Luton, claimed he was fit enough to return to his employment after spending three weeks in a pest-house, working for two further years with a 'constitution so invigorated that nothing of labour or toil seemed to hurt me' with no further work absences through sickness.[9] Commonly, however, the interpretation of smallpox being 'a good thing' only lay in the desire to be free from a future attack due to immunity from prior infection. This aspect is seen particularly in letters discussing smallpox infection in children. In 1764 William and Bessy Ramsden hoped their infant daughter, Betsy, would catch smallpox from her one-year-old brother, Billy. Since Billy's infection 'proved of so favourable a sort' his parents were, 'determined his little Sister should continue in the house and take her chance'.[10] This case might be untypical, explained by the apparent mildness of Billy's infection; parents generally tried to prevent siblings, particularly infants, from contracting the disease, as will be illustrated further later in the

[7] H. Bazin, *The Eradication of Smallpox* (London: Academic Press, 2000), 9.
[8] M Beardsley, and N. Bennett (eds), '*Gratefull to Providence': The Diary and Accounts of Matthew Flinders* Vol I 1775-1784 (Woodbridge: Boydell Press for Lincoln Record Society, 2008), 147 & 155.
[9] Hudson and Hunter, 'Autobiography of William Hart', 153
[10] *LRO*, DDB 72/181. Letter W. Ramsden, Charter House to Mrs Parker, Alkincoats, Lancashire (18 September 1764). Ages of Ramsden children taken from A. Vickery, *The Gentleman's Daughter: Women's Lives in Georgian England* (New Haven & London: Yale Nota Bene, Yale University Press, 2003), 361.

chapter. Nevertheless, the reaction of the Ramsden family shows their appreciation of the benefits of acquired immunity, a likely forerunner of an acceptance of the benefit of inoculation, widely practised later in the century.

Scholars have identified the concept of the miasmic theory as central to eighteenth-century perceptions of infection, James C. Riley indicating in 1987 that environmental forces were the mechanism through which epidemic disease was believed to occur, resting on 'a particular aggregation of climatic and environmental circumstances'.[11] Vaporous gases from putrefying organic matter were believed to produce particles which remained suspended in the atmosphere.[12] Later, in 2010, Gareth Williams suggested the following, in relation to smallpox:

> At the turn of the twentieth century the notion that smallpox was an infection (contagion) was still actively resisted. The main opponents were believers in 'miasmic theory' namely that sufferers from disease such as cholera and smallpox were caught in the crossfire between clashing elements of nature.[13]

Riley, however, in contrast to Bazin, qualified his argument by noting a perceived separation of transmission routes for different diseases, quoting the work of Philadelphian physician, Benjamin Rush, who, in 1802, concluded that some diseases, such as smallpox and measles were, in fact, contagious and transmitted by secretion such as saliva or mucus. Other diseases, on the other hand, were believed not to be contagious and were transmitted by 'exhalation from putrid matters'.[14] This is a critical point in examining the historiography on smallpox transmission, which often utilises a broad-brush approach in categorising the illness with other eighteenth-century diseases.

[11] J. C. Riley, *The Eighteenth-Century Campaign to Avoid Disease* (Basingstoke: The Macmillan Press Ltd, 1987), 89, xi.
[12] *Ibid*., 13.
[13] G. Williams, *Angel of Death (*Basingstoke: Palgrave Macmillan, 2010), 7.
[14] Riley, *Eighteenth-Century Campaign,* 16-17, 141-2 & 175.

In the early eighteenth century, however, commentators such as Joseph Wasse, rector of Aynho and compiler of the report on the smallpox epidemic in 1723-24, looked to meteorological and astronomical change as explanations for the fluctuating number of smallpox cases, with occurrences of fog, cloud and new or full moons catching his attention. Early in 1724, when cases started to decline, Wasse attributed the sudden drop to 'ye continual great rain [which] seemed to put a stop to it which fell towards the end of Feb'.[15] The sources of smallpox infection emanating through the miasmic route is not explicitly articulated in personal testimonies although the probable reason for this is indifference towards scientific explanations by the layman experiencing the disease at first hand. However, although mid-twentieth-century clinicians finally challenged air quality in relation to smallpox transmission, earlier physicians were alert to the consequences of breathing air of incorrect temperature. In 1783 William Buchan warned, 'whatever alters its degree of heat, cold etc renders it unwholesome… [air which is too hot] dissipates the watery parts of the blood' … [cold air] 'condenses fluids'.[16] Conversely, personal testimonies do make reference to the value of 'good air' in maintaining health and reducing contagious qualities. Correspondence between Elizabeth Leathes and her parents includes two references to the benefits of good air quality in helping to avoid smallpox infection. In 1784 Elizabeth arranged for her husband, Edward, to be exiled from the family home during her daughter Mary's preparation for smallpox '…till all is over & the House well aired'.[17] (The link between 'preparation' and the disease itself is discussed in Chapter Six.) Similarly, two years later, after their two older children, Elizabeth and Edward were inoculated (and believed to be infectious), their grandparents were advised to delay a visit until the children 'will be quite recovered & and the House

[15] *Royal Society,* Cl.P./23ii/87. 'Account of those who had ye smallpox from September 1723 – December 1724'.

[16] A.R. Rao, *Smallpox,* Bombay, India: The Kothari Book Depot, (1972), 91. US National Library of Medicine. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html. Rao reported that air 'did not play much of a role in the transfer of smallpox infection'; W. Buchan *Domestic Medicine or a Treatise on the Prevention and Cure of Diseases* 8th Edition (London: W. Strachan, 1784), 34 & 83.

[17] *NRO*, BOL 2/36/16. Letter E. Leathes to E. Reading (26 December 1784).

Air'd'.[18] The comments above illustrate the value attached to air quality in relation to smallpox transmission, either through the 'natural' route or by inoculation (but absence of any focus on 'miasma') and provide an insight into contemporary ideas about prevention, contagion and recovery.[19]

Alongside the significance given to air quality, the personal testimonies consistently reveal that smallpox was believed by all parties to be transmitted through contagion. Indeed, cases explored for this thesis confirm that eighteenth-century families had a clear appreciation of the significance of person-to-person transmission, albeit without the knowledge of the concept of virus theory (see Chapter One). On learning of his granddaughter's suspected smallpox in 1776 James Reading advocated; 'For the less People see one another in such Complaints, the better for both'.[20] When smallpox invaded the Leathes household in 1779, two-year-old Edward, who had not had the disease, was temporarily boarded out to avoid becoming infected and in 1784 Elizabeth Leathes was 'in a great fright for poor Mary' after she had been visiting a family when 'the Eruption was full out upon Mr Browne at the time the Child was there'.[21] Once infected, sufferers were known to be contagious. When Thomas Wright's three older children were recovering from smallpox at home in Birkenshaw, Yorkshire in 1782, the younger two also became infected whilst staying with their grandparents nearby, although 'none of the family had ever come near our house while we had them [smallpox]'. In 1794 William Hart's smallpox infection prevented him from using his grandfather's house as a refuge when he appeared to have nowhere else to turn. In explaining the reasons for avoiding his grandfather Hart recalled:

[18] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (16 December 1784); BOL 2/38/14. Letter E. Leathes to J. and E. Reading (26 April 1786).
[19] Rao, *Smallpox,* 91.
[20] *NRO*, BOL, 2/26/9. Letter J. and E. Reading to E. Leathes (20 March 1776).
[21] *NRO*, BOL 2/29/8. Letter E. Leathes to J. and E. Reading (16 July 1779); BOL 2/35/10. Letter E. Leathes to J. and E. Reading (26 August 1784).

> I was 20 miles from my grandfather's home, but if I had been much nearer I dare not go there, for he had not had the disease and was terrified at the thought of the smallpox.[22]

This is a revealing comment made so late in the century. Despite the impact of inoculation, the 'thought' of smallpox yet generated intense fear.

Contemporaries also discussed contagion through a third party, such as a medical attendant, indicating an appreciation of the scope of transmission opportunities. C. W. Dixon identified the passive carrier in 1962, suggesting a 'strong possibility' that the smallpox virus could be carried in the nose or throat and transferred to a third person or, although less likely, through infective clothing.[23] In 1689, Dutch professor of physics and anatomy Ysbrand van Diemerbroeck had recommended that children and other vulnerables should not visit 'people that lye sick of the smallpox but also those who attend them in their sickness … Nor will it be safe to come near the House where they lye sick'.[24] In testimonies, however, attitudes towards the risks of third party infection did not always follow standard patterns. Diarist James Woodforde, as a young curate in Babcary, Somerset in 1765, noted his doctor's absence from church 'on account of some people not having the small-Pox'.[25] The doctor had been attending smallpox cases and was thought to be carrying the infection. Rev Edward Leathes took a similar approach. Anticipating church duty on Christmas Day and with his daughter's smallpox manifestation imminent, he was exiled from the family home ' … for fear people s'd be afraid of the

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[22] Wright, T. (ed.), *Autobiography of Thomas Wright of Birkenshaw*. (London: John Russell Smith, 1864), 154. http://archive.org/stream/autobiographyoft00wrig#page/n7/mode/2up; Hudson & Hunter, 'The Autobiography of William Hart', 152.

[23] Dixon, C. W. *Smallpox.* (London: J. & A. Churchill Ltd, 1962). US National Library of Medicine, 297. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.

[24] Y. Van Diemerbroeck, *The Anatomy of human bodies* (London, 1689), 9. http://quod.lib.umich.edu/e/eebo/A35961.0001.001/1:16.7?rgn=div2;view=fulltext. Isbrand van Diemerbroeck (1609 – 1674), professor of physics and anatomy at Utrecht taught many British medical students. The English translation of his work was readily available as part of 'Anatomy of Human Bodies' (London, 1689, reprinted 1694). See D. Shuttleton, *Smallpox and the Literary Imagination 1660 – 1820* (Cambridge: Cambridge University Press, 2007), 25-6.

[25] R. L. Winstanley (ed.), *The Ansford Diary of James Woodforde Volume 2, 1764-1765* (The Parson Woodforde Society, 1979), 148.

Infection & not come to Church'.[26] In both cases these two leading members of their communities were viewed as potentially passive carriers of smallpox infection. On the other hand, William Snooke and his brother-in-law by marriage, Richard Hall of London, were unaware or unconcerned about the risks of infection through an intermediary. Snooke was unconcerned about the presence of his wife's nine-year-old nephew, Francis (Hall's son) in the infected household when his wife, Frances, had the disease in 1766.[27] On the contrary, on the day before her death, and as Snooke actively cared for his wife he reported that his guest (Francis) was 'in no way troublesome' and ' … the little Rogue is now my Bedfellow'.[28] It is possible that Francis had already had the disease in infancy with his older sister eight years earlier, although it was not noted in his father's diary where other family illnesses were recorded.[29] Snooke was a financier, operating a loan system among wealthy families, however, despite his influential connections, we do not know whether or not he was up-to-date on medical thinking on the risks of smallpox transmission. His correspondence contradicts the other testimonies above; inconsistencies such as these are not easy to explain but investigated more fully in the section on nursing.

5.2.2 Diagnosis

Under normal circumstances, smallpox was easily diagnosable by contemporary and modern writers.[30] In the 1780s Buchan observed the disease as '… so generally known as very few escape it'.[31] Generally, lay diagnosis was also accurate; a writer in the *Gentleman's Magazine* noted in 1751 of smallpox being '… the only one of which we have any tolerable exact amount [in weekly Bills of

[26] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (26 December 1784).
[27] M. Rendell, *The Journal of a Georgian Gentleman, The Life and Times of Richard Hall, 1729 – 1801* (Brighton: Book Guild Publishing 2011), 88-90.
[28] *Private collection*. Letter W. Snooke to R. Hall, London (24 May 1766).
[29] Rendell, *Journal of a Georgian Gentleman,* 7-89.
[30] Findings in Chapter Two of this thesis, however, indicate an under-representation of smallpox deaths under epidemic conditions, when administrative resources were stretched to capacity.
[31] W. Buchan, *Domestic medicine, or a treatise on the prevention and cure of diseases by regimen and simple medicines,* 8th Edition (London: Strahan*,* 1784), 238.

Mortality], it being a disease which the most ignorant cannot easily mistake for another'.[32] Two centuries later A. R. Rao proposed that problems in diagnosis only arose in the 1970s with extensive worldwide vaccination programmes when the disease did not always fit into the 'normal' clinical picture and atypical cases were observed. Moreover, once an epidemic was present early symptoms allowed diagnosis. In severe cases, particularly, by day three in the course of the disease the skin took on a textured change, resembling 'dark purple velvet' twenty-four hours later.[33] Some smallpox deaths in the early stages of an epidemic, however, could be reported as deaths from other causes. Conversely, chickenpox or concurrent scarlet fever and measles could be mistaken for mild or early stages of smallpox.[34] We see evidence of confusion over diagnosis in 1791 in remarks by James Woodforde, (by now a rector in Weston Longville, Norfolk), noting a previous incorrect diagnosis as follows:

> The small-Pox spreads much in the Parish. Abigail Roberts's Husband was very bad in it in the natural way who was supposed to have had it before and which he thought also. [35]

Despite the claim in the *Gentleman's Magazine* above and on the basis of clinicians' work, historians have rightly drawn attention to missed or incorrect diagnoses in assessing the extent of smallpox mortality, particularly in the case of infants where death, likely due to complications, could occur at any period of the disease and before the onset of the characteristic rash.[36] These deaths, supposedly due to convulsions, have been highlighted regularly in the historiography on smallpox as missed cases of the disease particularly as convulsions were often an early symptom. This may be the reason for the apparent under-representation of smallpox in children in Burford and Banbury discussed in the previous chapters. Despite these considerations, cases of mis-diagnosis should not be over-stated. As early as the seventeenth century the link between convulsions and smallpox in infants was known. In

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[32] *Gentleman's Magazine*, 1751, v21, 586. http://catalog.hathitrust.org
[33] Rao, *Smallpox,* 4 & 18.
[34] Dixon, *Smallpox,* 43.
[35] E. Beresford (ed.), *The Diary of a Country Parson, 1758-1802*. (Oxford: Oxford University Press, 1979), 395.
[36] Dixon, *Smallpox,* 88.

1679, 'the smallpox being thick in Plymouth' surgeon James Yonge's daughter, Elizabeth contracted the disease. Yonge recorded in his journal: 'They began with a convulsion fit, which had almost carried her off'.[37] Later examples of the link between convulsions and smallpox are also evident. In 1753, Walter Stanhope in Leeds appreciated the likely reason for his son, Watty's convulsions in 1753:

> Watty [4] was seized with Convulsion fitts which held him for 30 Hours, in wch time he had eight fits, and never himself all the time, that we had no chance of him, but its preceeding of Small Pox'.[38]

Oxford physician, Samuel Glass's case notes, probably written in the mid-eighteenth century read, 'If a child has a convulsive fit in ye evening ye small pox appear next morning'.[39] Similarly, in 1776 James Reading, on hearing that his seven-month-old grand-daughter had had a fit accompanied by 'a few pimples', wrote;

> … From your description of the Child's Disorder, it can be nothing else than the first Symptoms of the Small Pox, which in Infants is generally preceded by such Fits as you describe.[40]

All four writers above, whose comments span a period of nearly a century, were aware of the early course of the disease in young children. Returning to the caveat on problematic diagnoses in infants but incorporating Rao's comment on the scarcity of atypical cases prior to vaccination, it can be concluded that whilst cases of infant smallpox in the early stages of an eighteenth-century epidemic may have been missed, once an outbreak was evident diagnosis was reasonably secure.

5.2.3 Perceptions of severity and prognosis

Once a disease was identified as smallpox, its manifestation was an important diagnostic tool. Two medical distinctions were used in defining smallpox cases in the eighteenth century; 'confluent' and

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[37] J. Lane, *The Making of the English Patient: A Guide to Sources from the Social History of Medicine* (Stroud: Sutton Publishing, 2000), 96.
[38] *WYAS,* Bradford Sp St 6/1/64. Letter W. Stanhope (14 March 1753). Age of Watty Stanhope taken from Vickery, *Gentleman's Daughter*, 375.
[39] *Private transcription of casebook of Samuel Glass (1715-1773),* 'Smallpox', provenance and date unknown.
[40] *NRO*, BOL 2/26/9. Letter J. and E. Reading, Woodstock to E. Leathes (20 March 1776).

'distinct'. As noted by Dixon in the 1960s, confluent cases, where pustulation merged forming a mass, were more severe, and more likely to be fatal, than the distinct form where distinctions could be made between clear and affected skin. This categorisation was applied by nurses reporting on smallpox cases in Aynho who added comments such as, 'full', 'thick skin', 'not swell' or 'few'. In Aynho confluent cases were predominantly more long-lasting than distinct, with 16 out of 20 known confluent cases lasting 18 – 36 days. Of the 20 confluent cases, five died (25 per cent) and of 36 distinct patients, three died (eight per cent), although the caveat here is that we only have 63 out of the 133 cases identified as either. Alongside this broad categorisation, nurses also noted complexions, terminology ranging from 'sanguine', 'dark', 'purpley', to 'swarthy', 'pale' and 'clear skin'. Very generally, depth of skin colour was proportionate to severity of attack; fatalities were more likely to be associated with variations of dark and purple, than pale and fair.[41]

The timing of the breakout of pustules in relation to the course of the disease was also indicative of severity, allowing us to see how people made sense of the way that smallpox progressed in a given individual and determine the relationship between outward manifestations and prognosis. In 1666, after suffering extreme pain in her back and head, smallpox appeared in 10-year-old Katherine Thornton, in East Newton, Yorkshire in 1666. Her mother, Alice, wrote in her diary, 'At last the smallpox appeared, breaking out abundantly all over; but in her unguidableness struck in again, so that my brother … used many cordials to save her life, after which they appeared, and then we had more hopes'.[42] This culture of close observation of pustulation continued into the eighteenth century. In writing of the disease in the mid-century, physician Samuel Glass noted in his casebook, 'A sudden sinking of the pustules is accounted dangerous'.[43] When Anne Latch died of smallpox in Aynho, her

[41] *Royal Society,* 'Account of those who had ye smallpox'.
[42] R. Houlbrooke, *English Family Life 1576 – 1716* (Oxford: Basil Blackwell, 1988), 154.
[43] *Casebook of Samuel Glass (1715-1773*), 'Smallpox'.

nurse recorded, 'they never rose' as a suggested reason for her death.[44] Sarah Scott in Bath reported similarly on a child's recovery from the disease although at one point, 'they went in one night & she was thought in great danger'.[45] Once the pustules were consistently evident, and danger appeared to be over, observers were more confident of a recovery if these were the only symptoms, despite what might be termed as an acute outbreak of pustulation. In 1779 Elizabeth Leathes informed her parents in retrospect that both she and her infant child, George had had 'that disorder [smallpox] in a very favourable manner', describing '… a hundred [pustules] the Child about twice as many … a Dozen on my face, a few in my Head which were more troublesome than any'.[46] Although, as discussed in Chapter Six, Elizabeth was making light of the past infection to appease her parents, two hundred pustules sounds like a fairly severe manifestation for five-month-old George. This attitude is also seen in the correspondence of William Snooke on his wife, Frances' smallpox infection. On Day 7 of her illness (see Table 5.1) Snooke wrote as follows:

> My dear wife has had hardly any Sleep the last Night, this Morning threw up 2 or 3 times what she took; Vomiting is very difficult to the Dr Creature …. In her face 'tis a small Sort and very thick, there most probably 'twill be confluent; on her Breast 'tis not so full, being a larger Sort, the same on her Arms and Legs. By tomorrow morning 'tis that all will be out. She complains a little of her Throat … proves there are no dangerous Symptoms.[47]

Frances Snooke was severely affected by pustules on her face, breast and limbs although she was termed as having 'no dangerous symptoms' within the same letter. Clearly, Snooke did not think that the disease was life-threatening and did not anticipate his wife's death. He continued in the letter that a physician would be sent for, '*If* [my italics] the Dr pronounces her case dangerous'.[48] On the day before her death he wrote that 'the discouragements' were yet considered to be 'less than the

[44] *Royal Society,* 'Account of those who had ye smallpox' (8 June 1724).
[45] *Casebook of Samuel Glass (1715-1773),* 'Smallpox'; N. Pohl (ed.), *The Letters of Sarah Scott* Vol 1 (London: Pickering and Chatto, 2014), 23 April, 1749.
[46] *NRO*, BOL 2/29/8. Letter E. Leathes to J. and E. Reading (16 July 1779).
[47] *Private collection*. Letter W. Snooke to R. Hall (19 May 1766).
[48] *Ibid.*

encouragements'.[49] In this case, Snooke was incorrect in thinking that his wife's case was not severe. Perhaps he was aware of the work of Dr John Woodward, eminent physician and Fellow of the Royal Society and Royal College of Physicians who published regularly, including his *State of Physick* on the treatment of smallpox*,* in 1718.[50] Woodward advised the importance of physicians and carers, 'continually keep[ing] up the Hopes of the [smallpox] Patient'[51] and Snooke's optimistic commentary may have been coloured by this. However, he was unlikely to have been writing in the presence of his patient and it is supposed that he had no reason to be unrealistic about her condition; recovery from smallpox was thought likely even at this stage in the illness. According to these accounts, therefore, cases of non-life-threatening smallpox were associated with the acute symptoms described above, indicating high levels of expectation of survival in the face of acute outward severity.

It is probable that the Aynho nurses had been requested to provide detail on patients in their care by Wasse, who collated the smallpox report, thus providing an interesting insight into the types of characteristics which were thought to be relevant for treatment or outcome. Together with degrees of pustulation, characteristics such as height, hair colour and body size were noted. Out of the 133 cases, 85 are detailed with their physical characteristics. A couple of examples follow: Suzanne Jiffs, aged 64, short and lean with a fair complexion, was taken ill on 1 January 1724 and ill for one day with a 'good sort', with 'not above 6' [pustules].[52] At the other end of the scale of severity Mary Clements, aged 20 was taken ill on 8 June in Aynho and died after 16 days' illness. Mary was swarthy, short and gross with thick pustules and 'perfectly rotten'.[53] In seemingly mild cases, 'good sort' was common terminology together with 'favourable'. Aside from Aynho, in Lincolnshire, for example, Matthew Flinders' son, John had '… a fine sort, and favourable quantity' whilst his brother, Samuel, experienced

[49] Private collection. Letter W. Snooke to R. Hall (24 May 1766).
[50] *Dictionary of National Bibliography* on line.
[51] Shuttleton, *Smallpox and the Literary Imagination,* 29.
[52] *Royal Society,* 'Account of those who had ye smallpox'.
[53] *Ibid.*

'a most favourable and distinct eruption'.[54] Some patients in Aynho were tall or short and a few noted with hair colour; either red or black. 25 sufferers were recorded as fat or very fat, gross, hefty or strong, and 42 as thin or lean.[55] There is no correlation, however, between these characteristics and smallpox mortality. Fatal cases, for example, could be lean or fat, or in one case, gross. The definition of 'strong' is particularly interesting. This term was applied to five males and one female, all of whom were adults between 36 and 63 years of age. This indicates that it was used to describe physique rather than constitution or vigour.

In personal testimonies a noticeably serious concern was the patient's psychological state, rather than any outward manifestations. Within the text of the letter quoted above Snooke reports, 'The Dr says her Lowness of Spirits today is the only unfavourable Circumstance'.[56] For the Snookes, lowness of spirits was perceived to be the only dangerous symptom – and one which had been recognised by Diemerbroeck approximately 70 years earlier as '… an oppression of the heart with Melancholy'.[57] Snooke was unaware of transmission of smallpox through third party but he and his doctor were conscious of the implications of a troubled state of mind in the smallpox patient, knowledge which shows that people possessed a range of attitudes which were informed by several sources. This may reflect a commonplace perception about anxiety as a sign of a bad prognosis seen also in the work of physicians such as Woodward, who claimed, 'fright, Surprize, Apprehension', connected with humoral imbalance, caused greater numbers of smallpox patients to be 'hurryed out of Life' rather than the 'Malignity of the Disease'.[58] It was deemed important enough for nurses in Aynho to note two non-fatal cases, William Olace aged 30 and John Watts, 23, as 'nervous' patients.[59] The 'fright' theory was

[54] Beardsley & Bennett, '*Gratefull to Providence',* 116.
[55] *Royal Society,* 'Account of those who had ye smallpox'.
[56] *Private collection*. Letter W. Snooke to R. Hall (19 May 1766).
[57] Diemerbroeck, *Anatomy of human bodies, 7.*
[58] Shuttleton, *Smallpox and the Literary Imagination*, 29.
[59] *Royal Society,* 'Account of those who had ye smallpox'.

modified by clinician C. W. Dixon in the mid-twentieth century who observed extreme anxiety as a symptom of severe smallpox.[60] It is likely that early eighteenth-century clinicians such as Woodward believed this state to be a cause of death, rather than a symptom of the disease.

5.3 Nursing the smallpox sufferer

5.3.1 Nursing management

The complexities of nursing the smallpox patient are now scrutinised in the light of the work of some of the early clinicians discussed in this section. Medical discourses were well-evident in the seventeenth and eighteenth centuries and guidance on diet, regimen and management of the smallpox sick room was detailed and widely available.[61] Phlebotomy (bleeding) and purging (through the use of a laxative) were believed by some to be beneficial although in 1689 Diemerbroeck omitted purgation and bled 'with great caution', except if '… the patient happens to be of the Number of the great Personage, or one of their children who will not be satisfy'd with such plaine and ordinary words'.[62] According to Diemerbroeck, decisions on invasive treatment were governed by the social group of the patient; expulsives for the 'robust' were different to those for 'children and Nice persons'.[63] A century later Buchan was less enthusiastic about aggressive treatment believing '… Nature was not only disturbed in her operation but rendered unable to support the pustules after they were out'.[64]

Smallpox formed part of a group of illnesses requiring non-restorative food and drink; those which cleansed the body rather than bolstering it up. Dietary advice remained mainly consistent throughout the two centuries although some contradictions are evident. In the 1660s, for example, Thomas

[60] Dixon, *Smallpox*, 6.
[61] For example, see Buchan, *Domestic medicine*.
[62] Diemerbroeck, *Anatomy of human bodies,* 14-15.
[63] *Ibid*.
[64] Buchan, *Domestic medicine,* 240.

Sydenham (1624-1689), recognised as the founder of clinical medicine and epidemiology, prohibited the consumption of flesh and drinking of wine for smallpox patients whilst the advice of a Doctor Bettenson, publishing in 1736, advocated providing patients with 'quantities of wine with his Cordial --- one, or two, or three Quarts in 24 Hours'.[65] Generally, however, the recommendation of mild fluids such as barley water appeared in publications such as Doctor Richard Mead's 1747 translation of an early treatise (date unknown) on smallpox and measles and William Buchan's popular work later in the century.[66] On the intake of solids, Buchan recommended fruits and herbs whilst highly spiced meats, salt, spirits, or anything that could heat the blood were to be avoided. Buchan applied this advice in the management of a group of illnesses believed to weaken the digestive powers, such as smallpox, measles, fever, pleurisy and scarlet fever, (although in measles acids which could exacerbate coughing were to be avoided). Meanwhile, a second classification of illnesses pertaining to the 'nervous' kind , those of low spirits, weak nerves, - wind, and 'other hypochondrical afflictions' should be treated with restorative food and drink in the form of solid foods and generous liquors.[67]

Evidence on the efficacy of Richard Mead's early dietary regimen for smallpox was mainly consistent, promoted generally by physicians in publications such as the *Gentleman's Magazine* in the middle of the century and supported by Buchan in the 1780s.[68] On the other hand, trends in proper management of the sick room and hygiene procedures in nursing the smallpox patient were more contentious subjects. In the 1660s and referring to children, 'J. S.' promoted keeping the patient warm but not overheated with the surrounding air temperate or 'somewhat hot … in a close room, that the cold air by no means may come in'.[69] Similarly, in 1689 Diemerbroeck recommended the '… small

[65] http://www.britannica.com/biography/Thomas-Sydenham accessed 17/6/2015; *Gentleman's Magazine,* May, 1736, 461.
[66] 'A Treatise on the small-pox and measles', *see Gentleman's Magazine, 1747;* Buchan, *Domestic medicine.*
[67] Buchan, 150-193.
[68] For example, *Gentleman's Magazine,* November 1747; Buchan *Domestic medicine*, 245-8.
[69] J. S. *Paidon nosemata* or *Children's diseases both outward and inward*, (London: 1664), 61-2.

chamber, closely shut up, free from any wind – to aid breathing'.[70] By the middle of the eighteenth century however, coolness, fresh air and cleanliness were emphasised. Sydenham confidently promoting this more radical philosophy of 'keeping my patients coole in the smallpox' by 'cutting off and preventing … sweats'.[71] The hot regime appeared to be going out of fashion, commentaries indicating that the teachings of Diemerbroeck had lost ground in favour of the cool regime. A writer in the *Gentleman's Magazine* in 1775 on the treatment of smallpox patients in Germany observed, 'Children are generally confined in a very hot chamber, they are overwhelmed with bed cloathes - in order to expel the pretended variolous poison'. A footnote explains: 'In Germany, he must mean; for In *Holland*, as well as in *France* and *England* they have generally adopted in the cure of the small-pox the excellent method of Sydenham…'[72] Support for Sydenham is also observed in correspondence between the Lees family of Hartwell, Buckinghamshire in 1787. Writing to his son, W. Lees discussed the popular advice of the 'famous Sydenham, '… very rational, simple and easy upon the cool regimen and keeping out of bed as much as may be …'[73] The cool regime was reinforced by Buchan who advocated keeping the patient 'cool and easy' and exposed to fresh air warning against, 'Everything that heats and inflames the blood increases the fever, and pushes out the pustules prematurely'.[74] Buchan also applied this philosophy to other diseases such as fever, pleurisy, measles and scarlet fever.[75] On fever, for example, he offered the following reasons why fresh air in managing disease was favourable: 'Nothing is more desired by a patient in a fever than fresh air. It not only removes his anxiety but cools the blood, revives the spirits, and proves every way beneficial'.[76]

[70] Diemerbroeck, *Anatomy of human bodies,* 10.
[71] K. Dewhurst, 'Sydenham's original treatise on smallpox with a preface, and dedication to the Earl of Shaftesbury, by John Locke', *Medical History* 3, October 1959: 286.
[72] *Gentleman's Magazine*, September 1775, 'On the Extirpation of the Small-Pox*',* 430.
[73] *Buckinghamshire Record Office*, D-LE/F/2/71. Letter W. Lees to W. Lees (25 March 1787).
[74] Buchan, *Domestic Medicine,* 241.
[75] See Buchan, *Domestic Medicine,* 107, 155, 177, 189-193, 241-244.
[76] Buchan, *Domestic Medicine,* 161.

Diemerbroeck was also concerned about the smell of soap arising from clean linen, recommending not shifting the patient until after the fourteenth day for fear of 'striking in the Pox again to the irrecoverable Ruine of the patient'. Nurses were advised not to change linen and 'bear with the stench of the sweat,' any change of nightwear before the fourteenth day 'not to be done without extream Hazard'.[77] However, by the 1730s ideas on cleanliness were also changing. A Doctor Clifton, writing in the *Gentleman's magazine* in 1734 was 'agreeable to the Rules [on regimen] laid down by … Sydenham', adding;

> … a new Method of Treating that Disease [smallpox] for the future; … his lower Parts be bathed in warm water, or at least fomented well, till the Eruption is completed … have the Patient sometimes put into warm water, again to cleanse and soften the whole surface of his body.[78]

In the 1780s Buchan also supported a regime based on cleanliness with the bathing of hands and feet, not only for smallpox patients but also for other diseases such as pleurisy and measles:

> Few things are of greater importance in the cure of diseases than cleanliness. When a patient is suffered to lie in dirty clothes, whatever perspires from his body is again reabsorbed, or taken up into it, which serves to nourish the diseases, and increase the danger.[79]

Buchan noted that smallpox required extra vigilance; 'A patient should not be suffered to be dirty in an internal disease, far less in the smallpox. Cutaneous diseases are often occasioned by nastiness alone, and are always increased by it.'[80] In 1787, Mrs Sarah Trimmer, a Christian Sunday School founder who viewed herself as an advocate for the poor through her advice to charitable ladies of rank and fortune, also extolled the virtues of clean linen in the management of smallpox patients, it being 'of the most salutary [as a] … number of the poor die of the effluvia of their own bodies, or at least suffer greatly for want of the refreshment that clean linen affords'.[81]

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[77] Diemerbroeck, *Anatomy of human bodies,* 10-11.
[78] *Gentleman's Magazine*, January 1734.
[79] Buchan, *Domestic Medicine*, 155.
[80] *Ibid.*, 111-118 & 244.
[81] *The Economy of Charity, or, an address to ladies concerning Sunday- Schools by Mrs Trimmer*, (1787), 99 – 101. http://www.notablebiographies.com/supp/Supplement-Sp-Z/Trimmer-Sarah.html; http://www.jischistoricbooks.ac.uk/Search.aspx

5.3.2 The relationship between medical advice and lay practice

This section examines how families nursed their loved ones when smallpox infection entered the household and whether they followed general medical advice, reflecting on motives for being unable or unwilling to heed advice. This enquiry would be outside the scope of an exploration of medical advice literature alone but crucial for a complete understanding of the management of the disease. One family, for example, disagreed with their physician but accepted his decision. When 14-year-old Willy Gossip, had smallpox in Shelton, Yorkshire in 1746 his aunt had, '… no great notion of them night drafts. I find bleeding is now found to be of use in the smallpox'.[82] Meanwhile, the child's father, who was away from home at the time, held a similar opinion, although he qualified this with his own limitations;

> '… I saw Mr Dobson, who agrees with me in thinking it very strange that my poor Lad has not been purg'd already. It is very unusual he says to drive it thus long … Nature, I find, has been very kind to him in giving him some relief that way, which should, I think, have prompted the Physicians to assist her before this time'… but after all, my Dear, I don't pretend to put my Judgment in competition with those whose profession it is to know better.[83]

On the other hand, the following extract is an example of prudent observation of the medical code on dietary regimen. In 1784 Mary Leathe**s** was believed to have been infected with smallpox at the age of approximately 20 months. Mary was prepared for the onset of the disease, watched over by her attentive mother, Elizabeth. Writing to her parents, Elizabeth reassured them as follows:

> [I am] … determined not to leave her for an hour for fear of the servants should let her eat anything that is improper – The Regimen seems to agree vastly well with her & She is so well reconciled to it that She never asks for any meat but eats her potatoes and drinks her Toast & water very contentedly.[84]

This is in keeping with medical recommendations; meats were categorised as restorative foods. In the second case, the family of Catharine Harrison was acting in good faith but appeared to be unaware of

[82] *WYAS,* Leeds WYL1015/18/5. Letter L. Wilmer to Mrs Gossip (3 August 1746). Age of Willy Gossip from Vickery, *Gentleman's Daughter*, 377.
[83] *WYAS,* Leeds WYL1015/18/5. Letter W. Gossip to Mrs Gossip (12 August 1746).
[84] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (6 December 1784).

current trends. Catharine (writing under her married name of Cappe) was born in Yorkshire in June 1744 to Rev. Jeremiah Harrison and his wife. In 1747 Catharine caught smallpox at the age of three. She recalled her sick room experience as follows:

> … I was not only kept in bed for ten nights and days, in a small close room from which every breath of outward air and even the daylight was carefully excluded; but an affectionate nurse submitted to share the same cruel penance, lest, by her leaving me, I might be more impatient of the confinement. … At last the air in the room became so unfit for respiration ….[85]

Catharine's family was following the Diemerbroeck philosophy and appeared to be unaware of current trends in treatment. With hindsight, however, Catharine reveals her knowledge and compliance with later medical strictures on the 'correct' (or updated) method of managing the sickroom of the smallpox patient, believing she was cared for 'according to the mistaken practice of that day'.[86] She demonstrates her knowledge (although at this time the practice was under revision) by relating a story of an aunt's childhood experience of nursing mis-management. The story is recalled as follows:

> An aunt of mine, many years before this period, not being so carefully attended, was much more fortunate [than me]. … she was attacked with the small-pox, and was immediately put to bed as usual. But happening to be left one day by the nurse, with a little girl about her own age, and some soldiers coming by with drums and music, her young companion opened the window, and called to ask her if she would not choose to see them: … they, with great difficulty, achieved her walking to the window; - the oppression on her breast was instantly removed, by breathing the fresh air, and from that moment she began to recover, yet the hint was not taken, but on the contrary, her narrow escape was considered as being almost miraculous.[87]

Catharine concluded that her aunt had been much more fortunate than herself and was confident in her medical knowledge and assessment of the efficacy of her aunt's exploits.

In her later recollections Catharine had drawn on her negative childhood experience together with current thinking to appreciate that her aunt's escape from unwholesomeness of the air in her room had brought about her recovery. There are three reasons for Catharine's belief that her own

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[85] *Memoirs of the Life of the Late Mrs Catharine Cappe, written by herself***,** Boston: (Wells and Lilly, 1824, 9. http://archive.org/stream/memoirslifelate00cappgoog#page/n22/mode/2up/search/smallpox

[86] *Ibid.*

[87] *Ibid.*, 9-10.

treatment was wrong. Firstly, the regime had become unfashionable by the time she was writing in the early nineteenth century. Secondly, she claimed early in her writing that she wrote her memoirs to 'state … what passed in her own mind upon particular occasions, during the period of infancy and childhood'.[88] The experience of her incarceration had been remembered as a negative one for her as a child and therefore recalled as such. Finally, Catharine was haunted by the resultant scarring left by the disease and attributed this after-effect to inappropriate management of her illness.

The Leathes family demonstrated close observation of the writings on dietary regimen of their medical contemporaries. This may be expected; recommendations on diet had remained constant whilst the topic of the management of the sick room had fluctuated. Examinations of other personal testimonies, however, reveal two clear examples illustrating the inadequacy of assuming that medical treatises reflected actual practice. Not everyone could put medical advice into practice because economic circumstances might forbid. Francis Place was too poor to have much personal choice and his reflections poignantly demonstrates the management of a smallpox sufferer in a household constricted by extreme poverty. Place married his wife in their late teens in 1791.[89] The following year his first, and at that point, only child developed smallpox. Place recalled:

> Soon after the commencement of the Strike our child was taken with the small pox and died. During the child's illness we of course lived and slept in the same room, it was a small one, and it may easily be supposed that our condition was one of extreme chagrin.[90] To my wife it was one of great suffering. Persons who have never been in such circumstances, can form but faint ideas of the misery even the best and most frugal of workmen sometimes endure.[91]

Place's testimony is different from the other writers in that he was unable to follow advice even if circumstances had allowed. It illustrates, however, that as parents, their distress, and particularly that

[88] *Ibid.*, 3.
[89] M. Thrale (ed.), *The Autobiography of Francis Place (1771-1854)* (Cambridge: Cambridge University Press, 1972), 22-24.
[90] 'Chagrin' came to encompass the meaning of 'acutely vexed' at the end of the eighteenth century as well as 'troubled' or 'with melancholy'. In this context 'troubled' is likely to be closest expression of his sentiments. See OED on line.
[91] Thrale, *Autobiography of Francis Place,* 115.

of the child's mother, would have been eased if their environment in nursing their sick child had been more appropriate. Place was insecure in his arrangements for nursing his sick child, highlighting the social inequalities of the period. He was an influential and radical man later in his life and his memoirs were written to show how badly poorer working people fared. Despite this caveat, Place recalled this period of his life with shame and guilt for not being able to support his family at a time of illness.

Another example of digression from prevailing advice was that of Joseph Mayett, a Buckinghamshire soldier, who developed smallpox in 1803 soon after joining the militia, whereupon he was removed to the camp hospital.[92] His full nursing experience is discussed elsewhere but his commentary on his regimen is as follows:

> … in this helpless state I lay five days without eating anything as I Remember except a little wine put into my mouth with a tea spoon and the first thing I eat was some Cucumbers and vinegar which the surgeon refused to let me have for he said it would kill me but I told him … Could eat nothing else at last he Consented for he said I should starve without them and I Could but die if I had them and when I had eat them I lay and slept three hours and after that I Could eat anything and in about five weeks I left the hospital and went again to my company as a Convalescent.[93]

Mayett was unwilling to listen to advice on the management of his illness. As an obstinate and rebellious man he preferred to be led by his natural instinct of hunger and was unconcerned about his non-conformity to current trends, attributing his survival to his insurgency against the authorities around him.

Initial indications from the examples above appear to show that social status coupled with the acquisition of knowledge were key drivers in the management of smallpox. Elizabeth Leathes was the daughter of a successful middle-class schoolmaster, James Reading. An advertisement for Reading's tutoring business appeared early in his career, probably when he was in his late 20s, in the *Oxford*

[92] A. Kussmaul (ed.), *The Autobiography of Joseph Mayett of Quainton, 1783 – 1839* (Buckinghamshire Record Society, 23, 1986), 27.
[93] Kussmaul, *Autobiography of Joseph Mayett,* 29.

Journal in 1755 where '… Youth may be Boarded in a Genteel Manner Taught in an Approved Method And Fitted for the UNIVERSITY or BUSINESS at 14 pounds a Year and one guinea entrance'.[94] By the 1780s he was tutoring the Duke of Marlborough's children at Blenheim Palace and was well acquainted and comfortable in associating with aristocracy. Reading and his wife offered their advice on medical matters to their daughter regularly by correspondence, which was mainly observed. In addition, Elizabeth was well-informed on health issues through strong medical ties, her letters exuding confidence in her physicians. Catharine's Cappe's father attended the University of Oxford as a commoner. Her mother came from a higher social group, being the grand-daughter of a baronet. Her father and mother were a well-respected Justice of the Peace and local surgeon and apothecary respectively, her mother 'delighting in visiting the poor, and making up medicines for them'.[95] Although they may not have been up-to-date on current trends, they were dedicated and consistent in the management of their daughter's illness.

However, in the light of wide-ranging factors this chapter shows that the grounds for compliance with current trends were more complex than those offered by an assessment of social background alone. The examples quoted illustrate that although the actions of some families reflected current advice, there was variation in individual circumstances. These discrepancies reveal that nursing care of the smallpox patient was as individual as the sufferer and the existence of eighteenth-century manuals does not mean their strictures were followed; they could be unknown, ignored or rejected even in these largely educated and often affluent circles.

[94] *Jackson's Oxford Journal* (1 March 1755).
[95] *Memoirs of the Life of the Late Mrs Catharine Cappe, 9.*

5.3.3 Parental and spousal nursing

Until recently there has been a dearth of research on the home management of illnesses which afflicted eighteenth-century families. As Amanda Vickery pointed out in 2003, 'Witnessing the acute suffering of one's children was a virtually universal ordeal …yet, strangely, … merits barely a sentence in many accounts of genteel life and philosophy'.[96] This point has been addressed by the work of R. Michael James who utilised ego-documents to examine the way indisposition was managed in the Georgian household, and the complexities of who bore the burden of care.[97] Furthermore, Joanne Bailey has drawn attention to the physical demands of maternal care in administering to sick children, depicted through images, literary verse and medical texts.[98] On smallpox, life-writings bear out Bailey's evidence. In 1764, when his son contracted the disease, William Ramsden wrote of his wife to a relative, 'My poor Bessy I was sadly afraid would have nursed herself ill but she performed her Part like an experienced matron', and later, in 1772, when two further children succumbed; 'Mrs Nurse has held up to a Miracle … the machine kept a'going; tho I could perceive it wearing down daily.[99] Thomas Wright's recollections of the 1780s relate a similar story. Wright, and his second wife, 16-year-old Alicia, nursed Wright's three children through smallpox in 1782 and before Alicia had fully recovered from severe rheumatic fever. Wright recalled:

> During this troublesome and distressing situation of my family, my wife – though still very weak – assisted me in waiting upon the children with the greatest tenderness and assiduity. I was myself six or seven weeks and never had all my clothes off, was engaged day and night going up and down stairs and from one chamber to another almost without intermission, and my sleep departed from mine eyes.[100]

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[96] Vickery, *Gentleman's Daughter,* 117.

[97] H. Newton, *The Sick Child in Early Modern England, 1580-1720*. (Oxford: Oxford University Press, 2012), 93; James, R. M. (2010). *The effect on family life during the late Georgian period of indisposition, medication, treatments and the resultant outcomes*. 294-295.PhD thesis. Oxford Brookes University. https://radar.brookes.ac.uk/radar/file/c8713003-2c2c-4b3c-e197-314e6e8b25cd/1/james2010effect.PDF

[98] Newton, *The Sick Child* 121; Bailey, *Parenting in England 1760-1830: Emotion, Identity, and Generation.* **(**Oxford: Oxford University Press, 2012), 49.

[99] *LRO*, DDB 72/181. Letter W. Ramsden to Mrs Parker (18 September 1764); DDB 72/ 259. Letter W. Ramsden to Mrs Shackleton, (previously Parker) (24 December 1772).

[100] Wright, *Autobiography of Thomas Wright,* 152-3.

These testimonies illustrate the unremitting attention required of the smallpox patient and the stamina required to nurse them.

Historians have rightly pointed out that the responsibility of caring for sick children invariably fell to the mother. For example, Elizabeth Leathes described herself as 'head nurse' and her maid, Molly her 'attendant' when her two older children were inoculated in 1786. Both children slept in her chamber and she was 'very watchful of them in the Night'.[101] On Willy Ramsden's recovery from smallpox, his father reminded him of; 'your dear Mamma for her tender care over you, at a time when you were not in the least capable of caring for yourself'.[102] Testimonies confirm that, generally, mothers provided most of the nursing care, if their circumstances allowed. However, they were not universally leaders in the sick room. In 1661 Henry Newcome, Assistant at the Collegiate Church, Manchester 'got up about 7, after a weary night with my poor lad 'and Thomas Wright is an example of a father taking the lead role when he and the children's stepmother nursed his family on several occasions in the 1780s. Wright recalled:

> … my eldest daughter Betty lay several weeks dangerously ill of a scarlet fever, of which several had died round about us. My son John was poorly also, and about this time they all three had the measles, which were attended with much fever, and I was in fear I should have lost John, he was so bad. We were without servant; I therefore waited on my sick children myself, and I dare appeal to my neighbours, that they were carefully and properly attended.[103]

A mother's sensitivity is exemplified when Katherine Thornton had smallpox in September 1666. Alice Thornton, Katherine's mother wrote: 'Her extremity being so great, crying night and day, that I was forced to be removed, though very weak, as before, into the Scarlet Chamber, for want of rest'. [104] Alice had had a record of threatened miscarriages and was approximately three months pregnant, being ill at the time of her daughter's illness. The reason for Anne Stanhope's separation from her

[101] *NRO*, BOL 2/38/15. Letter E. Leathes to J. Reading (3 May 1786).
[102] *WYAS,* Leeds WYL1015/18/5. Letter W. Gossip to W. Gossip (8 August 1746).
[103] Houlbrooke, *English Family Life,* 158; Wright, *Autobiography of Thomas Wright,* 155.
[104] *Ibid.*, 122-123, 154–155.

four-year old child, Watty, when he had smallpox is also apparent. One month after delivering a child in February 1753 her husband, Walter wrote:

> … Watty was seized with Convulsion fits, wch held him for 30 Hours, in wch time he had eight fits, and never himself all the time, that we had no chance of him, but its proceeding of small Pox & as none appeared for so long a time, we were quite in despair, at last they appeared, & then we disclosed all to yr Sister [Watty's mother], who before … kept in the dark.[105]

Anne was not considered strong enough after the birth to be made aware of the illness and those 'quite in despair' did not include the mother of the child. Whether Anne was in agreement with this decision in retrospect is unknown, unlike Catharine Cappe's mother who was unhappy about her isolation from her daughter when she had smallpox in 1747. Catharine recalled:

> … for some days my father would not permit my mother to come into it [the room], and when she did insist upon venturing, was so affected by the sight of her child, and by the state of the room, that she instantly fainted …'[106]

Although her mother may not have had smallpox and therefore was excluded for her own safety, the phraseology suggests her exclusion was associated with her sensitivity. Although she finally overcame resistance to her wish to enter the room, the text offers a strong notion of patriarchal authority. Catharine's retrospective observations on her family hierarchy support this theory as she drew attention to the distance between her and her father in the comment, '… the fact was … he had imbibed some of the prejudices of that day, in respect to the cultivation of the female mind'.[107] In the Stanhope and Cappe families fathers controlled the level of contact between the mother and smallpox-infected child. Conversely, the Leathes family hierarchy was skewed quite differently. When Mary Leathes was inoculated (and believed to be infectious) in 1784 her mother, Elizabeth, arranged for the temporary removal of her husband, Edward, from the family home. Elizabeth wrote to her parents as follows:

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[105] *WYAS,* Bradford Sp St 6/1/64. Letter W. Stanhope (19 February & 14 March 1753). Age of Watty Stanhope taken from Vickery, *The Gentleman's Daughter,* 374-5.
[106] *Memoirs of the Life of the Late Mrs Catharine Cappe,* 9.
[107] *Ibid.*, 17.

> … so he [her husband] went to Mr Layton & stays there till tomorrow when he goes to Kirby to stay a fortnight or till all is over … - it was my desire that he s'd go for I thought Maria [previously identified as a carer of the child] and I nurse better if we had the House to ourselves.[108]

Elizabeth Leathes directed the decision about her husband's removal and the manner of nursing their child. Her empowerment was characteristic of the family dynamics. Four years earlier, for example, she had been entrusted to deputise for her husband in his ecclesiastical role of maintaining parish registers when he was pre-occupied elsewhere.[109] Catharine Cappe's family's apparent unawareness of new regimes may have been due to geographical remoteness in practising in a remote area of Yorkshire. An assumption, however, that variations were solely down to location would be too simplistic without further research. Bessy Ramsden in London, for example, early in the 1760s, embraced a similar leadership role to Elizabeth Leathes in Norfolk 20 years later. More significantly, the examples illustrate both conformity to and digression from gendered roles.

Nursing loved ones through smallpox was a distressing experience and letters and recollections well illustrate the emotional tensions experienced by carers and observers. On smallpox, William Ramsden wrote in 1773, '… poor Dick is broken about afresh almost as bad as ever; if you knew but half the heartaches this occasions Mama & Papa you would pity them, I am sure, Madam.[110] William Gossip was away from home when his son, Willy, had smallpox in 1746, but the tensions were still apparent. Gossip wrote to his wife. 'Pray take care of your Self – I am afraid you should be disordered with sitting up too often'.[111] In the Leathes family, the circle of suffering was wider. When Elizabeth Leathes, aged seven months, was supposed to be developing smallpox heralded by two convulsions in 1776 her mother wrote of the child's father; 'It affected Mr Leathes so much that his spirit is so low he does not know what to do with himself' whilst the child's nurse, 'made herself so uneasy when the child

[108] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (16 December 1784).
[109] *NRO*, BOL 2/58/1/2. Letter Edward Leathes to E. Leathes (26 March 1780).
[110] *LRO,* DDB/72/261. Letter W. Ramsden to Mrs Shackleton (1 April 1773).
[111] *WYAS,* Leeds WYL 1015/18/5. Letter W. Gossip to Mrs Gossip (4 August 1746).

was ill that we thought she would have laid herself up'.[112] The marital care expressed by Ramsden towards his wife, Bessy as she nursed their children through the disease has already been illustrated. Whilst William Ramsden was not directly concerned in nursing the children he undertook an active role (albeit a seemingly enjoyable one) in sharing his wife's workload during the smallpox confinement of their son, writing in September 1764;

> ... her nursing has thrown Her so much behind in her knitting that I forsooth must be her Secretary ; an Honour, which by her grumbling as she sits by me; I am sure she much envies me.[113]

On the second visitation of smallpox to the family in 1772, further empathy between the parents is revealed when two younger sons were infected but survived the disease. Ramsden recalled; '… many a time has my heart ached for her … The worst was to be apprehended when we came to ruminate on what was passed.'[114] This suggests that after the children had recovered the Ramdens had discussed the illness and collaborated in reflecting on how they had managed the crisis.

Many personal testimonies demonstrate that providing care resulted in both dedication and disruption. James showed that Lady East of Hurley in Berkshire bore the primary burden of care in 1791 when she nursed her husband, who suffered from gout for ten weeks, and exercised authority over the 'effective group' of carers; most likely trusted to sit by the bedside and report on his condition.[115] A particularly revealing example of spousal sensitivity comes from William Snooke's correspondence with his wife's brother-in-law, offering an insight into the upheaval to normal life patterns when caring for a spouse. Snooke immersed himself and others in the care of his wife, Frances, when she developed smallpox in May 1766.[116] Specially chosen women or trusted friends were called in as nurses; Mrs Peaks, Mary (a family friend) and Nurse Gladwin, who applied blisters to

[112] NRO, BOL 2/25/10 & BOL2/25/7. Letters E. Leathes to J. and E. Reading (19 & 25 March 1776).
[113] *LRO*, DDB 72/181. Letter W. Ramsden to Mrs Parker, Alkincoats, Lancashire (18 September 1764).
[114] *LRO*, DDB 72/ 259. Letter W. Ramsden to Mrs Shackleton, (previously Parker), Alkincoats, Lancashire (Xmas Eve 1772).
[115] James, *The effect on family life during the late Georgian period,* 161-162.
[116] See Manifestation and Transmission section.

her back and arm and oversaw her vomiting and expectoration.[117] The motive behind Snooke's decision to involve nurses was based on his reflection that, although he had had the disease and presumed himself to be immune, the rest of the family should not risk infection by nursing her. After a period of five days a second physician, 'who has been very successful in the Small Pox' was summoned.[118] Tabulating Snooke's record of Frances' symptoms shows that Snooke was an attentive husband and this delay was almost certainly due to Frances' perceived improvement rather than negligence.[119]

Snooke was deeply and emotionally involved in his wife's illness. In five letters written over a period of nine days, he uses terms of endearment on nine occasions, 'my poor wife' and 'my afflicted dearest partner' being the most expressive. Frances' demeanour is referred to in every communication; Snooke observed and carefully reported on each symptom and change of mood. Table 5.1 illustrates the course of her illness. During the first three days Frances' illness was believed to be a cold aggravated by menstruation and her husband was relieved when on Day Three 'she has sweat, so that I think she is better'. When smallpox was diagnosed on Day Four, and as the disease 'comes out rather thick', the family was devastated. On Day Seven Snooke reported that a physician would be summoned if her condition was pronounced dangerous. Despite severe symptoms from Day Seven to Day Nine and 'the very awful distressing sight' of his wife by Day Nine, 'blind and greatly swelld', Frances was more cheerful and Snooke hopeful that her that her condition 'begins to turn'. On Day Ten Snooke was optimistic that her condition would 'turn'. Two days later, Snooke expected a recovery, possibly because the development of the critical stage coincided with Frances's increased peaceability, a characteristic of smallpox later identified by Dixon in 1962.[120] A physician from

[117] *Private collection*. Letter W. Snooke to R. Hall (19 May 1766).
[118] *Ibid.* (24 May 1766).
[119] Rendell, *Journal of a Georgian Gentleman,* 1-88.
[120] Dixon, *Smallpox*, 11.

Tewksbury was summoned 'very early' on Day Eleven. He visited 'before Dinner and staid all Night [evening]', revisited early the following morning on Day Twelve 'before 5' and was due to return on the day she died.[121]

DAY	SYMPTOMS
One 13 May	'… but poorly … shooting pains in her Head and Limbs … ate very little …'
Two 14 May	'… ate very little … so indifferent … rather worse … full of pain …lay down upon the Bed'. PM, ... a little elevated at the sight of [young nephew]Franky'
Three 15 May	'… feverish …tired … Weariness in her Limbs … sweat'
Four 16 May	Smallpox diagnosed.' … rather thick'
Six 18 May	Sleeplessness
Seven 19 May	Vomiting. …'Lowness of spirits... In her face 'tis a small Sort and very thick, … most probably 'twill be confluent; on her breast 'tis not so full, being a larger Sort, the same on her arms and legs … she complains a little of her throat'
Eight 20 May	… 'slept well'
Nine 21 May	… now pretty cheerful … tho' blind and greatly swelld …pock begins to fill, and to run together in the Face, where 'twill be in One … her senses are very quick … complains much of her Throat, and the great soreness...'
Ten 22 May	… 'comfortable … good spirits … spit a good deal'
Eleven 23 May	Physician sent for. '… slept very comfortable … Spirits tolerably good'
Twelve 24 May	… 'Spitting not so great as could be wish'd but what he [physician] advis'd he hop'd would increase it … her senses are still very quick'.
Thirteen 25 May	Died

Table 5.1 *Timetable extrapolated from information provided in letters of William Snooke written between 15 and 24 May 1766*
Source: Private Collection. Letters of Willliam Snooke to Richard Hall

[121] *Private collection*. Letters W. Snooke to R. Hall (15, 19, 21, 22, 24 May 1766); Letter W. Palmer to R. Hall (25 May 1766).

Snooke had undertaken round-the-clock care once Frances' illness had been identified as smallpox. In a letter to Richard and Eleanor Hall he wrote;

> Tho' very poorly myself thro' Distress and Fatigue (not being in bed 'till near 1'o'clock this Morning, and up before 6 and not much sleep in that space) … my dear Wife has had hardly any Sleep the last Night, this Morning threw up 2 or 3 times what she took; Vomiting is very difficult to the Dr Creature.[122]

In this family Snooke adopted a pro-active role. This conclusion adds to previous studies; as Lisa Smith has shown, men were involved in decision-making and practical nursing care when their wives were sick.[123] Although Snooke had appointed others to nurse his wife the responsibility of care, and of reporting on her condition, was his alone. Moreover, throughout the correspondence and as the illness intensified, his reactions changed. On the day of diagnosis Snooke was distraught and at that point made his first reference to the anticipation of divine intervention in curing his wife. He wrote;

> Oh! My dear Br. and Sister, the Cause of my dear Wife's Disorder too plainly appears to be the Small Pox – the Dr makes no doubt of it, … Our Distress is inconceivable. Pray remember her in your Prayers. May the Lord support the dr. Creature and carry her thro' it. I'll write again by the next Post.[124]

Providence, or the will of God, was a powerful tool in helping families manage the practical care of smallpox sufferers, an aspect of care referred to in many of the sources. Snooke looked forward to '… the God of Mercy and Goodness', 'appear[ing] for my afflicted dearest Partner' anticipating a recovery and concluding, ' … - Oh what a Blessing *will* [my italics] this be.'[125] However, three days later his distress and isolation were apparent. Although tired, he continued to write to his extended family with reports on his wife. As he wrote of her vomiting, lowness of spirits and severe pustulation the correspondence lacks continuity and becomes disjointed, displaying evidence of extreme stress. His wife's lowness of spirits on this day may have influenced his own mental state. 'Poorly' through

[122] *Private collection*. Letter W. Snooke to R. Hall (19 May 1766).
[123] Lisa Smith, 'Reassessing the Role of the Family: Women's Medical Care in Eighteenth-century England', *Social History of Medicine* 16 No. 3 (2003): 333.
[124] *Private collection.* Letter W. Snooke to R. Hall (15/16 May 1766).
[125] *Private collection*, Letter W. Snooke to R. Hall, (19 May, 1766).

sleeplessness, 'distress and fatigue' he briefly discussed the health of his sister-in-law, modes of smallpox transmission, nursing arrangements for his wife, family immunity and the likelihood of calling a physician, all within a few lines of the same letter. Inside this narrative he also injected the phrase 'pray write soon', adding, 'Your fervent Prayers and those of our Friends are earnestly desir'd', reiterating his confidence in godly providence. Here he attempted to maintain a dialogue with other associates but due to physical and emotional exhaustion through nursing his wife he asked Richard Hall to act as amanuensis '… as I can't write more than one letter'. At this point he changes his signature to 'Your distress'd Br.'[126] Two days later and calling for 'an Act of Friendship' through their prayers he changed his signatory again to 'Yr afflicted B[rothe]r'[127] and the following day, as his isolation overcame him, Snooke can 'hardly bear such a long Silence' as he wrote again on his wife's condition.[128] The correspondence represents a distressed husband who depended on his religious faith, extended family and friends for support and comfort. In contrast to the absence of emotional depth in the accounts of smallpox experiences from the 'medical gaze', his letters display the feelings experienced by a principal carer, which were compounded by his physical separation from his extended family.

5.3.4 Shared family nursing

So far this investigation into nursing has focused mainly on parented and spousal care, the former most commonly reflected in the sources. The extended family, also, could offer support through correspondence or by playing an active role in *loco parentis.* Frances Snooke's sister and her husband, for example, were quick to respond to Snooke's distressed letters, offering as much sympathy and comfort as possible through letter writing. Thomas Wright's wife died after childbirth and their son, William, was sent out to nurse. In 1782, at the age of four years, he sickened with smallpox 'till he was

[126] *Ibid.* (19 May 1766).
[127] *Ibid*. (21 May 1766).
[128] *Ibid.* (22 May 1766).

almost gone' whereupon the child's maternal grandmother took over the child and 'with much care and attention she recovered him'.[129] Severe and long-standing tensions existed between Wright and his parents-in-law whom he criticised freely on many matters, therefore we can assume that these positive comments about their feelings for the child were an accurate portrayal. Correspondence between Elizabeth Leathes and her parents, James and Elizabeth Reading, provides another example of inter-generational support concerning family medical matters. When their grand-daughter was suspected of developing smallpox in 1776, the Readings were confident in their recognition of the early signs of the disease (although in this case they made an incorrect diagnosis) and provided detailed knowledge on its symptoms and treatment. Elizabeth Leathes, the child's mother, was particularly concerned when her daughter experienced a fit, comforting herself against a second attack when it was 'past the hour she was taken yesterday'.[130] Reading reassured his daughter not to be alarmed by the fits, as these alone were ' no unfavourable Symptom', advising against 'modern' medicine, 'not even gentle purgatives, … much less Opiates, which ignorant people are too busy with', contradicting a clinician's advice of dipping the child in a cold bath when the weather was warmer. He warned against the use of 'any other Method that may give a sudden & violent Check to the Disorder' and if nothing was done to 'interrupt the Regular Processes of the Disease', the child was likely to recover.[131] Reading was also worried about the risks to the mother (his daughter) in contracting the disease, writing as follows:

> … we are at the same time highly concerned for the Mother who, if she thinks herself free from the Infection, must not attend the Child in this Illness; and if she is infected, will even then be very unfit Companion for her…. It will be best for you to keep out of harm's way.[132]

He instructed her to 'keep out of harm's way' even if this meant not attending the child, advising for her a regimen of a child's diet of plain food and drink, with an abstinence from 'anything that may

[129] Wright, *Autobiography of Thomas Wright*, 122, 152 & 282.
[130] *NRO*, BOL 2/25/9. Letter E. Leathes to J. and E. Reading (15 March 1776).
[131] *NRO*, BOL 2/26/9. Letter J. Reading to E. Leathes (20 March 1776).
[132] *Ibid.*

heat you'.[133] Animal foods and beer, particularly, were to be avoided whilst milk, water, gruel, apples, potatoes and light puddings should be consumed, a prophylactic measure similar to that recommended in treating the disease itself or in preparation for inoculation. Several comments in the texts indicate that a pregnancy may have been known of or suspected. Elizabeth had already informed her parents in March 1775 that she had miscarried approximately two months earlier, ('… I fear you will be more angry with me for walking too much in Bury and causing a Miscarriage'.[134]). In 1776 her mother wrote consoling her daughter that 'she need not have such dreadful apprehensions of it [labour]' whilst two days later her father advised Elizabeth that 'fatigue at this time is dangerous for you'.[135] It is well-documented in the scholarship on the disease that pregnant women were particularly susceptible to severe forms of smallpox. Buchan had observed in 1781, 'A woman with child seldom survives this disease' (although Chapter Four of this thesis reveals that this was not necessarily the case) and a letter written by Elizabeth to her parents three years later endorsed this point as follows: '… it [smallpox] is very much in neighbouring villages & I am afraid it is a bad sort for a woman'.[136] Whether she was pregnant or not the Readings were concerned about their daughter's health in nursing her smallpox-infected child, believing her to be susceptible to the disease, advising preventative measures to avoid it.

In this family the grandparents took on care, providing very explicit information on diagnosis, the significance of symptoms, courses of action to be avoided and recommendations, all by correspondence. However, they also displayed anxiety and insecurity at their distance from their family. Needing reassurance they contacted Elizabeth individually. Reading wrote, 'we shall expect with great anxiety a further account of this Affair …Pray let your account be plain and Fact, & do not

[133] *Ibid*.
[134] *NRO*, BOL 2/25/5. Letter E. Leathes to J. and E. Reading (5 February 1776).
[135] *NRO*, BOL2/26/3. Letter E. Reading to E. Leathes (18 March 1776); BOL2/26/9. Letter J. Reading to E. Leathes (20 March 1776).
[136]Buchan, *Domestic medicine,* 183; *NRO*, BOL2/36/11. Letter E. Leathes to J. Reading (14 December 1784).

conceal any thing from fear of giving alarm'.[137] Meanwhile, Mrs Reading admitted 'our care extended farther when we were alarmed with the small Pox', requesting the exact location of the outbreak and advising her daughter to be 'as careful as possible to avoid it'.[138] A further example of concern by the Readings is their attention to who was employed in caring for their grand-children. When Mary Leathes, aged 18 months, was taken by the family maid into a smallpox-infected household, her grandmother, Eizabeth Reading wrote to her daughter, 'what foolish girl have you trusted the dear child with. I thought Maria [a trusted servant] had been to have had the care of her'.[139] In his assessment of inter-generational relationships James asserts that these grandparents took an active involvement in the health of their daughter and her family who took their advice seriously. In fact, supporting the family at time of indisposition was vital to the welfare of the Leathes family.[140] These points add to previous studies on the value of kinship support. In examining demographic experiences in two Yorkshire textile townships, Pat Hudson and Steve King found that immigrants' lack of a kin network was more important than occupation, status or other indications of economic marginality in determining life chances.[141]

5.3.5 The distinctive nature of smallpox

It is helpful to assess how far smallpox was more traumatic for the sufferer and carer than other illnesses, and if so, why. The timescales set aside for tending children are well-recognised in the reflections of Elizabeth Leathes' parents who commented wryly to their daughter when she was expecting her second child in 1776; 'I think you cannot want for amusement, you have Balls, Assemblies, Regattas, Concerts, Plays and everything entered in your pretty little Girl; you must devote

[137] *NRO*, BOL2/26/9. Letter J. Reading to E. Leathes (20 March 1776).
[138] *NRO*, BOL 2/26/10. Letter E. Reading to E. Leathes (30 March 1776).
[139] *NRO*, BOL, 2/99/33. Letter E. Reading to E. Leathes (10 August 1784).
[140] R. M. James, *Intergenerational relationships and the influences exerted by grandparents upon a family's welfare in a Georgian rectory.* Unpublished paper, 29-31.
[141] P. Hudson and S. King, 'Two Textile Townships c 1660 – 1820: A Comparative Demographic Analysis', *Economic History Review* (2000) 53:4: 734.

yourself to nurse for about twenty years I recon'.[142] This prolonged and all-consuming role of motherhood applied to a variety of illnesses, apart from smallpox, and was common to all maternal care. Anna Larpent suffered 'extreme anxiety' when her children were ill in the 1790 as she ' … employ'd every moment of my time, every thought of my mind' and in 1764 Bessy Ramsden noted, … 'a married life I find is full of cares and for above a fortnight I was takeing up with my little Girl who has been Dangerously ill of a fever.[143] Infectious diseases were particularly worrying. When the Ramsden children had suspected measles their father wrote of his wife, Bessy '… her little ones are both sick upon her hands, one or the other are upon her Lap almost all day long' and when their son had whooping cough in 1768 she spent a night, 'wholly taken up with her own little boy'.[144] Several years later the children were ill again. Ramsden wrote in 1770:

> Billy is better in some aspects but still far from well. Mama is uneasy and I have been with the Doctor about him twice today. Little Dick too is thought to be unwell; what bitter sweets are these Olive branches.[145]

Fevers in children caused particular concern; they were common and unpredictable and could be a prelude to a serious illness. Elizabeth Leathes reported in 1780, 'my time wholly taken up this last week by attending upon poor little Edward who has been extremely ill with a Fever … which gave us reason to think he was going to have the measles or Small Pox '.[146] In these respects, distinctions cannot be made between smallpox and other illnesses. However, in reflecting on the wider understanding of nursing care, smallpox was distinct in a number of ways. Firstly, the disease was potentially more fatal than many other illnesses, the *Gentleman's Magazine* noting in 1747 '… the constant terror of this loathsome and fatal disease … this case [smallpox] requires a more speedy assistance than most other diseases'.[147] Taking the rich source of material from the correspondence between Elizabeth Leathes

[142] *NRO*, BOL 2/26/17. Letter J. and E. Reading to E. Leathes (22 November 1776).
[143]Vickery, *Gentleman's Daughter,* 120; LRO, DDB/72/180. Letter E. Ramsden to Mrs Parker (20 August 1764).
[144] *LRO*, DDB 72/189. Letter W. Ramsden to Mrs Shackleton (3 Dec 1765); Vickery, *Gentleman's Daughter,* 118.
[145] *LRO*, DDB 72/237. Letter W. Ramsden to Mrs Shackleton (17 May 1770).
[146] *NRO*, BOL 2/30/5. Letter E. Leathes to J. Reading (12 March 1780).
[147] *Gentleman's Magazine*, 1747, 270-1.

and her parents, the family's reports on measles, whooping cough, colds and worms lack the sort of sense of ordeal associated with smallpox. Overall, references to the threat, experience or prevention of smallpox occur in 31 exchanges between the two families between January 1775 and March 1787; twenty-two by Elizabeth Leathes, three by her mother, Elizabeth Reading and six by her father, James Reading. On smallpox, discussions were intense and protracted. When the Leathes' daughter, Elizabeth, was suspected of developing the disease her mother was '… in the greatest distress imaginable'.[148] In reply, the Readings waited, 'with great anxiety a further account of this Affair …'[149] On the other hand, whooping cough is referred to once in retrospect and measles as a likely consequence of a fever.[150] Moreover, whilst diseases such as measles could be life-threatening contemporary physicians did not give this disease the prominence of smallpox, Samuel Glass noting in the middle of the eighteenth century; 'The measles is accounted much more threatening than really dangerous'.[151] Secondly, smallpox was extremely infectious in close proximity, Buchan commented on other diseases being '[only] almost as infectious' as smallpox.[152] Thirdly, the outward manifestations of the illness were disturbing and required careful management. William Snooke reported on his wife's '… very awful, distressing sight' and physician William Buchan has identified the high levels of diligence required in hygiene procedures for smallpox carers.[153] Fourthly, the after-effects of smallpox could be severe. The likely resultant scarring was a concern, parents possibly thinking of the longer term prospects of their children, especially (for girls) in the marriage market. A writer in the *Gentleman's Magazine* in 1733 noted the 'Smallpox getting into a Family so deformed their Daughters that the unhappy Parents were completely ruin'd'.[154] William Ramsden wrote in 1772: 'poor Tom's Beauty hav [sic] indeed be roughly

[148] *NRO*, BOL 2/25/9. Letter E. Leathes to J. and E. Reading (15 March 1776).
[149] *NRO*, BOL 2/26/9. Letter J. Reading to E. Leathes (20 March 1776).
[150] *NRO*, BOL 2/29/8. Letter E. Leathes to J. and E. Reading (16 July 1779); BOL 2/30/5. Letter E. Leathes to J. Reading (12 March 1780).
[151] C*asebook of Samuel Glass* (1715-1773), 'Measles', provenance and date unknown; Buchan, *Domestic Medicine,* 119
[152] Buchan, *Domestic Medicine,* 119
[153] *Private collection*. Letter W. Snooke to R. Hall (21 May 1766).
[154] *Gentleman's Magazine*, 1733, 515.

handled' and William Gossip wrote after his son's infection, 'Pray desire him from me … to avoid picking his face as much as possible*. I doubt there is too much havock made in it [his face] already'.[155] At the asterisked point in the letter Gossip began a new topic of conversation then deletes the new text and returns to the topic of his son's pustulation, contemplating the 'havoc' made to his face.[156] The psychological effects of scarring are seen clearly in the memoirs of Catharine Cappe. Catharine considered the difficulties of new encounters which she blamed partly on her appearance. Her mother was the grand-daughter of a baronet with a large property, 'and had been accustomed … to associate with persons of rank and fortune, much superior to her own'.[157] On her first meeting with her maternal grandmother, at the age of ten years, Catharine recalled;

> When she saw me, not a muscle of her face relaxed … This old lady had but two criterions for estimating character - rank and beauty: she did not consider the daughter of a clergyman as possessing the one and the small-pox had deprived me of all pretensions to the other.[158]

She also believed her disfigurement to be a limiting factor in her marriage choice. At the age of 44 she married an older widower with a large family. Both parties entered the relationship with disadvantages; she was financially insecure and psychologically marred by smallpox disfigurement and he, a 'far from affluent' widower in declining health with six children.[159] Although we can only surmise that this partnership was viewed by either or both parties as their only likely opportunity for marriage, we do know that Catharine did not follow the path of many middle-class females of her generation, that of courtship leading to marriage and motherhood. Smallpox has also been associated with blindness. Although historians have commonly drawn attention to this link, I and J. Glynn, for example, claiming, 'At the end of the eighteenth century about a third of all cases of blindness in Europe are thought to

[155] *LRO*, DDB 72/259. Letter W. Ramsden to Mrs Shackleton (Xmas Eve 1772); WYAS: Leeds WYL1015/18/5. Letter, W. Gossip to A. Gossip (4 August 1746).
[156] *WYAS,* Leeds WYL1015/18/5. Letter W. Gossip to A. Gossip (4 August 1746).
[157] *Memoirs of the Life of the Late Mrs Catharine Cappe*, 9.
[158] *Memoirs of the Life of the Late Mrs Catharine Cappe*, 34.
[159] *Ibid.,*199.

have been the result of smallpox',[160] there is some ambiguity over evidence for the disease leading to permanent vision loss. Dixon noted in the 1960s:

> … it seems that smallpox *alone* causes relatively little blindness as those patients with mild attacks have no eye lesions and those with severe eye lesions have malignant attacks [of smallpox] from which only a small proportion recover … there is a tendency, of course, for individuals and even their medical advisers to assume that blindness in someone who has once had smallpox must be due to that disease and not to some less exotic cause … permanent eye defects leading to blindness may occur, although the effect of smallpox alone is much less than is generally thought. [161]

Moreover written parental evidence shows confidence in the likely restored sight of their children after a period of temporary blindness. Thomas Wright's son, John, who was 'uncommonly fond *of* and, of consequence, equally dear *to* me', had smallpox in 1782 at the age of seven. Wright recorded the following dialogue:

> … the morning he found himself blind, when in the small-pox, I being in bed with him, said hastily, "Daddy, I am dead!" I said, "No, my dear;" but then he said, "I am dying". I said, "What for, my love?" he said, "Because I cannot see." I told him to be content, and not pull his eyes open, and he would see again after a short time. He was satisfied, and very patient …. [162]

William Gossip was troubled about his son's condition but equally confident about his restored vision on his recovery from smallpox in 1746. William wrote to his wife:

> … tell him I will write to him when I hear he can read my Letters again, and I will send him the Newspapers on Wednesday & a fresh Horse-races paper … Pray desire him from me to be patient under his blindness, & not endeavour to open his eyes too soon…[163]

Finally, anxiety was often intensified by the intertwining of apprehensions about inoculation with its associated risks and conflicts. Elizabeth Leathes commented in 1786;

> The Small Pox continues to spread & everybody is inoculating – A Prentice Boy of Brunning's died of it last week in the Natural Way but the others that are now down with it both in the Natural Way & by Inoculation have a very fine sort.[164]

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[160] I. and J. Glynn, *The Life and Death of Smallpox* (London: Profile Books 2005), 4.
[161] Dixon, *Smallpox,* 96 & 104.
[162] Wright, *Autobiography of Thomas Wright*, 154.
[163] *WYAS,* Leeds WYL1015/18/5. Letter W. Gossip to A. Gossip (4 August 1746).
[164] *NRO*, BOL 2/38/14. Letter E. Leathes to J. and E. Reading (26 April 1786).

This last excerpt demonstrates that the two sets of conditions associated with smallpox - the disease itself and inoculation - were strongly linked in the mind of the writer.

5.3.6 Community nursing

The chapter now moves away from close familial nursing arrangements to investigate how smallpox nurses operated caring for non-family members. The main distinction is that these nurses, generally, were paid, either through private arrangements or parish funds. In the wider community smallpox patients were cared for in pest-houses, a house allocated for the purpose, the home of the patient, nurse or wet-nurse or, from the 1760s onwards, in inoculation houses (discussed fully in Chapter Six). Generally, they were excluded from hospital care due to the risk of contagion. Shrewsbury Hospital, St Thomas', London and Leeds Infirmary in the 1760s, for example, operated this policy.[165] In December 1782, household accounts of the Marquis of Carnarvon in London note the payment of £3.13s 6d to a 'woman' for four weeks' and two days' smallpox nursing for their groom, Robert Redford.[166] Other sources provide individual vignettes of personal provision. The experience of the deprivation of the 'affectionate nurse' incarcerated with Catharine Cappe has already been highlighted in the extract earlier in the chapter.[167] Diarist James Woodforde noted after a visit to his neighbour; 'I left with a woman that nurses them who is John's mother' when they were infected with smallpox in Weston Longville in 1785.[168] Nurses were employed at parish expense if the smallpox patients were poor. When three children out at nurse in Oxfordshire had smallpox '… some extraordinary trouble and expense was had in respect of their cure', financed by the parish of St

[165] E. M. Sigsworth, 'Gateways to Death? Medicine, Hospitals and Mortality, 1700 – 1850' in P. Mathias (ed.), *Science and Society 1600 – 1900* (Cambridge: Cambridge University Press, 1972), 100.
[166] *Huntington Library*, San Marino, STBF HHA/05. 'Household Bill of the Most Honourable Marquis of Carnarvon 1759-63.' I am grateful to Jenifer Dyer for supplying this reference.
[167] *NRO*, BOL 2/38/15. Letter E. Leathes to J. and E. Reading (3 May 1786); *Memoirs of the Life of the Late Mrs Catharine Cappe,*), 9.
[168] Beresford, *Diary of a Country Parson,* (19 March 1785), 245.

George Hanover Square, Westminster.[169] On occasions reciprocal nursing arrangements were practiced. Widow Borley's girl, nursing patients with smallpox in Melford, for example, was a 'recovering patient', probably because she was in close proximity, fit enough to provide care and deemed immune from future infection.[170] Such arrangements are also evident in Oxfordshire; when James Child's son had smallpox in Dorchester, Childs was paid £5.3.6d 'for provision and allowance' and two nurses received a total of 6s.6d for attending him. Later that year, James received 3s.6d. for attending John Bottridge when he had the disease.[171]

Comparative weekly wages for example cases are presented in Table 5.2. Jeremy Boulton has suggested that nurses charged high rates to care for paupers with smallpox, infectious diseases, and women who were lying-in, probably because the patients' conditions were dangerous and/or required exceptional levels of care and attendance. In Boulton's sample, **'**fever nurses' in 1724/25 received 4s. a week.[172] Table 5.2, comprising cases from several sources, shows that generally, parish smallpox nurses earned between 3s. and 8s. per week. This is revealing compared to fees charged by fever nurses, which was also infectious, and may reflect perceptions of a higher risk of infection in smallpox cases. Shared duties may account for the low rates in Bampton, particularly as in this case the patient's husband, Thom Trip also received a payment of 1s. in the intervening dates.[173] It is also possible that his wife's nurse was one of several, as we have seen in Dorchester in 1741 in the nursing of James Childs' son. On the other hand, larger groups of patients could be catered for. Sarah Mark in Dorchester earned 6s. for '… Weighting [sic] on Mick Day, Mary Day, Jarvises and Berosdon with the

[169] *City of Westminster Archive Centre*, C890 microfiche 567. Parish of St. George Hanover Square (29 June 1763). I am grateful to Sally Tye for supplying this reference.
[170] *Private collection '*Accounts of the Pest House or Smallpox House at Cuckoo Tye, Melford, Suffolk'. I am grateful to Lyn Boothman for providing this reference.
[171] *OHC,* PAR87/5/A1/1 'Dorchester Overseers Accounts' (1741), 93 & 97.
[172] J. Boulton, 'Welfare Systems and the Parish Nurse in Early Modern London, 1650-1725', *Family & Community History* 10/2 (November 2007): 134-35.
[173] *OHC*, PAR16/5/F1/1 'Bampton Overseers Accounts' (6, 14 & 19 May, 3 June 1728).

smallpox'.[174] In all these instances, however, we do not know the extent of their duties or how much close contact they had with the patients.

Looking at comparative wages for other occupations some smallpox nurses were paid at a higher rate than spinners and general nurses but on a par with or less than labourers. Day labourers in Pershore, Worcestershire for example, earned 10d. a day or 5s. 10d. for a 7-day week, including beer in winter. On the other hand, and according to commentator Arthur Young, a female spinner in England was paid approximately 6d. a day or 3s 6d a week.[175]

Year	Location	Employment	Weekly earnings
1712	Easton Socon, Bedfordshire	Smallpox nurses	8s. (approx.) (per nurse)
1724/25	London	Nursing adult paupers with smallpox	8s. (per nurse)
1728	Bampton, Oxon		
	6 May	Jo Wait's wife for nursing Tom Tripp's wife with smallpox	4s.
	19 May	Jo Wait's wife for nursing Tom Tripp's wife with smallpox (2. 6d. for a fortnight)	1s.3d.
	3 June	Jo Wait's wife for nursing Tom Tripp's (2. 6d. for a fortnight)	1s.3d,
1756	Melford, Suffolk		
		Deborah Foster for attending smallpox patients	3.3d. including food
		Widow Borley's girl for attending smallpox patients' 4s. a week for five and a half weeks	4s.

Table 5.2 S*mallpox nursing wages in selected locations* [176]

Sources: **Easton Socon**, Bedfordshire: S. Williams, 'Poor Law Nurses in Bedfordshire' in P. Lane, N. Raven and K. D. M. Snell, *Women, Work and Wages in England* (Woodbridge: The Boydell Press, 2004), 163
London: J. Boulton, 'Welfare Systems and the Parish Nurse in Early Modern London, 1650-1725', *Family & Community History* Vol 10/2, November 2007, 134-35. This estimate is based on only a handful of cases
Melford, Suffolk: 'Accounts of the Pest House or Smallpox House at Cuckoo Tye, Melford', Suffolk*, Private Collection*; **Bampton**: *OHC*, PAR16/5/F1/1, 'Bampton Overseers Accounts', 6, 14 & 19 May, 3 June, 1728

[174] *OHC*, PAR87/5/A1/3 'Dorchester Overseers Accounts' (1774).
[175] Mathon's History: 18th Century http://www.mathon.org.uk/mathons-history/ralph-spencers-histories/the-old-community/18th-century accessed 16/4/2015; Robert C Allen, *The High Wage Economy and the Industrial Revolution*: *A Restatement*. University of Oxford, Discussion paper in Economic and Social History, Number 115, June 2013, 6.
[176] All amounts in this table have been re-calculated in shillings.

The reasons that a mother might risk infection for her child's sake are fairly clear, but what was the incentive for 'outsiders' to care for smallpox patients? Nurses were employed regularly in caring for smallpox patients, particularly when family members were deemed to be susceptible to the disease or when the patient was nursed outside the family home. Employment in private nursing appears to be particularly lucrative; the nurse in Lord Carnarvon's household earned nearly one pound per week, considerably more than parish nurses. As some of the above examples show, smallpox nurses could command a set rate which could be secured for a specific time period; a letter in the *Gentleman's Magazine* from a churchwarden in Luton in 1788 noted the disease being 'so apprehended' in the country 'that the nurses require double play, and both they, and the patients are confined in an airing house several weeks after the recovery'.[177] Even the lower paid parish nurses could earn more than women in other typically female occupations such as spinning and 'ordinary' nursing. In her study of Poor Law nurses in Bedfordshire, Samantha Williams has suggested those nurses who made the most money should be regarded as having higher skills and status than many other carers.[178] In Aynho, certainly, smallpox nurses were required to manage the complications brought about by the disease. In this parish 40-year-old patient, Sarah Lamprey's notes included the following: 'Great cold and raised blood. Bled at the nose when taken ill'. Sarah died after a period of eight days. A 20-year- old man 'got cold' and a 40-year-old woman experienced 'a bladder full of wind'. These patients died after periods of 28 and 14 days respectively.[179] Moreover, in smallpox nursing the economics of supply and demand were also likely to have been a factor. On nursing protocol Buchan wrote; 'It would be thought highly improper for one who had not had the smallpox to wait upon a patient in that disease.[180] On this assumption smallpox nurses could only fulfil their criteria if they had had the disease, either naturally or through inoculation, and were thereby immune to further attack. The cost of caring for smallpox

[177] *Gentleman's Magazine*, 1788, 284.
[178] S. Williams, 'Poor Law Nurses in Bedfordshire' in P. Lane, N. Raven and K. D. M. Snell, *Women, Work and Wages in England* (Woodbridge: The Boydell Press, 2004), 163.
[179] *Royal Society,* 'Account of those who had ye smallpox'.
[180] Buchan, *Domestic Medicine*, 119.

patients was a considerable drain on parish funds; any additional future infection, and possible deaths, would have cost implications for a parish.[181] These points reveals that smallpox nurses could use their immunity status to demand higher than normal rates for their work.

One of the most striking features when examining more detailed case studies of smallpox nursing is the high level of care and commitment sustained by carers. When Jackee Payne fell ill with smallpox shortly after entering Stamford Preparatory School in 1722 he was 'lovingly nursed by Mrs Turner', likely to be the headmaster's wife, at a cost of £2.2.0.[182] William Hart also affirmed his high level of care when he was infected with the disease and removed to the pest house, '… a place provided in those days for persons who had this disease ... a short distance from the town', where:

> … they provided me with two nurses (poor parish paupers) and every necessary for my recovery, and the Parish Doctor attended me … I was …provided with medical aid and nurses free of expense ….[183]

Hart's story is as follows: at the age of 18 and after serving an apprenticeship in Luton, he moved to St Albans in 1794 to take up employment with a Mr Gaze, as a cooper. Despite Hart's intentions, known to Gaze, of leaving his new position in favour of better prospects in London, his new master 'used every effort' in finding someone in the town who would take him in when he fell sick with smallpox. When this failed, Hart recalled a family in Luton who had had the disease when it had been prevalent some six years previously (and whose parish was legally obliged under the Law of Settlement to support him) that might accommodate him. On entering the house Hart '… sat down in the chimney corner in a sorrowful state'. When the mistress of the house was informed he had smallpox, she went to the 'Parish Officer' who would not let him remain in the town 'for fear of communicating the

[181] For parish spending on smallpox, see E. G. Thomas, 'The Old Poor Law and Medicine', *Medical History* 1980 24: 1-19.

[182] A. Tindal Hart, *Country counting house: the story of two eighteenth-century clerical account books* (London: Phoenix House, 1962), 43. I am grateful to Clive Norris for providing this reference.

[183] Hudson and Hunter, 'Autobiography of William Hart', 153. Pest houses were not used to control disease by 1820, when Hart published his memoirs. Hart expected his adult children to have had no knowledge or memory of the pest house system and felt it necessary to explain their existence.

infection', whereupon he was transferred to the pest house in Luton.[184] On learning of his smallpox infection the authorities had acted quickly but with hindsight Hart saw the fortuitousness of the pest house.

> … it was a favourable circumstance (though it appeared a calamitous one at the time) that no person could be found to take me in at St Albans, for if they had the expense would have been very great to me, and I had not much money, being out of my time [apprenticeship] only a few weeks, and I might not have been better taken care of, for I wanted for nothing.[185]

Furthermore, Hart recalled:

> 'My grandmother sent me a little money, which enabled me to get some additional comforts, which was not allowed, My mistress who I served my time with was very kind in getting me these things, and a friend in the town of Luton, a Mr Foster, Master Cooper, visited me and was very kind also. [186]

Joseph Mayett, although rebellious over his dietary regimen, was equally appreciative about the quality of his lay care. When his smallpox infection was suspected, after initially receiving 'but little notice' from the camp doctor, he and another sick soldier went to the mess house for some ale 'to throw [the] pock out'. The 'mistress', recognising the infection as smallpox, supplied the ale 'and bid us keep our money to buy something else as she knew the nature of the disorder better than we', before sending them to bed. On waking, '… almost Covered with the pock it was Come out to that degree we were thirsty' they searched for water. Finding none in the tent they went to the well, where they were observed by the barrack sergeant's wife who;

> … immediately made us some mint tea and gave us advice she went also and provided a Remady to get them out of our throats and supplied us with mint tea night and day untill we went into hospital … and thus our lives was mercifully preserved.[187]

Mayett later referred to the Barrack sergeant's wife and 'some other good natured women whom the Lord had put it into their hearts to attend me which they did gratis until the purples were fell and I

[184]Hudson and Hunter, 'Autobiography of William Hart', 153.
[185] *Ibid.*
[186] *Ibid*.
[187] Kussmaul, *Autobiography of Joseph Mayett,* 27.

was safe'.[188] After spending four uncomfortable nights under cramped communal sleeping arrangements Mayett was spotted by the Duke of Buckingham and Colonel of the Regiment as he passed the tent on his way to a parade. The Colonel sent for the doctor and enquired why he had not properly attended Mayett. In his defence, the doctor claimed he had not been aware of the severity of the illness, although, as Mayett explained later, 'the Surgeon never Came near me neither had I any assistance only from the Barrack Serjants wife and the man that slept with me in the tent.' The Colonel 'gave … [the doctor] a severe Repremand [sic] for his neglect' and Mayett was taken to the hospital, carried in a blanket by four men.[189] The tone and phraseology of the Colonel indicates his concern about the lack of profession care received by Mayett which had been substituted with nurturing by those around him.

During the Aynho epidemic in 1723-4 the progress of each smallpox patient and '… ye other particulars of ye complexion of ye patients' were meticulously recorded '… by ye nurses yet attended; ye kinds of the Small Pox are also from ye opinions of nurses and apothecarys'.[190] Details on 20-year-old William Priour, the first reported case of smallpox in September 1723 are as follows:

> [Priour] '… Came hither from Kath Hall Cambridge where distemper yet rage. Felt sick the same night and having extreme thirst got out of bed and drank a pint or more of cold water. Violent pain in his head and back and with some difficulty rid [rode] about 200 yards to his nurses house. when danger was apprended ye dr ordered him camphire which a little relieved him.[191]

The wording here suggests that Priour was contagious when he entered the village and although was probably believed to be responsible for transmitting the infection, received medical attention. Approximately two weeks later, William Hartley of Warwick, '… on his way from London fell sick and came hither with difficulty', where he was 'well attended'.[192] Neither man was resident in the parish

[188] *Ibid*., 29.
[189] Kussmaul, *Autobiography of Joseph Mayett* 27 & 28
[190] *Royal Society,* 'Account of those who had ye smallpox'.
[191] *Ibid*.
[192] *Ibid*.

although both were admitted into the community and obtained local medical services. Priour died after 18 days' sickness whilst Hartley survived and was monitored throughout his smallpox infection for a period of 20 days. In this parish one thirty-six year-old man (who later died) in Aynho was described as 'not well attended' and against the names of two sibling children is noted, 'no care taken of ye boy, nor his sister'.[193] Although the children had mild attacks and may not have needed attention, the man's care was seen to be deficient; a value judgement relevant in itself, adding robustness to critiques elsewhere in the report. There was no comment on the quality of nursing care in the remaining 129 cases however, given the amount of detail recorded about patients' condition (number of days' sickness, severity of pustulation, complexion, type of smallpox, body characteristics and other information) they were closely observed. Of the survivors, one man was '… in great danger for 8 days', two men were 'despaired of' for between four and six days, two others '… in danger' for nearly three weeks and an eighteen-year-old girl, '… dangerously ill'.[194] This amount of detail suggests a keen appreciation of changes in prognosis. When linked with the medical attention received by the two 'outsiders' (Priour and Hartley), it is clear that the carers were conscientious in endeavouring to maintain the lives of their patients.[195]

5.3.7 Compassionate care and inter-community responsibility

The final section in the chapter examines the community's capacity when struck by smallpox and assesses inter-parochial responsibility at times of smallpox infection. The diary of James Woodforde, curate of Babcary, Somerset offers examples of benevolent care at times of family sickness, generally. Woodforde distributed money to the poor in his parish, financed by the church offertory. He also gave to parishioners, 'out of my own pocket' and sent food to families when they experienced illnesses such

[193] *Ibid*.
[194] *Royal Society,* 'Account of those who had ye smallpox'.
[195] *Ibid*.

as consumption, fever or measles.[196] Smallpox and the contentions over inoculation, however, caused him the greatest concern. In 1776, as parson of Weston Longville, in Norfolk, Woodforde noted his neighbour, Downing, with smallpox who was 'likely to have it very bad'. A doctor's visit was organised and financed by the parson as Downing was 'a poor labouring man … [with] a wife and seven small children'.[197] Later, the family of another neighbour, Clarke, were 'taken down in the Pox' and concern was raised about the neighbouring Gooch family, none of whom had had the disease. Woodforde sent 'large Bushel Baskets of Apples, to make Apple Dumplins for poor Souls', to both families.[198] In 1785 the disease was impacting on his subliminal state, as Woodforde wrote in his diary:

> I dreamt last Night that I went to Weston Church with a Corpse after me, and just as I came to the Church Yard Gate, saw another Corpse bringing from Morton Road way, and which had died of the small Pox. The corpse that I attended on seeing the other, I ordered to be carried into the Chancel, till the other was buried.[199]

Smallpox had disturbed his emotions; the disease appeared to have spiralled out of control as he saw smallpox corpses lining up to be buried and tried to manage the placing of the bodies prior to burial. Fifteen years later, in 1791, when the disease hit the parish again Woodforde deposited money, '… for such useful things as they might want and they have' at a local shop for the family of Abigail Roberts, whose husband was 'very bad in it in the natural way'.[200] A basket of apples, some black currant robb[201] and an old shirt of Woodforde's was provided for Roberts 'to put on in the small-Pox' … 'His, poor Fellow, being so extremely course [sic] and rough, that his having the small-Pox so very full, his course Shirt makes it very painful to him'.[202] On other occasions, provision was made for medical care and when the parish was under inoculation in 1791 Woodforde again organised the urgent attention of the doctor for the Dunnell family, sending him a note via their child to be delivered '… very early To Morrow Morn' to

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[196] Winstanley, *Ansford Diary of James Woodforde,* 72, 87, 84 and, for example, Beresford, *Diary of a Country Parson,* 301, 560-1.
[197] Beresford, *Diary of a Country Parson,* 127.
[198] *Ibid*., 245.
[199] Beresford, *Diary of a Country Parson,* 240- 241.
[200] *Ibid*., 395.
[201] A mix of fruit juice and honey, for the relief of sore throat.
[202] *Ibid.*, 395.

Mattishall, (a distance of approximately eight miles) … before he goes out' insisting he came to the parish the following day to inoculate this particularly vulnerable family.[203]

The incidents above reveal support mechanisms otherwise lost from view without the scrutiny of life-writings. In the case of Gooch particularly, Woodforde had pre-empted the likelihood of the family needing future relief. The immediate question now is why Woodforde felt moved to help in this way. As church leader he was responsible for his parishioners and aware of a Christian obligation to assist them. However, the nature of the provision displays benevolence based on a strong culture of sensibility and empathy towards their needs. Benevolence was a central feature of the 'age of sensibility'. As Bailey points out, social relations operated through obligation and duties rooted in Christian values and benevolent acts were based on biblical references to 'nursing fathers'. Sincerity and sympathy were essential components for practising philanthropy.[204] This minister was acting as a 'nursing father' to his congregation.

Parish overseers, too, provided allowances in cash or kind in maintaining obligations to parishioners, sometimes supported by local gentry. In 1741 the church wardens of Nettlebed were reimbursed the sum of £2.7s.6d. to cover expenses incurred in attending a Dorchester child with smallpox.[205] The following year Dorchester overseers disbursed a total of £11.17s.4d. to the poor of the parish in both money and kind, of which £9. 3s 4d. was received by smallpox families. This included one amount of £4.15s.4d. for 'Gabriel', a resident in the parish.[206] In Banbury, during the epidemic in 1733, private donations offset additional expenses incurred by parish overseers. In June 1733, at the height of the epidemic when the number of smallpox deaths rose substantially to an average of almost one a day,

[203] *Ibid.*
[204] Bailey, *Parenting in England*, 118-122.
[205] *OHC* PAR87/5/A1/1 'Dorchester Overseers Accounts' (1741/2).
[206] *OHC* PAR87/5/A1/1 'Dorchester Overseers Accounts 1682 – 1744' (1741-Easter 1742).

£69.2.3d (£69.11p) was donated by Lords Guilford, Godolphin and Wallingford 'for the relief of the poor families distressed by the smallpox', £20 received from the 'Worshipful, James West for the 'Relief of poor familys afflicted by the Smallpox' and £10.1.4d (£10.07p) collected by the inhabitants of 'Bisiter' [Bicester].[207] In Burford after the smallpox epidemic of 1758 the largest parish payments were made to tradesmen for whitewashing cottages, cleaning beds and bedding and making shoes.[208] The first two services were executed to help prevent further infection and the provision of footwear to alleviate the poverty (relief in kind) brought about by the epidemic. This latter provision throws into sharp contrast the experiences of the letter and diary writers discussed above, where poverty brought about by smallpox was not a consideration.

The smallpox epidemic in Burford offers an example of inter-community care. During the four-month epidemic the University of Oxford donated £122 to 'be distributed among the late poor sufferers by the Small pox' and the ladies of Witney contributed £10, wishing the Burford community 'a speedy recovery of the whole Parish from the fatal Distemper which now most violently rages among them'. Over the following three months the City of Oxford collected approximately £62, various local gentry and dignitaries contributed £100 and recorded anonymous donations amounted to over £60. The local newspaper, the *Oxford Journal* supported the city collection in July 1758 hoping 'from the Publick Example … [this will] greatly alleviate the Distresses of the Inhabitants, whose Sufferings may be much better imagined than described'.[209] This last public declaration of support may have been responsible for later contributions from further afield. In August and September the inhabitants of Banbury, Shipton under Whichwood [sic] and Chipping Norton donated '26 pounds and upwards', 20 guineas and 9 guineas respectively.[210]

[207] *OHC*, PAR21/2/A/1 'Banbury Vestry Minute Book' (11 June 1733).
[208] J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight of Burford, 1998), 14.
[209] Moody*, Great Burford Smallpox,* 9-11.
[210] *JOJ* (5 August, 12 August, 23 September 1758).

Although it cannot be assumed that these actions were representative of the country as a whole, when Banbury was affected by smallpox in 1760-61, two years after the Burford outbreak, the latter reciprocated with a donation acknowledged in the *Oxford Journal* as follows:

> Borough of Banbury. The inhabitants of this Place acknowledge the Receipt of Seventeen Guineas from the Inhabitants of Burford, as an affectionate Testimony of their Tenderness for the Distress of this Place. Banbury therefore takes this Opportunity of publickly acknowledging her grateful Sense of the Benevolence, and hopes when Opportunity serves, that she may, by a grateful Remembrance of this Favour, will entitle herself to the Friendship of Burford.[211]

The actions of the above individuals and communities above in assisting the two parishes show strong inter-community support networks which were complemented by local relief for individual families in need.

Conclusions

After reassessing contemporary perceptions of smallpox, this chapter has taken an outward-moving approach from family to community in order to investigate theory and practice in smallpox nursing. Smallpox was distinct from other illnesses in numerous ways. It was feared and highly contagious, despite the practice of inoculation later in the century, and patient suffering could be prolonged and potentially fatal. Carers carried a heavy burden, further characterised by high levels of diligence in managing the outward manifestations of the disease. Marital cohesion, however, and empathy, support and knowledge provided by the extended family and community was valued and helped to alleviate some of the difficulties, well-demonstrating a mind-set of integrated care.

The themes in the sections on family nursing and wider community care are brought together to provide a novel contribution to attitudes to sickness and health, offering insights into practice for the

[211] *JOJ* (22 November 1760).

purpose of enriching the historiographical and medical debate. On illness generally, testimonies reveal tenderness and good quality care but this was provided at a high personal cost to the carer in terms of physical and mental fatigue. In caring for smallpox patients, sentiments of remoteness and anxiety over the likely after-effects were also a factor. Local communities supported each other at times of smallpox infection and the Poor Law assisted in practical care. Smallpox nursing arrangements were often reciprocal; those recently recovered and protected from future infection nursed current sufferers. This was a determining factor in the higher wages smallpox nurses could command and the reliability of a regular income over a number of weeks. Although mothers are believed to adopt the central role in the sickroom, this was not universal. In smallpox cases, the exclusion of mothers was associated with factors such as patriarchal authority and maternal debility and likely due to the grave nature of the disease and appearance of the sufferer. However, as with the complexities of the mother's role in the smallpox sickroom, in conjugal relationships fathers were not automatically lead decision-makers.

The link between convulsions in infants and smallpox was well-known, therefore previous assumptions on deficiencies in correct identification of the disease should not be assumed. Furthermore, an examination of how the severity of smallpox was perceived by families provides a sound understanding of the concepts of both the physical and psychological manifestations of the disease, with both physical and mental signs being important. Familial appreciation of some aspects of smallpox infection, however, is complex. Attitudes to the risk of infection through a third-party were inconsistent. Furthermore, the existence of medical manuals does not mean that their strictures were followed. This is due to a complexity of reasons which would remain undisclosed by focussing on indirect evidence alone. These two points serve to signify the crucial consideration of the diversity of family life and demonstrate that the smallpox landscape was as individual as the sufferer.

This research has revealed new dimensions to our understanding of the manifestations, transmission and diagnosis of smallpox. It is clear that families appreciated that smallpox was contracted through person-to-person contagion rather than 'bad air'. On the other hand, good air quality or 'airing' was an important aspect of helping to prevent smallpox transmission through the routes of 'natural' smallpox and the recently inoculated patient. Further preventative measures against the disease are now explored in detail in the next chapter.

CHAPTER SIX

INOCULATION

6.1 Introduction

Inoculation is a recurring theme in the smallpox historiography with scholarly discussions particularly revolving around its effect on mortality.[1] It is also one of the most regularly discussed subjects in life-writings, as parents, particularly, considered the dangers of the practice against the benefits of acquired immunity. The work of the key historians in the field has been discussed in Chapter One and to date the precise impact of inoculation on mortality rates from smallpox – or indeed more widely – remains unclear. Historians have examined the political and medical debates around objections to inoculation until the advent of vaccination with the cowpox virus at the end of the century. Some of the key advocates of inoculation practice and the trends in administering what was a live, and thought to be infectious, version of the disease have also been considered, particularly by Peter Razzell from the 1970s onwards.[2] Little recent work has been done, however, on the management of discrete inoculation programmes, apart from Mary South's comparative study in 2010 of inoculation campaigns in three southern towns and some work by M. Bennett on the growth of general inoculations in London, and how these served to protect the poor.[3] This chapter builds on this research by investigating the

[1] See, for example, C. Creighton, 'A History of Epidemics in Britain Vol 2 (London: Frank Cass, 463-516; E. J. Edwardes, *A Concise History of Smallpox and Vaccination In Europe* (London: Lewis, 1902), Reprint Kessinger Publishing's Legacy Reprints, 24-31; I. and J. Glynn, *The Life and Death of Smallpox* (London: Profile Books, 2005), Ch. 7. G. Williams, *Angel of Death* (Basingstoke: Palgrave macmillan, 2010), Ch. 6. M. Bennett, 'Inoculation of the Poor against Smallpox in Eighteenth-Century England' in A. Scott, *Experiences of Poverty in Late Medieval and Early Modern England and France* (Farnham: Ashgate Publishing, 2012), 199 – 226.
P. Razzell, 'The Decline of Adult Smallpox in Eighteenth-Century London: A Commentary', *Economic History Review*, 64 (2011): 1315-35.

[2] See P. Razzell, *The Conquest of Smallpox* (Firle: Caliban Books, 1977), Ch. 3.

[3] M. South, (2010). *The Southampton Smallpox Inoculation Campaigns of the Eighteenth Century*. PhD thesis. University of Winchester; Bennett, 'Inoculation of the Poor'.

experiences of individual users and providers, offering some new angles on inoculation practice. After examining the background to its early take-up in England from the 1720s, it investigates changing trends in operation, accessibility and scope of provision and assesses some of the challenges faced by inoculators operating within a competitive marketplace. In developing this theme further the chapter continues with a study of inoculation in Oxfordshire and surrounding counties from the perspective of local practitioners over a period of half a century. By examining all the announcements and advertisements in the *Jackson's Oxford Journal* from the 1750s until the end of the century it asserts their relationships with clients and the local communities in which they practiced. This is a novel approach in helping to develop a richer picture of the practice at local level. The chapter continues in investigating how families assessed current objections to inoculation using life-writings to examine the dangers associated with the practice. This exposes the acute stress of the practice and reveals deep emotional unrest and tensions in familial relationships about subjecting otherwise healthy children to the practice at a time when child mortality was high.

6.2 The growth of inoculation

Inoculation, or variolation against smallpox was first referenced in England by the Royal Society in 1714 with information provided by a Dr Timoni of Constantinople, stating that the practice had been performed by Greek women for the past 40 years.[4] It was introduced into England in the 1720s reportedly by Lady Mary Wortley-Montagu, (herself a victim of the scarring after-effects of the disease), after observing the practice first hand while in Turkey as the wife of the Turkish Ambassador. In a latterly well-publicised letter to a friend in 1717 Wortley-Montagu described the 'grafting' process of the

[4] Edwardes, *Concise History of Smallpox,* 24.

transfer of smallpox matter from a sufferer into what she believed to be the 'vein' (most likely the matter was inserted under the skin) of a healthy person. The procedure was carried out by;

> a set of old women, who make it their business to perform the operation, after which the patients experienced a fever and 'about twenty or thirty [pustules] in their faces, which never mark, and in eight days they are as well as before their illness.[5]

Wortley-Montagu's first reports of the procedure also made reference to the likely resistance to inoculation in England, highlighting the monetary gain to clinicians in treating (or attempting to treat) smallpox patients;

> … I should not fail to write to some of our doctors very particularly about it, if I knew any one of them that I thought had virtue enough to destroy such a considerable branch of their revenue for the good of mankind. But that distemper is too beneficial to them.[6]

However, on her return to England in 1721 she was successful in promoting inoculation amongst the aristocracy. In 1722, for example, Caroline of Anspach, the Princess of Wales, a personal friend of Wortley-Montagu, arranged for the inoculation of her two daughters, Princesses Amelia and Caroline, aged eleven and nine.[7] The grandchildren of Sir Hans Sloane, King George's physician and president of the Royal College of Physicians, were also inoculated in the same year.[8] The extent of the practice in England over the next twenty years, however, is unclear. Some historians have considered the period between the late 1720s and the 1740s as one of great hesitation and controversy over the practice although Genevieve Miller contests this point, challenging the apparent failure of the cause in the late 1720s to the middle of the century, suggesting a slowing but not ceasing, take-up.[9] In any case, by the 1750s inoculation had come to be accepted by the aristocracy, who may have been influenced in the

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[5] Razzell, *Conquest,* 1-3. Razzell quotes letter of Lady Mary Wortley Montagu to a friend, 1717.
[6] O. Kenyon, *800 years of Women's Letters* (Stroud: Alan Sutton Publishing, 1995), 234.
[7] Williams, *Angel*, 89 & 94.
[8] *Ibid.*, 94.
[9] See for example, Glynn, *Life and Death,* Ch. 6; G. Miller, *The Adoption of Inoculation for Smallpox in England and France*. http://babel.hathitrust.org/cgi/pt?id=mdp.39015003806836;view=1up;seq=284

1740s by an advocate of the practice, Dr Richard Mead, physician to George II.[10] By the 1750s, according to one Chelmsford doctor, inoculation 'gains grounds daily' among the lower orders.[11] The problem for the labouring poor, however, was the cost, and concern was raised about this simple procedure falling into 'the lowest hands'.[12] In attempting to encourage medical practitioners to perform the operation free to the poor or on moderate means-tested terms a writer in the *Gentleman's Magazine* in 1752, warned that, otherwise, 'every notable housewife, who has the courage to take up the lancet' would be operating.[13] Notwithstanding, in 1766, the *Oxford Journal* promoted a publication, *INOCULATION made easy* as follows:

> … being intended for the benefit of Masters and Mistresses of Families, and the Public in general, the whole Art being laid down so clear and easy a Method, as to render anyone capable of Inoculating themselves and others with the greatest Ease and Safety … NB A sufficient quantity of Medicines to prepare and cure one person is given (Gratis) with this treatise.[14]

Encouragement from propaganda such as this placed inoculation outside the medical remit. In attempting to regain control physicians emphasised its 'mystery', so making the practice more elaborate and intrusive.[15] New procedures involved deep incisions in the skin and elaborate periods of pre-treatment or 'preparation'. The latter was believed to change the constitution of the body by purification, making it more receptive to inoculation. Preparation for inoculation was a very similar regime to that for the disease itself. Diemerbroeck referred to preparation as the 'Prophylactic Cure', whereby the body should maintain a well-preserved equilibrium through the observance of a light diet, with 'gentle' purging and blood-letting. Anything extreme which could heat or excite the body was to be

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[10] *Gentleman's Magazine,* 1747, v. 17, 528. 'Of INOCULATION extracted from Dr MEAD'S Latin Treatise of the SMALL-POX and MEASLES'. http://catalog.hathitrust.org.
[11] Bennett, 'Inoculation of the Poor against Smallpox', 205.
[12] *Ibid.*, 206.
[13] *Ibid.*
[14] *Jackson's Oxford Jou*rnal (24 May 1766).
[15] Glynn, *Life and Death*, 75.

avoided, such as strong meats seasoned with spice, early fruit or general over-eating.[16] Over-heating the body was deemed dangerous in preparation for inoculation and the disease itself. When the children of King George III were 'under inoculation for the Smallpox' in 1770, the *Oxford Journal* reported their being confined in a 'large Room without Fire and have no Curtains to their Bed'.[17]

In 1750 the *Gentleman's Magazine* published a letter recommending a new procedure for inoculating large numbers of people, as follows:

> With the point of a needle, or lancet, of ceremony is requisite, open the top of a ripe pustule; draw a single small thread thro' the matter, till part of the thread is thoroughly moist with it: Let it dry, and then put it into a clean phial, or box. To perform the operation, nothing more is required than to make a slight scratch, … so as to fetch out the least quantity of blood imagineable … cut off a very short bit of the thread, charged with the matter, less than the 8th part of an inch will be sufficient; lay this upon the bleeding scratch, keep it there with a piece of sticking plaister, and the operation is finished.[18]

This is a surprising early reference to a newer, less invasive technique, whereby a minor scratch replaced a deep incision. Historiography has generally attributed this to Robert Sutton, who first became interested in the technique in 1757 and advertised his 'new Method of Inoculating for the Small-Pox' in the early 1760s.[19] Whether or not Sutton was the first to implement this new technique, the procedure became more widespread, mainly due to Sutton and his sons who also reduced the preparation period, as well as making the process cheaper. Using this technique and through astute marketing practices the family made enormous profits, selling franchises of the 'Suttonian' method, charging rates for 'deals' for groups of less well-off clients and offering free inoculations for the poor as an enticement to others in a

[16] Diemerbroeck, Y. van. *The Anatomy of human bodies* (London, 1689), 9-10. http://quod.lib.umich.edu/e/eebo/A35961.0001.001/1:16.7?rgn=div2;view=fulltext
[17] *JOJ* (15 December 1770).
[18] *Gentleman's Magazine,* 1750, v. 20, 148. 'Remarks on the Practice of Inoculating for the SMALL-POX'.
[19] Williams, *Angel*, 137.

local community.[20] Ironically, this new procedure was similar to that originally practiced in Turkey and witnessed by Wortley-Montagu in the early eighteenth century.[21]

6.3 General inoculation programmes

By the 1760s general, or mass inoculation programmes (inoculating all in a community), were in operation under the Poor Law.[22] These were usually carried out when an epidemic was threatened or present, the initiative likely costing less than that for the care and treatment for those with the natural form of the disease. The programmes were also fuelled by fears that recently inoculated patients were infectious and deflected criticism that practitioners were serving to spread the disease. 'Partial' inoculations (inoculating only certain sections of the community) could spread the disease or at worst, generate an epidemic. One of the first general inoculations under the Poor Law took place in Wootton-under-Edge, Gloucestershire, in 1756 when the vestry there paid for the inoculation of the labouring poor and well as those on poor relief.[23] In 1760, in Banbury, Oxfordshire general inoculations also included 'physick'. In this year the Vestry agreed:

> … that all Persons who belong to their Borough shall if willing receive the benefit of being inoculated and physick at the Expence of the parish bearing all other Expences themselves unless the vestry should think proproit to allow them any Allowance they may think they should stand in need of.[24]

Two weeks later, they reported:

> … it was found by inspection that there was One hundred and twenty persons Inoculated at ye Parish Expence according to Agreement at ye last Vestry … was at five shillings per head and to provide them phisick.[25]

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[20] Bennett, 'Inoculation of the Poor against Smallpox', 207-8.
[21] Razzell, *Conquest*, 3-10, 22-23 & 63.
[22] See Bennett, 'Inoculation of the Poor against Smallpox', 199-226.
[23] Bennett, 'Inoculation of the Poor against Smallpox', 208.
[24] *OHC*, PAR21/2/A/1 'Banbury Vestry Minute Book' (14 October 1760).
[25] *Ibid.* (28 October 1760).

These programmes were broad, generous and open-ended. 'Physick', a regimen similar to preparation but probably less invasive, administered before or after natural smallpox or inoculation, was an important component for all social groups. After young Wally Stanhope had the disease in 1753 he was, '… recovered and taken his first dose [of] Phisick, and runs about ye room' and Mary Hardy's two children were given their '2nd dose of Phisic' one day before being inoculated in 1776.[26] 'Physick' was likely to comprise a purge, possibly of syrup of currents, to rid the body of 'superfluous Humors'.[27]

Apart from inoculation performed at parish expense, finance for general inoculation programmes was provided by charities or local private subscription. The governors of the London Foundling Hospital, for example, contracted with the Suttons in 1766 to inoculate all the children of the hospital who were in foster homes in Essex.[28] In Buckinghamshire a philanthropic undertaking occurred in the parish of Hambleton in February 1768, when the *Oxford Journal* reported that 74 paupers had been treated by surgeon and apothecary Mr Nicholas of Henley on Thames 'under the Charitable Subscription of the Principal inhabitants of that Parish'.[29] Mary South has suggested several motives for private subscriptions; altruism, employers wishing to protect their workforce, the opportunity (in Southampton) for treating whole households under a scheme to inoculate servants free of charge, or the gratitude of parents after their children had passed successfully through the procedure. South also suggests that visitor gatherings may have been targeted as opportunities for raising funds to finance these programmes or for a 'health cure' as a component of the visitor experience.[30]

[26] WYAS, Bradford SP St. Letter W. Stanhope (14 March 1753); B. Cozens-Hardy, *Mary Hardy's Diary* (Norfolk Record Society Vol XXXVI 1968 (21 June 1776).
[27] Diemerbroeck, *Anatomy of* h*uman bodies, 10.*
[28] Bennett, 'Inoculation of the Poor against Smallpox', 208.
[29] *JOJ* (13 February 1768).
[30] South, *Southampton Smallpox Inoculation Campaigns,* 137-140, 89.

Several historians have discussed the position of the poor, and particularly children, with respect to inoculation strategies. According to M. Bennett, the poor bore the greatest share of the indignity and risk of the procedure, quoting cases of clinical trials, undertaken for the purpose of advancing medical knowledge.[31] On the other hand, Alysa Levene notes that the policy of inoculating children in the London Foundling hospital who had not had smallpox was adopted as early as 1743, suggesting that the hospital may well have done much to popularise inoculation in the 1740s. Furthermore, the foundlings may have been unique in having the benefit of such general access to the procedure; the hospital lost only 'a tiny proportion' of its inoculation patients, compared with relatively high loss of life in non-immune foundlings.[32]

Although inoculation was encouraged amongst the poor it was not compulsory nor could it be enforced.[33] Nevertheless, from the family perspective, proof of smallpox immunity in prospective employees was an advantage in protecting the rest of the household from future infection and helped to guard against medical costs for employers. This precaution was backed in the 1750s by campaigner Henry Fielding, who, in attempting to establish a universal register whereby 'ingenious Persons of all Kinds will meet with those who are ready to employ them' stipulated that 'Servants of all kinds' were required to declare, amongst other personal details, whether or not they had had smallpox.[34] Clearly this requirement did not always apply, as the cases below illustrate, but if employees were unprotected they were likely to be inoculated alongside their employers' families. In 1765, James Woodforde reported 'Mrs White's Children & Maid were inoculated to Day at Mrs Farrs' and a decade later, he

[31] Bennett, 'Inoculation of the Poor against Smallpox', 214.
[32] A. Levene, *Childcare, health and mortality at the London Foundling Hospital, 1741-1800* (Manchester: Manchester University Press, 2007), 164 & 201.
[33] Bennett, 'Inoculation of the Poor against Smallpox', 217.
[34] H. Fielding, *A Plan of the Universal Registry* (London, 1751), 13. http://www.jischistoricbooks.ac.uk/Search.aspx

financed and managed the inoculation of his two servants in his own home.[35] In 1783, Matthew Flinders inoculated his servant maid and boy and a year later Elizabeth Leathes noted the inoculation of an errand boy employed by a neighbour plus her own maid and cook.[36] Returning to Fielding's stipulation, his 'Servants of all kinds' needing to have proof of immunity to smallpox included 'Riders, book-keepers, stewards, clerks and dry and wet nurses'.[37] If we can extrapolate this preference to the wider population then we would have a situation where a large proportion of the employee classes would have been protected from smallpox.

6.4 Routes into inoculation

Moving the focus to the providers, the following section investigates the different routes into the practice and how they co-existed. Firstly, its monetary value to these practitioners is set out to provide context to the discussions and show the lucrative nature of the work. Operating under the Poor Law, inoculators charged less per head than 'private' inoculators, although they could gain in the numbers treated. In Banbury, in 1760 for example, the Vestry paid five shillings a head for treating 120 people, the inoculators thereby earning £30 for one session.[38] The Sutton family, discussed above, supposedly made a profit of thousands of guineas a year.[39] Such claims to fortune are difficult to quantify, however, as the preparation procedure involved several weeks' residential care in specially selected inoculation

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[35] R. L. Winstanley (ed.), *The Ansford Diary of James Woodforde Volume 2 1764-1765*, (The Parson Woodforde Society, 1979), 1, 145; Beresford, *Diary of a Country Parson*, 126.

[36] M. Beardsley and N. Bennett, *Gratefull to Providence, The Diary and Accounts of Matthew Flinders surgeon, Apothecary and Man-Midwife (*Woodbridge: Lincoln Record Society, The Boydell Press, 2008), 140; *NRO,* BOL 2/36/5 (9 March 1784), 2/36/16 (26 December 1784), 2/37/3 (21 January 1785). Letters E. Leathes to J. and E. Reading,

[37]Fielding, *Plan of the Universal Registry,* 13.

[38] *OHC,* PAR21/2/A/1 'Banbury Vestry Minute Book' (28 October 1760).

[39] C. W. Dixon, C. W. *Smallpox.* London: J. & A. Churchill Ltd, 1962, 243. http://www.nlm.nih.gov/nichsr/esmallpox/esmallpox.html.

houses, a process which would have incurred considerable overheads which, to date, have not been subject to rigorous historical research. As we have seen, later operators tended to reduce or omit the lengthy preparation procedures. Matthew Flinders, an established and well-respected apothecary and male midwife in South Lincolnshire in the 1770s and 80s, almost certainly fell into this category. Flinders served a population of approximately 1,000 people, mainly employed in crop cultivation in the 'unfashionable' market town of Donnington.[40] His diary and account book offer insights into the value of the practice by comparing his rates for inoculation with some of his outgoings. It is likely that Flinders procured the 'matter' either from a smallpox sufferer or through the direct arm-to-arm method from the pustule of a recently inoculated client. Flinders typically charged between 10s. 6d. and £1.1s. for attending a woman in labour whilst payments for inoculations appear in his account books in the same period typically at a cost of 7s. 6d. Attendance at a labour was likely to be far more time-consuming than the execution of one inoculation, details which verify that the latter service was an especially valuable resource in the clinician's port-folio. Further, in comparison to some of his outgoings in the same period, one week's nursing for Flinders' two youngest children incurred a cost of between 2s. 6d. and 3s.0d. each and a week's schooling for one child, between 2d. and 4d.[41] Although Flinders particularly noted the cost of nursing his children, describing one son as a 'very expensive child', these findings illustrate the value attached to his sideline.[42] For Flinders, one inoculation could cover three weeks' nursing or over six months' schooling for one child. These details explain the desire of operators to promote the credibility of the practice and explain the desire to maintain a high profile in the medical arena, a point to which we will return.

[40] Beardsley & Bennett, *Gratefull to Providence,* xx – xxiv.
[41] *Ibid*., 109, 120.
[42] *Ibid*.,155

Accessibility to inoculation and the scope of the provision depended on several factors, apart from cost. Firstly, there was a wide geographical variation as general inoculations were mainly performed at times of an actual or perceived outbreak. Secondly, operators were not uniformly available. James Woodford's diary implies that the services of an inoculator in his rural parish of Weston Longville in Norfolk were much sought-after in the 1760s. Visitors to the parish included a rector's daughter from Wells in Somerset 'under Mr Clarke's Hand in inoculation' and 'one Mr Rowe out of Cornwall', distances of approximately 254 and 382 miles respectively.[43] It is unclear why these two inoculees travelled so far, however it can be assumed that the practice was not widely available more locally or not provided by someone deemed reputable. In comparison, in the same decade, a competitive market was in operation in other areas such as Oxfordshire, whilst Matthew Flinders in Lincolnshire appeared unconcerned about significant competition, with no obvious advertising costs appear in his accounts.[44] When a smallpox outbreak occurred in his parish in 1777 Flinders inoculated his own two children noting: 'I have also to remark that I have also inoculated several others with the greatest success and expect more Business of this kind before we stop'.[45] Six years later Flinders was still in demand, reporting successful inoculations and again having 'more in hand'.[46] The services of Flinders and Clarke were well sought-after as these practitioners fulfilled community expectations.

Inoculators were called upon particularly when a smallpox epidemic was present or threatened. In Blandford, Dorset in 1766, for example, George Baker noted 'a perfect rage for inoculation seized the

[43] Winstanley, *Ansford Diary of James Woodforde,* 40, 176, 102, 141.
[44] Joan Lane has also highlighted the competitive inoculation market. See J. Lane. *The Making of the English Patient: A Guide to Sources from the Social History of Medicine,* Stroud: (Sutton Publishing, 2000), 26. Lane quotes *Coventry Mercury*, 22 June, 6, 13 and 20 July, 1772. See also Razzell, *Conquest,* 60-61. In Sussex a Mr Thomas Davies wrote of '… at least a Score of Inoculating Doctors advertising every week in the Lewes Journal'.
[45] Beardsley & Bennett, *Gratefull to Providence,* 59
[46] *Ibid*. 140.

whole town', in response to a threatened outbreak of the disease.[47] Elizabeth Leathes' letters adopt a similar tone, '…The Small Pox continues to spread & every body is inoculating', indicating a hurried ad hoc provision.[48] On three separate occasions in Weston Longville, certain families were selected for inoculation when they were considered to be in danger of contracting the disease. In 1785 the Gooch family was inoculated two days after their neighbours were 'taken down in the small Pox' and in 1791 Abigail Roberts' children were inoculated because their father was unexpectedly 'very bad in it in the natural way'.[49] In the same year a Mr Thorne was summoned urgently to inoculate all six Dunnell children.[50] In Dunnell's case the family had been excluded from an inoculation programme in the parish and the procedure was financed by a local gentleman at the cost of one guinea.[51] These three families were treated urgently, revealing the immediacy and selective nature of the practice. The prevalence of the disease close to them had prompted the community to act, parish authorities or benefactors responding quickly to individual requirements and operating on an individual needs basis.

6.5 The 'preparation' regime

A tombstone inscription to surgeon Mr Lewis Paul Williams, who died in 1771, claims that 'He was the first that introduced into practice Inoculation without Preparation into this Kingdom'. The *British Medical Journal* suggested in 1910 that this claim was unsubstantiated.[52] Nevertheless, evidence drawn from the *Oxford Journal* for my work shows that the process was commonly streamlined or eliminated altogether by inoculators in the 1760s. This, of course, reduced the total time involved, which could take up to six

[47] Razzell*, Conquest*, 53. (George Baker, 'An Enquiry into the Merits of a Method of Inoculating the Small-Pox, which is now practised in several Counties of England', 1766).
[48] *NRO*, BOL 2/38/13. Letter E. Leathes to J. and E. Reading (12 April 1786).
[49] Beresford, *Diary of a Country Parson,* 245.
[50] *Ibid.*, 396.
[51] *Ibid*., 396
[52] *British Medical Journal*, 'The History of Inoculation', (3 September 1910), 633. Wall tablet in Kibworth Church, Leicestershire.

weeks otherwise. Notwithstanding, it is unclear whether the move away from preparation was a response to demands of clients or a lead by practitioners in order to attract business, making the operation cheaper and less disruptive. This thesis proposes that the latter was the primary factor, in consideration of the competitive market in which practitioners operated. The first advertisement in the *Oxford Journal* for a more streamlined procedure appeared in 1767, whereby Messrs Sutton and Read of Hucklecote, Gloucestershire promoted the treatment 'without inconvenience, loss of time or avocation of business'.[53] This appears to have set a trend in the region; in February 1768, a consortium of three practitioners operating in Banbury, Chipping Norton and Shipston in Warwickshire promoted inoculation 'without confinement or hindrance of business' and a Mr I-Ony of Amersham, Buckinghamshire, believed preparation to be 'wholly unnecessary'.[54] In 1776 Mr Southam near Aylesbury 'inoculated at first sight, without the Punishment of Abstinence, without a tedious Preparation and without reducing them to that low State, which has proved so very prejudicial to many Constitutions'.[55] The following year Southam was particularly averse to the poor undergoing the preparation process 'where they [the poor] are reduced to so low an Ebb, as renders them almost incapable to supporting themselves under the Operation and is afterwards very prejudicial to their health'.[56] Southam's altruistic motive may be questionable, however, his advertisements inform us firstly, that preparation was seen at this point as likely to be injurious to health, and secondly, that all social groups were subject to the preparation regime.

Life-writings examined for this thesis indicate that streamlining of the preparation period was, in fact, more commonly followed than total elimination, possibly led by a disdain of a 'toned down' procedure among affluent groups. In 1784, in Bourton, Gloucestershire two-year-old Anna Hall and her cousins '…

[53] *JOJ* (16 May 1767).
[54] *JOJ* (20 February, 25 June 1768).
[55] *JOJ* (2 March 1776).
[56] *JOJ (*14 June 1777).

began to prepare for inoculation', as did 20-month-old Mary Leathes in Reedham, Norfolk in the same year.[57] Mary's preparation, however, involved minor bodily disruption, her mother, Elizabeth noting that 'The Regimen seems to agree vastly well with her & She is so well reconciled to it that She never asks for any meat but eats her potatoes and drinks her toast and water very contentedly'.[58] At 20 months old, the child did not understand the reason for the change of diet, but was, in any case, untroubled by it.

Apart from the comment by Southam above, there is little indication from life-writings that preparation was perceived as a weakening process, likely to make the body more vulnerable. However, it is important to appreciate that families still placed high value on the body being in an optimum state to receive invasion, either by smallpox infection or inoculation. Correspondence between the Leathes and Reading families reveals the significance of reduced immunity due to prior infections which could, in turn, affect levels of resistance. When Edward Leathes was considered likely to contract smallpox and temporarily removed from the family home in 1779 his mother, Elizabeth, explained to her parents; 'As Edward was cutting his Teeth & had not got rid of the Hooping Cough we judg'd it most proper to send him out of the house'.[59] Similarly, Mary's preparation in 1784, noted above, was initially to forestall smallpox itself because she had been exposed to the disease and was considered not fit enough to withstand infection:

> I should not care so about it only I think the poor Child is about teeth & having a bad cold & breaking out therefore I think her blood is not in a proper state to receive such a disorder.[60]

[57] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (26 December 1784); M. Rendell, *The Journal of a Georgian Gentleman, The Life and Times of Richard Hall, 1729 – 1801* (Brighton: Book Guild Publishing, 2011), 157.
[58] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (26 December 1784).
[59] *NRO*, BOL 2.29/8 16. *Ibid*. (July 1779).
[60] *NRO*, BOL 2/36/10. *Ibid*. (12 December 1784).

As smallpox did not transpire, the procedure she had undergone was instead deployed as her preparation for inoculation. Elizabeth wrote twice on this subject on 14 and 26 December 1784:

> … we expect Mary to have the Small Pox … for it seems now that the Eruption was full out upon Mr Browne at the time the Child was there, we have consulted Mr Amis upon it & and he thinks it very likely She has caught the Infection & is going to prepare her the same Inoculation.[61]

and

> Many families are inoculated in this place & we thought as Mary was prepared it was better to make sure of it so we had her inoculated the Confinement the Anxiety & everything w'd have been the same & as we intended to have it done in the Spring it was better to take this opportunity.[62]

In this family prior good health was believed to provide protection against the risks of inoculation. When the Leathes' two older children were about to be inoculated in 1786 the oldest child, Elizabeth, was reported to have, '… quite lost her cold & Doctor Leath thinks them both in a very proper state to receive the disorder'; the children were considered robust enough to withstand the procedure.[63]

6.6 Contemporary fears about inoculation

One objection to inoculation was fuelled by religious dogma. The use of eighteenth-century terminology is helpful in understanding why some religious opinion was opposed to the practice. The term 'natural' smallpox or having the disease 'naturally' referred to smallpox cases without the intervention of inoculation. In April 1786, for example, Elizabeth Leathes reported on one smallpox death 'in the Natural Way … but others … both in the Natural Way and by inoculation … all likely to do well'.[64] By implication, therefore, inoculation was 'unnatural' and potentially an irresponsible interference with providence. Charles Wesley (co-founder of Methodism) and his wife, Sarah, who had smallpox almost fatally in 1752, were profound in their religious objections to the practice. Although Sarah suffered severely,

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[61] *NRO*, BOL 2/36/11. Letter E. Leathes to J. and E. Reading (14 December 1784).
[62] *NRO*, BOL 2/36/16. *Ibid*. (26 December 1784).
[63] *NRO*, BOL 2/38/14. *Ibid*. (26 April 1786).
[64] *NRO*, BOL 2/38/14. *Ibid*.

> '… the crown of the head to the soles of her feet [having]… no soundness… under her sorest burden … blessed God that she had not been inoculated; receiving the disease as immediately sent from Him'.[65]

Here, smallpox had come from God, but inoculation was man-made and unnatural and Sarah was gratified for allowing her religious conviction to influence her decision not to be inoculated. William Jones (1761– 1838) from Charlbury in Oxfordshire was inoculated against smallpox 'after much thought and discussion'.[66] Jones' treatment probably took place in the 1760s or 70s at a time when Robert Sutton had only recently published (1762) details of his safer 'scratch' method and when some practitioners were still implementing the more invasive technique, and Jones' reticence may reflect this. However, as an ardent Quaker his phraseology suggests that he was swayed by religious opinion as much as the safety aspects of the practice. Later in the century religious objections waned; William Buchan, in the 1780s, advocated the removal of religious prejudices and encourage the clergy to, '… recommend it as a duty to others, but likewise practice it on their own children'.[67]

Another heavily-debated issue throughout the century was whether infection could be transmitted by someone recently inoculated. In 1718 Wortley-Montagu had reservations about inoculating her daughter because, she reported, 'her nurse has not had the small-pox' and so was at risk of catching and transmitting it, and as early as 1722 a Dr John Crawford in England had suggested that inoculees should be isolated in case they were contagious to others.[68] This construct gained momentum until the 1760s when parishes began to try and regulate the practice through organised programmes and, as we will see later in the chapter, restrictions on the workings of practitioners. Some parishes took legal action against

[65] K. Newport & T. Campbell (eds), *Charles Wesley Life, Literature & Legacy* (Peterborough: Epworth, 2007), 477.
[66] *OHC*, NQ3/1/MS/1. Papers relating to William Jones' diary. Partial transcript.
[67] Buchan, *Domestic Medicine*, 260.
[68] J. R. Smith, *The Speckled Monster* (Chelmsford: Essex Record Office Publication no 95, 1987), 32, 36; Dixon, *Smallpox*, 221.

anyone known to be inoculating and in 1765, Robert Sutton's son, Daniel, was placed on trial at Chelmsford for spreading smallpox, although the case was unproved.[69] During the perceived contagious period inoculees were expected to remain in quarantine which probably lasted for several weeks. In 1785, James Woodforde in Weston Longville, Norfolk noted his new boy Jack who '… came back from Mr Thorne's after inoculation to us' and Richard Hall reported in 1767 of Mrs Snooke and her sisters '… coming home from being inoculated after an absence of almost six weeks'.[70] Both these diary entries denote the temporary removal of the recently treated and isolation from the family home. Even the poor, treated under mass inoculation programmes, were expected to remain in quarantine, Mary South noting in Southampton, in 1774:

> … all persons while under Inoculation, or liable to convey the Infection, are expected to forbear going to any place of Public –Worship, the Markets, Public Houses, or any other meetings where the disorder may be communicated - it is particularly requested, that those who have not Gardens, will walk in the Fields for the Benefit of Air, and may appear as little as possible in the Streets.[71]

On the other hand, some physicians were adamant about the safety of inoculation against smallpox infection. According to J. Haygarth in 1781 and again in 1791, 'Inoculation … did not spread the contagion' and J. Lettsom, whose practice entailed inoculating the poor in their own home, making it almost impossible to regulate succeeding isolation controls, considered 'no instances occurred to the medical practitioners, … to prove that the infection has been propagated from an inoculated patient'.[72] Despite these claims concern continued into the later decades of the century. In 1786, Elizabeth Leathes in Norfolk advised her parents to postpone a visit shortly after her children had been inoculated, 'as you seem to object to being in the same House as the same time we w'd advise you not to set out till Monday

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[69] See Smith *Speckled Monster,* 46; C. E. Joscelyne, *Medical Practice and Medical Theory smallpox in Britain during the long eighteenth century*. PhD Thesis (1990), University of Essex, 181; Razzell, *Conquest*, 28.
[70] Beresford, *Diary of a Country Parson,* 250; Rendell, *Journal of a Georgian Gentleman,* 91.
[71] South, *Southampton Smallpox Inoculation Campaigns,* 223. South quotes the 'Inoculation Book' of Southampton, 11 January, 1774.
[72] Razzell, *Conquest,* 71, 30.

8th May & we hope by that time they will be quite recovered'.[73] This phraseology does suggest, however, that Elizabeth was not as convinced as her parents over the likelihood of smallpox infection through inoculation. Assertions over whether or not inoculation spread the disease were clouded by the common practice of inoculating a community when smallpox was present. A typical scenario is evident in a diary entry by James Woodforde in Norfolk in 1776, '… the Father of the Children that were lately inoculated has got the smallpox in the natural way and likely to have it very bad'.[74] Woodforde does not clearly convey his understanding here, although it sounds as if he is linking 'natural' smallpox with inoculation.

Evidence such as this has led historians generally to assume the contagious nature of inoculation, although A. J. Mercer has contextualized the argument by suggesting it 'may be of less importance' if case fatality rates in the inoculated were lower than that of those naturally infected. Mercer quotes data from Boston, USA in 1776 where the case fatality percentages from inoculation were minimal at 0.6 per cent.[75] To summarise this discussion, the actions of Wortley-Montagu are worthy of further consideration. She saw at first-hand how inoculation was perceived and managed in Turkey in the early days of the 1720s. In deciding to delay the inoculation of her child in case the nurse became infected with the disease, it is presumed she had noted that local people believed inoculation to be infectious and had acted on their knowledge and practice. This provides the most convincing argument, which, unlike the contrasting medical opinion of physicians such as Lettsom, was not biased to accommodate the practice of inoculating under conditions which made isolation difficult to regulate.

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[73] *NRO*, BOL 2/38/14. Letter E. Leathes to J. and E. Reading (26 April 1786).
[74] Beresford, *Diary of a Country Parson* (22 November 1776).
[75] A. J. Mercer, 'Smallpox and Epidemiological- Demographic Change in Europe: The Role of Vaccination', *Population Studies* Vol 39 (July 1985): 293 also 287-292.

6.7 Inoculation in Oxfordshire and surrounding counties

The following section comprises a study of inoculation in Oxfordshire and surrounding counties (subsequently referred to as the Oxfordshire region) in order to investigate the practice from the perspective of local operators, an area of the topic which has previously received very little attention from historians. Most of the previous work on inoculation practice has focussed on the motivations of influential advocates, commentators and physicians although several pieces of work attest to the local approach. In 1990, C. E. Joscelyne examined inoculation in East Anglia, questioning the extent to which people took up the offer of inoculation, a point which is developed in this chapter.[76] More recently, Mary South's work looked at inoculation campaigns in the Southampton area and Diana Crook has examined an inoculation programme in Glynde, Sussex in the 1760s.[77]

The following section comprises an analysis of inoculation activity in the region using information derived from the *Jackson's Oxford Journal.* A close examination of all the advertisements placed by inoculators, from the conception of the paper until the end of the century, a period of nearly fifty years, provides a comprehensive picture of local levels of provision and how these fluctuated throughout the eighteenth century. This detail has been supplemented by information from letters and announcements published in the J*ournal*, together with some examples from secondary literature. Appendix 2 shows known inoculation programmes in Oxfordshire and surrounding counties taken from a range of sources.

The *Oxford Journal was* inaugurated in 1753 in order to embrace the Oxfordshire elections and sold at a cost of 2d., blending reporting of events from Oxford and the University with London news and summaries

[76] Joscelyne, *Medical Practice and Medical Theory*, 183-84,179.
[77] South, *Southampton Smallpox Inoculation Campaigns.*

of events further afield.[78] Although its stance leaned towards conservatism, William Jackson, the paper's founder and editor until 1795, maintained enough neutrality to ensure the newspaper would survive well beyond the elections.[79] Its circulation was 8,000 by the late nineteenth century. Figures for the eighteenth century are not easy to establish, although according to Hannah Barker a weekly circulation of up to 2,000 copies would be reasonable for a provincial newspaper at that time.[80] Newspapers such as the *Journal* were heavily dependent upon sales outside the town where they were published so carriers were employed to distribute them more widely.[81] It is unsurprising, therefore, that advertisers from Northamptonshire, Gloucestershire, Buckinghamshire, Worcestershire, Berkshire and Wiltshire utilized the *Journal* as a voice in promoting their services. Generally, newspaper content was disseminated across a wide social spectrum. Each copy of the *Journal*, for example, was probably read by more than one person and accessed by the illiterate through hearing it read aloud.[82] Advertisements in the paper, therefore, were not aimed particularly at the affluent. This is seen particularly in advertisements offering inoculation; most practitioners based their fees on a sliding scale according to financial circumstances of the client, many offering reasonable terms for the less well-off. Some practitioners also provided poor law services. In 1779, for example, advertisers Mr Palmer in Wantage, Berkshire and Mr Southam in Broughton in Oxfordshire, were contracting their service to local parishes.[83] Some community physicians, or in one case in Oxford, the local coroner, added the practice to their portfolio, others set up specially

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[78] http://www.bl.uk/reshelp/pdfs/headnotesconsolidatedlist.pdf accessed 11 May 2015. Statement beneath the title of the first issue reads: This paper will be more complete than any that has hitherto appeared in this Part of the Kingdom. For besides the Articles of News, foreign and domestic, in which we shall endeavour to surpass every other Paper, our situation will enable us to oblige our Readers with a particular Account of every Transaction relating to the present Opposition in Oxfordshire;... Notes compiled by Ed King, British Library

[79] http://news.bbc.co.uk/local/oxford/hi/people_and_places/history/newsid_8596000/8596821.stm; http://www.historyofparliamentonline.org/volume/1754-1790/constituencies/oxfordshire.

[80] H. Barker, *Newspapers, politics and public opinion in late eighteenth-century England* (Oxford: Clarendon Press, 1998), 34-35.

[81] *Ibid*., 41.

[82] *Ibid*., 46, 53.

[83] *JOJ* (18 December 1779).

selected out-of-town houses and others were itinerants, probably working out of peoples' homes.[84] A newspaper reader in Northamptonshire further confirmed this wide circle of inoculators as follows:

> A great Variety of Practitioners from the pompous Tye-Wig down to the Greasy Night Cap; even Boys of seven or eight Years perform the Operation [inoculation] for a Halfpenny a piece, and succeed surprisingly …[85]

and in October 1773 a '… Poor illiterate shepherd in Devonshire' was reported to have inoculated up to 500 all of whom were believed to have recovered.[86]

6.7.1 Level of provision

Figure 6.i shows the number of individually-named inoculators compared to the level of advertising in the *Journal* between 1760 and 1799. The total number of advertisements over the period was 344 and the number of individual inoculators, approximately 80. These figures cannot be precise in providing a fully comprehensive picture of provision; however, it is assumed that those who promoted themselves with claims of achievement over a period of months or years, as most did, experienced some degree of success. The peak of activity among inoculators in the region occurred in the late 1760s. As the graph shows, as more practitioners entered the market advertising became more intense. Most advertised over a period of several years, although many were itinerant and probably moved on to another area when the market was considered to be exhausted. In 1766, for example, on his arrival to practice in Amersham, Buckinghamshire, Mr l'Ony claimed to have been practising for 20 years in Essex, where, 'the practice of it [inoculation] has been so general, that few in Comparison remain now to be inoculated in that Part of

[84] James Woodforde noted that Mrs White's children and maid were inoculated at Mrs Farrs' and in 1776 Mary Hardy 'Went with children to Widow Wards and had them inoculated for smallpox and several others'. Winstanley, *Ansford Diary of James Woodforde* (21 October 1765); Cozens-Hardy, *Mary Hardy's Diary* (22 June 1776). Both these accounts indicate a home-based provision.

[85] *JOJ* (5 March 1768).

[86] *JOJ* (9 October 1773).

the Country where he resided'.[87] By the end of the century there appeared to be little advertised activity. The reasons for this are unclear although some possibilities are discussed later in the section.

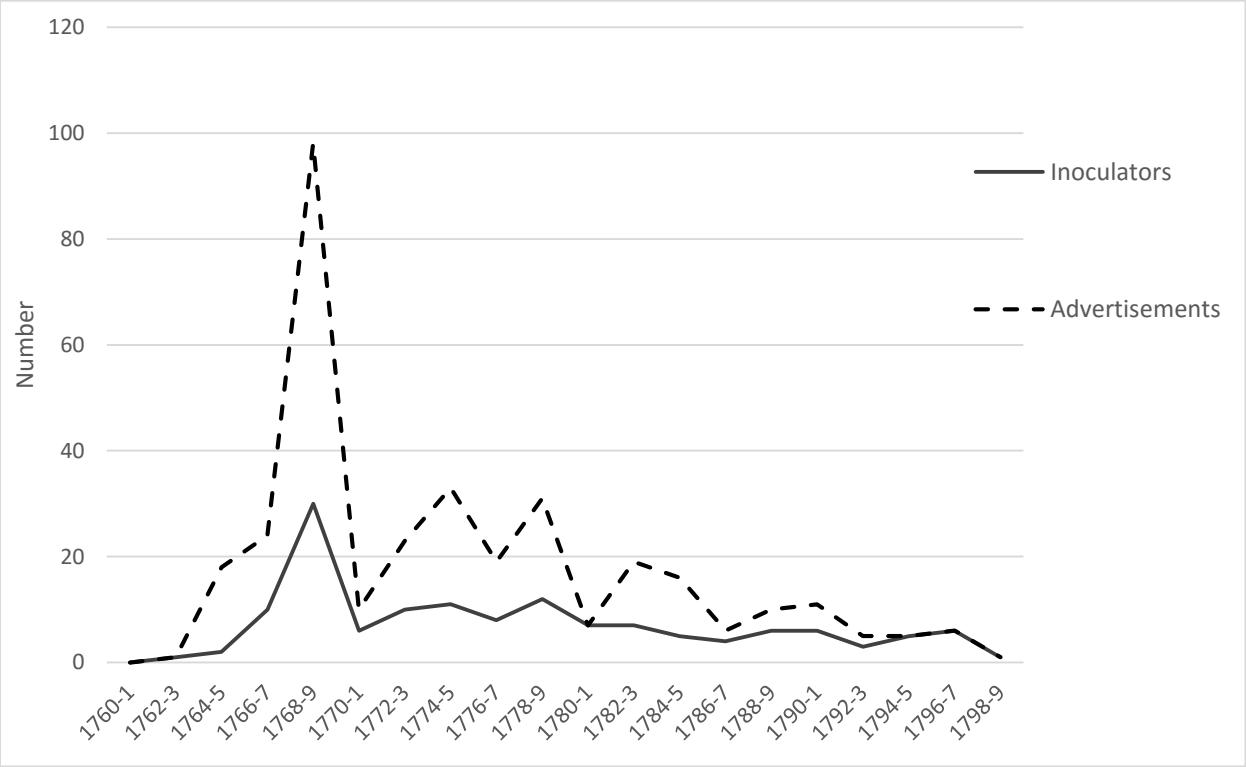

Figure 6.i *Inoculators and advertisements 1760-99*[88]
Source: 'Jackson's Oxford Journal' 1760 – 1799

Inoculation houses in the region, admitting up to 100 patients at a time and built or rented specifically for purpose, were established on the outskirts of populated areas, admitting inoculees for periods of up to three weeks at a time. An advertisement placed in the *Journal* by a Dr Bouchier of Pudlicot, in 1785 provides some insightful detail on these houses:

> … large commodious house surrounded by Plantations of Shrubs, Evergreens, containing near an Acre of Ground, with extensive Gravel Walks and Bowling Green extremely well calculated for Airing, Exercise and the Amusement of the Patients … Inflamation of Eyes, sore Arms, Absesses and other Disorders associated with inoculation avoided by treatment during Preparation and different Stages of the Disorder … every indulgence in Diet … Airing house … with fishing in the River Evenlode …

[87] *JOJ* (5 April 1766).
[88] With the exception of a single notice in 1758, the first inoculators in the area advertised in 1763. Some inoculators were operating in partnership.

> romantic scenes in Wychwood Forest … Ladies and Gents apartments … five good and spacious Bedchambers, two large Parlours, Drawing room with table with a variety of dishes, suitable for the regimen … Coach House and stabling if required with lodgins and board for servants … 2g all necessities except sheets … servants one and a half guineas finding their own Tea, Sugar and Sheets.[89]

Patients were invited to 'take air' after their treatment, sometimes provided by a separate airing house, or otherwise, the surrounding isolated countryside. Airing was believed to reduce cross infection and practitioners promoted this facility. As Mr Lyster of Blandford Park, Oxford pointed out, '… many Objections have lately been made to Inoculation for Want of an airing Place'.[90] An inoculator in Broughton, near Aylesbury in 1779 explained further,

> … an airing house on the same green, specifically for that purpose because of the inconvenience many experience of airing themselves at home in large Families as well as the dangerous consequences where the greatest Care will be taken to prevent any Infection.[91]

In the Oxfordshire region separate airing houses began to be advertised from the late 1770s, beginning with Mr Mackarness's apartments in 1778, 'for those who chose to stay and air'.[92] C. E. Joscelyne has suggested that the more airing houses were advertised, the more communities were concerned about contagion. This thesis contends, however, that airing houses were a response to concerns about contagion.[93] Measures to contain patients undergoing inoculation and the deposit of a pledge, whereby patients kept within the boundaries of the houses during treatment, were most evident in the regions around Oxfordshire in the 1760s, ten years before the first airing house was advertised in the area.

Advertisements for inoculation houses were targeted within the cultural fashions of the day associated with sensibility and the withdrawal of the world to be part of nature, transforming an otherwise negative

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[89] *JOJ* (26 February 1785).
[90] *JOJ* (15 February 1783).
[91] *JOJ* (25 December 1779).
[92] *JOJ* (14 March 1783).
[93] Joscelyne, *Medical Practice and Medical Theory,* 184.

experience into a positive, unblemished distraction. In the advertisement above, for example, particular reference is made to the ambience of the surroundings in relation to flora, fishing and 'romantic scenes', depicting an aura of privacy, solitude and well-being. Another practitioner near Abingdon fully utilized this style in order to promote his inoculation house where:

> … all the Beauties of Nature are drawn as it were to a Centre, the Violet, the Daffodil, the Primrose, and the Bluebell deck the Fields, please and delight the Eye, the Nightingale, the Thrush, the Lark and the Cuckow, charm and captivate the Senses'.[94]

Aside from ambience, advertisements also usually included guarantees of high levels of personal care, asserting that patients would 'enjoy a better Share of Health since their Inoculation than before'.[95]

Bouchier's provision, particularly, portrays the provision of well-organised facilities which could be accessed by families and their staff and where recreational amenities compensated for any disagreeable consequences of the procedure. However, less elaborate, and usually less expensive, options were also available. Providers were peripatetic, flexible, and aiming at as large a market as possible; patients could be treated in groups, either in inoculation houses or in accommodation provided by inoculees, individually in their own homes or by their own surgeons in the inoculation houses. Mr Batt, for example, provided a range of routes to inoculation in Witney in 1768. Here, patients could be treated in a 'convenient [inoculation] house, in own homes or numbers collected together at places of their own providing according to distance & Circumstances'.[96] In Thame, Mr Smith took 'Families or a number of People collected together'.[97] One widow provided accommodation only; in 1794 Mrs Mackarness of Great Rollright, Oxfordshire informed 'medical gentlemen' of the neighbourhood of her intention to cease

[94] *JOJ* (28 February, 21 March 1778).
[95] *JOJ* (26 March 1768).
[96] *JOJ* (2 April 1768).
[97] *JOJ* (23 December 1786).

practice but would '… accommodate sets of patients or families … desirous of being inoculated … by their own surgeons … [paying] for the time they use the house'.[98] Another widow, Mrs Sampson of Wantage, Berkshire, also continued in business after the death of her husband, continuing to operate her inoculation house but also proposing that groups of people should convene to find their own inoculation house 'with necessities'.[99]

6.7.2 Modus operandi

Advertisements in the Oxfordshire region over a period of nearly 40 years show that intention to inoculate was advertised through the local newspaper or by handbill. A date was stipulated by which clients applied for a ticket either by letter or personal application at a private house or local inn on specified dates and times. Here they received and paid for preparation medicines although as discussed, these medicines were reduced or eliminated altogether towards the end of the century. The exception was widow Sampson in 1778 who declined meeting clients in public houses, preferring instead to send preparations by mail.[100] When preparation was observed, it was completed before entering the inoculation house. Preparation and inoculation, therefore, were two discrete processes. Several inoculators in the Oxfordshire region charged a deposit of half a guinea on receiving medicines and the balance on inoculation. One practitioner in Fifield Warren, West Oxfordshire in 1769, stipulated a final date by which applications for medicines could be received, prior to inoculation, presumably to allow time for the treatment to take effect.[101] In this case the time period was short; patients to be included in the 'first Spring set' needed to apply for medicines by the end of March.[102] Practitioners operated a roll-on, roll-

[98] *JOJ* (8 March 1794).
[99] *JOJ* (15 January 1791).
[100] *JOJ* (26 December 1778).
[101] *JOJ* (18 March 1769).
[102] *JOJ* (18 March 1769).

off process; sets of patients were received at intervals of approximately one month; as one group was discharged or moved to an airing house, another group was called upon. For example, in 1764 Sampson advertised for his third set of patients as one set was 'now going off' and another 'just falling down with the Small Pox'.[103] In some instances operators advised that they would remain close at hand, although patients were reassured with '… proper servants and careful nursing'.[104] Operations were controlled, well-organised and run for maximum efficiency. This was partly to maximise profits but also associated with the local communities' swift approach in denouncing any operation which may not have dispelled concerns over contagion. The Suttons exemplify the pressure inoculators were facing in their threat to leave Oxford in 1783.[105] Other examples demonstrate precautions operators were expected to follow. For example, an inoculation house in Oxford in 1767 was 'a proper and convenient distance from the University of Oxford', another in Beckley in 1769 was contained within a high fence in order to protect the local community.[106] A Mr Hall in Bampton moved his practice in 1774, his previous house 'being liable to some Exception on Account of a Foot-Way pretended to lie close by it'.[107] As another incentive to appease local communities some inoculators operated a deposit system as a pledge, whereupon patients kept within the boundaries of the houses, to be redeemed at the end of their treatment or passed to the poor of the parish accordingly. This policy is particularly evident in 1768 when the number of inoculators in the region was at its highest, indicating local concern over the growth of the service.

Objections such as these probably originated through local authority or community pressure. However, Mr Hall in Bampton was particularly harassed by the malevolence of competitors. In July the previous

[103] *JOJ* (17 November 1764).
[104] *JOJ* (5 April 1766).
[105] *JOJ* (22, 29 March, 19 April 1783).
[106] *JOJ* (10 October 1767, 14 January 1769)
[107] *JOJ (*10 & 17 October 1767, 14 January 1769, 30 April 1774).

year he and his servants had defended reports of spreading smallpox through wearing contaminated clothing, reassuring prospective clients, 'I am as clear of infection of the Small Pox as any Gentleman of the Faculty'.[108] This is an unusual reference to an association with the medical establishment; rather, inoculators relied on testimonials, or, more likely, claims of an unblemished safety record. Three months later a letter in the *Journal* accused Hall of allowing a 15-year-old patient, Charles Baker, to bleed to death, his 'enemies' demanding an inquest.[109] In the following year, Hall was vociferous in defending his practice from '… abuse which has unjustly (though Publickly) been attempted to be thrown upon him by his malicious and self-interested enemy'.[110]

6.7.3 Costs, prices and demand

A precise measurement of prices charged by inoculators in the region would be potentially flawed because these were subject to the type of accommodation, social group of the patient, the technique applied and the amenities and services provided. Certain items incurred extra costs, notably tea, linen and washing, sugar, wine, coffee and occasionally, chocolate.[111] Generally, however, charges were around three or four guineas although some practitioners charged up to six guineas. From the 80 inoculators who advertised their services, seven required a deposit, for various reasons, namely; on receiving preparatory medicines, as a pledge to dissuade patients from leaving the premises and potentially transmitting smallpox, or in one case in 1767, 'to keep it [the house] in good repair'.[112] In another single case, Mr Hall in Abingdon charged one and a half guineas upon entrance to the house and the remainder on exit. 30 practitioners offered a sliding scale of charges according to personal

[108] *JOJ* (17 July 1773).
[109] *JOJ* (2 October 1773).
[110] *JOJ* (30 April 1774).
[111] *JOJ (*1766-1785).
[112] *JOJ* (7 November 1767).

circumstances of the client and where the procedure took place; treatment in patients' own homes was usually charged at two guineas but stipulations were made on the distance practitioners were prepared to travel. In Amersham in 1768 Mr l'Ony's rates varied from four guineas for parlour to three guineas for kitchen patients, variations which were presumably associated with the quality of accommodation.[113] Two years later, in Beckley, Oxfordshire he inoculated 'Gents and Ladies on terms agreeable to different Accommodations that may be required … farmers three guineas, poor servants, two guineas'.[114] In May 1767 in Hucklecote, Messrs Sutton and Read were inoculating outpatients ' … according to their Quality and Circumstances' with '… due regard … to Objects of charity'.[115] Mr Dent, of High Wycombe, charged three and four guineas with reductions to two guineas for servants in his inoculation house or 'abroad' and for 'inferior servants', half a guinea.[116] The servant rate was offered both to those attending with their employers and to servants being inoculated separately. In Standford Plain in 1778, for example, Mr Busby was treating servants only, at two guineas each.[117] Several inoculators only offered the 'home' service. These rates above are considerably higher than those of Matthew Flinders in South Lincolnshire who typically charged 7s.6d. (approximately one third of a guinea) although Flinders did not appear to offer accommodation. As noted above, one of Flinders' inoculations could cover three weeks' nursing or over six months' schooling for one of his children, therefore at the highest rate of six guineas in the Oxfordshire region, treatment in comfortable accommodation for up to a period of six weeks would equate, in Flinders' economy, to over a year's wet-nursing or nine years' basic schooling.

[113] *JOJ* (24 February 1770, 14 May 1768).
[114] *JOJ* (24 February 1770).
[115] *JOJ* (16 May 1767).
[116] *JOJ* (18 June 1768).
[117] *JOJ* (19 December 1778).

Eleven inoculators in the region referred to their technique or 'method'. This reference applies to the established inoculation technique of making a deep incision compared to the minor scratch, for which the Suttons were well-known. An analysis of these particular advertisements shows that the old, established method lost favour from the late 1760s onwards. In 1767-8, three inoculators, Nicholas Field in Campden, Gloucestershire and Hull and Johnson in Evesham offered either method. Field promoted inoculation 'either in the late well-established easy and effectual Method, or in the present slight and partial Way of communicating the Small Pox according to the newest Inventions'.[118] Hull and Johnson offered the two methods at different prices, the 'Old Way' at two guineas or the 'new Method' at three to four guineas.[119] The remaining eight practitioners, from 1767 onwards, promoted the new, 'Suttonian' or 'much improved' method as a selling point. [120]

An examination of the maximum rates offered in over 100 advertisements that provide this information reveals that prices were high in the peak of popularity in the late 1760s, generally falling off in the 1780s and 90s. The market was quiet before 1763 when Mr Sampson set up his business in Wantage, Berkshire at a rate of four guineas, offering inoculation with'… constant attendance, careful Nursing and civil Treatment'.[121] By the middle of the 1760s rates of five guineas are evident, rising to six guineas by 1768. However, in the 1770s patterns change, when prices started to fall. This was probably because patients were providing more of their own amenities such as nursing and linen, an option likely to have been led by the practitioners in order to reduce overheads and maintain attractive prices. In 1778 Mr Bristow in Oxford charged three guineas for 'everything' or one guinea whereby patients found everything except

[118] *JOJ* (7 November 1767).
[119] *JOJ* (18 June 1768).
[120] *JOJ* (1767, 1768, 1773, 1775, 1778).
[121] *JOJ* (24 December 1763).

medicines, inoculation and attendance.[122] By the late 1770s and early 1780s inoculators' rates were as low as two guineas in Broughton, one and a half guineas at entrance and five shillings (approximately quarter of a guinea) at exit at Abingdon and £2.4s.6d. (approximately two guineas) in Oxford.[123] Even the sumptuous facilities in Bouchier's establishment in Pudlicot only attracted a maximum rate of two guineas including 'all necessities, except sheets' in 1785.[124] Applying overall trends to charges only provides a broad picture as these varied in accordance with the variables identified above. Furthermore, many practitioners did not identify specific terms, particularly when the peak in interest appeared to be over by the 1770s. However, taking the years 1764 to 1769, the period that provides the most consistent data, Table 6.1 shows that when the number of inoculators peaked, prices were at their highest.

Year	Number of advertising practitioners	Maximum charges in guineas (approx)
1764	2	4.25
1765	3	4.5
1766	1	5
1767	9	6
1768	30	6
1769	6	3.5

Table 6.1 *Advertising practitioners and maximum charges: 1764-69*
Source: 'Jackson's Oxford Journal'

In the late 1760s, although the market was competitive, practitioners were still able to charge high prices despite their numbers, thus demonstrating that, at this point, the market was demand-led. If it had been

[122] *JOJ* (28 November, 1778).
[123] *JOJ* (11 March 1775; 17 October 1778, 23 February 1782).
[124] *JOJ* (26 February 1785).

supply-led prices would have had to fall so that the numerous inoculators remained viable in the market. Statements published by practitioners support the theory of a demand-led environment. In 1764 Mr Sampson, of Wantage, published the following:

> 'C Sampson thinks it incumbent upon him from the great Encouragement he has already met with this season in the Inoculation of the SMALL-POX, to return his sincere Thanks to all those who have favoured him with their Company …

whilst in 1768 the partnership of Levett and Sanders moved from Stowe Park to Lillingston, Buckingham because ' … the Success attending that short Practice induced many more to apply to become Patients than the Room there could conveniently accommodate … '.[125] In 1770 J. I'Ony of Beckley was,

> …. greatly solicited, from different Parts of the Country, to recede from his Intentions of declining the Practice immediately and continue it this Spring season therefore in Compliance to their Request he informs them in this public Manner that he will continue to receive patients at his House ….

Even at the end of the period, in 1797, R. Moss of Stowe reported he had been,

> … solicited repeatedly by many of his Friends to INOCULATE which he has hitherto declined on Account of not having an House eligible for the Purpose thus informs them and the Public in general that he has at this time an House …[126]

These accounts cannot always be taken at face value, of course; they were statements used to support the practitioner's business. However, in May 1764 when Sampson had discharged his last set of patients for the season he reported the following:

> [C. Sampson] now had … 'leisure to attend his Shop … which he has enlarged and completely fitted up. And has laid in a fresh Stock of Drugs and Medicines, the best of every kind

Later, in 1776, another inoculator advertised for a rented property from which to practice 'for a handsome Premium, and take it for three Years certain'.[127] All the statements above indicate profitable and secure businesses operating in a demand-led environment.

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[125] *JOJ* (4 February 1764, 7 & 23 May 1768).
[126] *JOJ* (24 February 1770, 16 September 1797).
[127] *JOJ* (5 May 1764, 2 March 1776).

The following section provides brief vignettes of two families of inoculators, with details extracted from their advertisements, showing the chronological span of their businesses. The most prolific marketeers in the Oxfordshire region were Mr and Mrs C. Sampson, identified above, operating in Wantage between 1763 and 1797, offering an in-house and at-home service. Between 1763 and 1771 Sampson commonly charged each inoculee four guineas. In 1764 he acquired a new house and a year later increased his charges to four and half guineas. In this year he was also advocating preparation on his premises rather than patients treating themselves at home. In 1767 he joined in partnership with a Mr Swayne and reduced his fee to four guineas. His charges dropped again in 1768 to three guineas. It is possible that the partnership could not support the same fee level as that of an individual operator. However, charges returned to four guineas in 1771, now with a new partner, a Mr Herbert. Sampson's last advertisement appeared in 1777. On his death he was succeeded by his wife in the practice, offering a 'much improved method as practised by Mr Sampson for many years '… [who] hopes attention to that practice for 10 years will be sufficient recommendation'.[128] However, as a lone operator she began to refine her business, declining to admit patients with the 'natural' smallpox, and by 1797 she had moved to new premises offering to 'reside with patients … to be constantly ready at all times'.[129] (The admission of patients with natural smallpox is discussed later in the section.) Together, the Sampsons placed 60 advertisements over a period of 33 years in the *Journal.* Furthermore, Diana Crook's work on inoculation in Sussex has also uncovered a Cooper Sampson, likely signifying a family connection, as a 'prolific' advertiser working in the 1750s and early 1760s in villages such as Wivelsfield and Eastbourne in Sussex and Ashford in Kent. This activity demonstrates a high level of demand; in Sussex, for example they offered 'the Convenience of three houses all well fitted for that Purpose'.[130]

[128] *JOJ* (12 December 1778).
[129] *JOJ* (9 September 1797).
[130] D. Crook, *Defying the Demon Smallpox in Sussex* (Lewes: Dale House Press, 2006), 72.

Other active practitioners were the Suttons. This family, famous for the improved technique of the 'scratch', comprised Robert Sutton, several sons and a female relative, probably Sutton's daughter. After practising in Reading in 1767 the Suttons moved to Oxford in the same year, 'having been much invited to practice'.[131] The Suttons treated a wide social group, from gentlemen to the poor. Initially, their charges ranged from four to six guineas depending on where the patients were treated.[132] Between 1774 and 1784 they prepared and treated the poor at no cost, claiming, in 1775, to have inoculated 438 'objects of charity'.[133] The family focussed mainly on Oxford in this period but also covered a wide area of the region including Benson and Beckley in the county and Abingdon in Berkshire. The family was also known to operate in Salisbury, Wiltshire in 1770 and 1771.[134] In January 1774 the Suttons announced their last programme before 'returning to France' although they came back to Oxford a year later. In 1783 one of the Sutton partners advised, 'unless he meets with Encouragement, his Continuation in Oxford will be but short.'[135] It is likely this statement referred to concerns over contagion or claims of malpractice by his competitors. Despite this, the following year, the family was operating in Charlgrove, Garsington, Cumner, Oxford and Abingdon.[136] At this point the Suttons claimed to have inoculated 1,300 in Oxfordshire, Berkshire and Buckinghamshire without one fatality.[137] Robert Sutton's death was announced in 1788 and two further programmes in Abingdon and Wheatley were led by his sons. These two cameos of the Sampson and Sutton families demonstrate successful and lucrative business ventures

[131] *JOJ* (10 October 1767).
[132] *JOJ* (16 May 1767).
[133] *JOJ* (15 April 1775).
[134] South, *Southampton Smallpox Inoculation Campaigns,* 97-8.
[135] *JOJ* (22 March 1783).
[136] *JOJ* (22, 29 March, 19 April 1783).
[137] *JOJ* (3 Jan 1784).

led by resilient practitioners. The Sampsons were in business for over half a century and the Suttons were drawn back to the Oxfordshire region on two occasions.

6.7.4 Range of clients

As demonstrated by the sliding scales of charges offered to customers, practitioners in the area mainly promoted an inclusive policy in order to maximise their capital investment. This policy could also apply to sickness history, although this was not universal. In 1769, Mackarness claimed he had inoculated, '… many of which were scrophulus, Scorbutick, Arthritick, and Corpulent Habits'. Mr Walker at Bampton, on the other hand, had treated '… without the loss of a single patient, many hundreds' in the nine years since first opening his practice, excluding the 'Hectical and Consumptive'.[138] We do not know the reason for this objection although possible explanations are the risk of contagion, or, more likely, the danger of complications and damage to the credibility of the practitioner should the procedure prove unsuccessful. Whole families were allowed to attend; in 1787, the Suttons in Beckley offered rates for 'Children of gents – according to Rank' and in September 1773, announced the following:

> Smallpox having for some time raged in the neighbouring Towns and Villages Mr Sutton engages to inoculate Families and Friends of several of his former patients the latter End of this Month … Such other persons … as are inclined to embrace the opportunity are requested to apply at the Angel Inn in Oxford on Saturday 25th instant.[139]

The Suttons were influential practitioners as evidenced by the use of the 'Suttonian' method by two inoculators in Buckingham in 1768. Perhaps significantly, they appear to be the only practitioners in the region in the 1780s to charge five guineas when most were charging only two guineas. However, they were not universally popular, their handbills described as 'very pompous' by a practitioner in Wantage in

[138] *JOJ* (4 March 1769, 5 October 1782).
[139] *JOJ* (24 February 1787, 11 September 1773).

1767.[140] Although the advertisements above may suggest that patients were specially selected by the Suttons, this is unlikely in a competitive market and where Suttons' clientele came from a wide social group. It is more likely that containment and credibility were factors. By inoculating as many of a community as possible, there was less likelihood of transmission.

From the earliest evidence of practitioners in the region, provision was made for the inoculation of the poor. In February 1758, five years before bespoke houses were being widely advertised in the area, broadweaver, George Ridler in Stroud was '… Scrattin a bit of a haul [hole] in theier Yarm [arm]A puthin in a peece of Skraped [scrap] rag dipt in Sum of the Pocky Matter of a Child Under the distemper … for half a Crown a Head … Poor Volk at a Shillin a head'…[141] The extent of access to inoculation houses by the poor is unclear. However, in 1777, Mr Southam in Quainton was clearly accommodating poor patients (see previous section) and providing inoculations at 15 shillings each excluding provisions, linen and nurse, or alternatively, half a guinea in their own houses.[142] In July 1775, the Suttons placed the following advertisement in the *Journal:*

> Any Town or Parish inclined to have their Poor inoculated may have them prepared, inoculated and attended gratis by applying to him at Benson, nr Wallingford … last winter Mr Sutton inoculated the poor of Dorchester, Garsington and Little Wittenham, without any expense to either of those parishes amounting in all in 438 individuals … the Officers and Inhabitants of such places as have the Small Pox already among them in the natural way, are requested not to be backward in their application; as Mr Sutton would be happy in extending his services to the useful and industrious poor.[143]

General inoculations in the region were carried out on a day-to day basis, without resorting to inoculation houses, elaborate preparations or medicines. One inoculator in Hucklecote, Gloucestershire asserted in

[140] *JOJ* (10 October 1767).
[141] *JOJ* (18 February 1758).
[142] *JOJ* (14 June 1777).
[143] *JOJ* (15 July 1775). Other examples of free inoculation for the poor in Oxfordshire are evident in Oxford in 1774, *JOJ* (24 December 1774); Chalgrove, Garsington and Cumner in 1784, *JOJ* (28 February 1784).

May 1767 that he had successfully inoculated 20, 000 people in four years, (equating to 96 per week) and another in 1779 announced he had treated 24,000.[144] Claims such as these are unlikely to have been subject to confirmation, however, these figures suggest the scale of such operations. A general inoculation in Quainton, Buckinghamshire in 1776 included, '… among the great Numbers of Infirm which were necessitated to be inoculated, several were upwards of 80 Years of Age, some Bed-ridden, others lame, some blind, and nineteen women big with Child'.[145] In this particular case preventative measures, such as the spreading of pitch in the streets, were implemented to reduce the perceived spread of infection to neighbouring villages, whereupon the parish publically announced that it was clear from the '.. said Distemper'. [146]

6.7.5 Relationships between providers and their local communities

With the expansion of inoculation programmes in the region in the 1760s practitioners began to connect with local communities more closely. In several cases members of the local community published public thanks to an inoculator for their services. A testimonial, signed by the inhabitants of Aylesford and Malling in Kent, was the first to appear in the *Journal* when Messrs Porter and Perfect opened their practice in Gloucestershire in 1767.[147] The following year a detailed testimonial signed by 17 local people in the Burford area of Oxfordshire appeared as follows:

> We, being the second set of Patients just recovered of the SMALL POX by INOCULATION under the Care of Mr Chavasse having heard, that many false Reports about the Maintenance and Treatment of Us, have been propagated by the Malicious and Designing, do therefore, in Justice to Mr Chavasse, think Ourselves bound in gratitude, thus voluntarily and publicly to thank him for his diligent and tender Care of Us … that we could not have been more affectionately treated by our own Relations at home; that we were provided with all pleasing Indulgences compatible with the Distemper that

[144] JOJ (16 May 1767), 18 December 1779).
[145] *JOJ* (9 November 1776).
[146] *JOJ* (9, 23 November 1776).
[147] *JOJ* (31 October 1767).

> there was not the least Danger in any … being all able to walk about the Fields during the Eruption … he was as careful, as Man possibly could be in changing his Dress every Time he visited us.'[148]

Other testimonials followed, usually signed by parish officials and local inhabitants but initiated by the practitioners. A claim that patients enjoyed better health than before was partially true; they were believed to be protected from the disease. However, it also suggested that inoculation would act as a positive aid in improving health generally.

Whilst the practitioners remained within the bounds of local restrictions their relationships with local communities were generally untroubled. Inoculation establishments were situated away from the town and separate airing houses were a reassurance against inoculees spreading the disease when they re-entered the community. Generally, local communities were thankful when practitioners moved in to carry out general inoculations when a smallpox epidemic was present. The disease could have a disastrous effect on trade and it was common practice for the officials of market towns to insert a notice in the local newspaper when their town was free of the disease and business could be resumed safely. When smallpox appeared in Wardington, Oxfordshire 13 signatories pronounced that the inoculator had attended with great success, all inhabitants had recovered and '… false reports intended to injure the inoculators should be treated with the contempt they deserve'.[149] Similarly in Salford, near Chipping Norton after all the inhabitants had been inoculated by Mrs Mackarness, '… without the Loss of a single Patient (or even a doubtful Case) with singular Success' the parish believed it '… but Justice thus to render her our publick Acknowledgement'.[150] The most striking example of a positive working relationship between an inoculator and the local communities he served is seen in Quainton and Stoney Stratford, in Buckinghamshire in 1776 and 1778 respectively. The church wardens and overseers of both parishes

[148] *JOJ* (7 May 1768).
[149] *JOJ* (5 March 1789).
[150] *JOJ* (19 February 1791).

published notices recommending their local inoculator, Mr Southam, 'to all parishes that may be involved in the like calamitous Situation by the Natural Small Pox'.[151] In Quainton, the completion of the programme was accompanied by a celebration hosted by Southam at which the poor of the parish were fed abundantly at his expense and entertained with,' … people adorned with ribbons hallowing 'Southam for ever, hazza'' with '…maurice [*sic*] dancing, ringing of bells, bull-baiting'.[152]

6.8 Familial dilemmas in assessing danger of smallpox

As we have seen, inoculation houses conformed to conditions requiring the isolation of patients. Within this context these houses also admitted patients with the natural form of the disease (presumably at a safe distance from patients undergoing inoculation), reinforcing the argument in Chapter Two that isolation was a key control mechanism against smallpox in all its forms. From 1769, 11 practitioners in the region advertised a provision for smallpox sufferers, mainly at lower rates than admittance for inoculation. In Buckingham in 1769, for example, Mr Levett accepted smallpox patients 'at terms agreeable to their circumstances' and Mr Southam charged half a guinea for smallpox patients in Broughton in 1778.[153] Similar arrangements are evident in Milton and Great Rollright in Oxfordshire, Stowe in Gloucestershire and Wantage in Berkshire. Moreover, apart from inoculation houses, we have already seen the pest house as a means of containing smallpox in the removal of Mrs King and her children to a pesthouse in Ewelme in Oxfordshire in 1789 'whereupon the disease spread no further' (see Chapter Two). The *Journal* reported a similar instance in 1773; when smallpox affected Charlbury in Oxfordshire one remaining child with the disease was 'immediately removed to the pest house'.[154] Looking further

[151] *JOJ* (6 June 1778).
[152] *JOJ* (30 November 1776).
[153] *JOJ* (30 September 1769, 31 October 1778).
[154] *JOJ* (9 October 1773).

afield, in her work on inoculation in East Anglia, C. E. Joscelyne has suggested that those who could afford to pay for inoculation but not board and lodgings made use of pesthouses, quoting a Quaker family in Berkhamstead in the 1780s, who had believed, incorrectly, that they were entitled to admission to a pesthouse when they had smallpox.[155] Although Joscelyne was making a point about religious persecution, this story demonstrates the readiness of families to accept isolation as means of controlling the disease. Furthermore, life-writings also provide robust evidence of isolation practices. In 1764, James Woodforde in Babcary, Somerset noted in his diary:

> Mrs White and three of her children and her Maid and her Man supped, and laid at our House, for fear of the Smallpox, as it is supposed that her Maid Nanny has got the Small Pox at Mrs White's house.

Here, most of the family had moved out of the family home when one member was deemed to be infected. The following day, the family was still residing with Woodforde although Nanny's case was 'dubious'. After further days of doubt the family finally went home, the maid not being infected with the disease.[156] Similarly, in 1776 when Elizabeth Leathes and her four-year-old daughter, Elizabeth had smallpox, the family's younger child, two-year-old Edward was boarded out. The family judging it 'most proper' to remove him.[157] In both cases, the families showed a pragmatic approach towards temporary familial separation in order to guard against the disease. The case of Mrs White and her family also indicates that the domestic environment was considered to be a source of infection, with the removal of the family rather than the likely smallpox sufferer. Finally on this point, and returning to the demographic section of this thesis, the number of child survivors in Banbury in the wake of the smallpox deaths of their parents and the containment of smallpox at

[155] Joscelyne, *Medical Practice and Medical Theory,* 198.
[156] Winstanley, *Ansford diary of James Woodforde* (10-14 May 1764).
[157] *NRO*, BOL 2/29/8. Letter E. Leathes to J. and E. Reading (16 July 1779).

parish level in Oxfordshire suggest isolation practices, even before the advent of inoculation, were a key factor in helping to control the disease.

The chapter now investigates how families balanced the dangers of inoculation against the benefits of acquired immunity. As we saw in Chapter Two, at local level smallpox mortality in children fell from the late 1760s onwards, which was likely linked to the impact of inoculation. However, generally, the safety of the practice was a prime concern and practitioners commonly exploited their safety records as a marketing tool. Mary Ellis in Oxford in 1779 claimed that she had only lost seven patients out of 64 and Sampson in Wantage claimed in 1764 he practised '… without losing a single patient'.[158] Claims became further enhanced later in the decade when inoculators offered rewards for anyone proving an inoculation fatality. In 1768 Mr Mackarness of Chipping Norton, Oxfordshire offered a reward of 500 guineas and Robert Sutton in Oxford, one hundred guineas 'to any person who can prove he had ever lost a single Patient by Inoculation'.[159] Empirical evidence, however, did not consistently support their claims. In the first half of the century inoculees were likely to be comprised of the elite and their deaths attracted attention. In 1755 Dorothy Wentworth, daughter of Lady Anne Dalston wrote privately of a contemporary's loss of 'two children by Enocklashon'.[160] Deaths from inoculation also appeared in print. In 1731, for example, the *Gentleman's Magazine* reported the deaths of the six-year-old eldest son of The Duke of Bridgewater who 'dy'd of the Small Pox inoculated' and a daughter of Mr Palmer of Aldermanbury 'of the small-pox by inoculation' in 1746.[161] Although the practice appeared to become

[158] *JOJ* (23 Jan 1779, 17 November 1764).
[159] *JOJ (*30 April, 1768, 2 April 1768).
[160] *Borthwick Institute of Historical Research*, C. P. I 1376, 'Godfrey Wentworth contra Dorothy Wentworth'. Letter D. Wentworth to S. Hawkridge (15 October 1755).
[161] *Gentleman's Magazine*, 1731, 219; *Gentleman's Magazine,* 1746, 272.

more skilled later in the century inoculation deaths continued to occur. Thomas Turner of East Hoathly, Sussex noted the following in 1764 on his friend John Long:

> … [died] of the smallpox under inoculation; a very sober and worthy young man, but from a bad constitution had the smallpox excessively full, which proved mortal.[162]

Four years later, in 1768, a letter in the *Oxford Journal* reported of the popularity of inoculation in Northamptonshire apart from the 'misfortune of losing one Doctor who took the Infection from a Patient and died about 10 days ago'.[163] After a general inoculation in Quainton, Buckinghamshire in 1776, overseers conceded to two fatalities; 'an old woman upwards of 80 years of Age and a Child of Seven Weeks, who sucked at the Breast, the Mother being also inoculated'.[164] In 1780 James Reading in Oxfordshire also recalled three deaths in Witney; '… two of the Miss Hoskins sisters died under it. Their Brother …. was unfortunate enough to miscarry under sutton's hands some years ago'.[165] Seven years later Mary Hardy in Coltishall, Norfolk noted in her diary: 'Sophie Burcham died of the Small Pox at Mr Bertell's of Inoculation'.[166] Generally, fatal cases of inoculation are difficult to verify as inoculation programmes usually paralleled smallpox outbreaks and deaths may have been caused by the disease itself. However, all the writers above, from wide-ranging regions of the country, were confident of the deaths being related to inoculation. Aggregate figures and newspaper reports, however, do not divulge the personal and acute stress of the practice. William Snooke's diary reveals the anguish experienced by loved ones awaiting the recovery of inoculees. In 1767 Snooke's new bride and her sisters were inoculated in Evesham, Worcestershire. The event was noted in Snooke's diary a year later on the

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[162] D. Varsey (ed.), *The Diary of Thomas Turner* (Oxford: Oxford University Press, 1994), 307, 334.
[163] *JOJ* (5 March 1768).
[164] *JOJ* (9 November 1776).
[165] *NRO*, BOL 2/95/11. Letter J.Reading to E. Leathes (25 June 1780). The Witney deaths occurred some 12 years after the claim made by Robert Sutton offering a reward for anyone who could prove he had ever lost a patient by inoculation. The inoculator here may have been one of his sons.
[166] Cozens-Hardy, *Mary Hardy's Diary,* 62.

anniversary of their return, revealing that their safe homecoming was significant enough to be worthy of an anniversary.[167]

Parents, in particular, faced a major dilemma over whether or not to subject their otherwise healthy children to these dangers. Lady Wortley-Montagu, however, is an iconic example of trust in the practice, writing from Turkey in 1717: 'There is no example of anyone who has died from it [inoculation], and you may believe I am well satisfied of the safety of the experiment, since I intend to try it on my dear little son.[168] Table 6.2 shows the progress of a sample of 10 children, inoculated between 1774 and 1791. The level of detail recorded in life-writings demonstrates the concern of parents as they observed their ailing children.

[167] M. Rendell, *The Journal of a Georgian Gentleman, The Life and Times of Richard Hall, 1729 – 1801* (Brighton: Book Guild Publishing 2011), 91.
[168] Kenyon, *800 years of Women's Letters*, 234.

Table 6.2 *Sample of notes on ten inoculated children with details extracted from life-writings (ages of children in brackets)* [169]

Day	Ralph Thrale (1) London, 1774	William (6), Mary Ann (3) (Polly) Hardy, Coltishall, Norfolk, 1776	Anna Hall (2), cousin Elizabeth Bourton, Glocs 1784	Patty Hall, Bourton, Glocs 1784	Mary Leathes (2) Reedham, Norfolk, 1784/5	Elizabeth (11), Edward (9) Leathes. Reedham, Norfolk, 1786	Kitty Clayton, (?) Harleyford, 1791
0 -5	No symptoms						
6			Anna 'began to fail'		'began to droop a little'	'Began to complain & have continued ailing'	
7	'	'Polly Taken ill'		'about 2 spots appeared'	'continued very feverish & restless all … night'		
8	Physician '… never seen such a bad reaction'.		'smallpox came out in … Anna & Eliza'		'In great pain from the burning, smarting, itching of the Pustules'		'Sickening with Small pox'
9		Billy and Polly 'very ill with the smallpox'	'Anna better … Eliza very poorly'		'Inflammation … so much abated'		'Very indifferent but a few spots are coming out'
10			Anna 'very poorly … Eliza better' [Anna] had 'between two and three hundred pustules'		'Vastly well'		'Much better 30 Smallpox appeared'
11					'Brisk, high spirits, never … better'		'Going on very well'.

[169] Approximate timetable for Mary Leathes. Date of inoculation unknown.

12		Polly 'something better'. Billy 'very well had about 50 or 60 small pox'.				Expected 'to be all over'	
13			'Children … mending'				
16		Polly's smallpox 'at the height this afternoon'					
18				'Very full with the smallpox just appearing'			
22			Anna 'finally recovered'				

Sources:

Diaries or letters of parents of Mary, Elizabeth and Edward Leathes, Anna Hall, William and Mary Hardy and Ralph Thrale. Effects of inoculation on cousin Elizabeth and Patty Snooke are recorded by their uncle, Richard Hall and Kitty Clayton by her step-grandmother, Lady East[170]

170 Ralph Thrale: R. M. James, (2010), 225. *The effect on family life during the late Georgian period of indisposition, medication, treatments and the resultant outcomes*. PhD thesis. Oxford Brookes University. William, Mary Ann & Polly Hardy: Cozens-Hardy, *Mary Hardy's Diary* (22 June 1776). For names and ages of Hardy children, see http://maryhardysdiary.co.uk/mary-hardy-project/the-hardy-family/. Anna Hall, Elizabeth Bourton and Patty Snooke: *Private collection*, 'Diary of Richard Hall', (5-26 October 1784) & Rendell, *Diary of a Georgian Gentleman,* 157; Mary, Elizabeth and Edward Leathes: *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (26 December 1784); BOL 2/38/14. Letter E. Leathes to J. and E. Reading (12 April 1786). Kitty Clayton: James, *The effect on family life,* 174.

All survived the procedure although by day ten six were causing great concern. Typically, during the five-day period after inoculation there were no outward manifestations. However, by day six symptoms were beginning to escalate and two of the children, Polly Hardy and Anna Hall, suffered apparent relapses. The trauma for parents and carers is clear in the diary of Anna Hall's father, Richard, in October 1784 whose commentary reveals his on-going fears for his daughter and nieces as he sought divine intervention over the choice he had made on behalf of his child: 'This day poor little Anna her Cousins Maria and Elizabeth were Inoculated for the smallpox. may the Lord of his great mercy be pleased to carry safely thro and spare them.'[171] Six days later he recorded, 'Dear Anna began to fail' and in a further two days: 'The smallpox came out in poor Anna & Eliza may the Lord still mercifully appear…'[172] Finally, five days later, the children were 'thro mercy, mending.[173] From other evidence Hall does not appear to have been a 'hands-on' father and the illnesses of his children, and particularly this child, do not feature prominently in his diary, apart from the previous year when his 'Dear daughter … Poor Anna' was very ill with a fever.[174] His repetitive use of the adjectives 'poor' and 'dear' signifies his emotive use of language in recording the condition of his daughter. He had been active in instigating her inoculation, perhaps accounting for his appeals for divine grace on this occasion.

Parental fears over inoculation were influenced by local circumstances and levels of prior experience and knowledge. Elizabeth Leathes in Norfolk was generally positive about her daughter's recovery from inoculation but this may be attributed to her recollections being written in retrospect in correspondence, whereas the other accounts were recorded without the knowledge of a successful outcome. In the early stages some parents assumed that the effects would be minimal as evidenced

[171] *Private collection*. 'Diary of Richard Hall' (Wednesday 13 October).
[172] *Ibid.*, (19, 21, October 1784).
[173] *Ibid.*, (26 October, 1784).
[174] Rendell, *Georgian Gentleman*, 156-6.

by the comment of Mrs Hester Thrale in London in 1774, who noted inoculation to be, ' … a mighty slight Business … it is in fact nothing at all – but a mere farce'.[175] In 1784, however, Elizabeth Leathes was better informed on the timescale of a likely reaction. After Mary's inoculation she advised, '… we don't expect it to come out till Thursday'.[176] Two years later she was aware of the impending aftermath for her other two children, Elizabeth and Edward, lasting for a period of three weeks, reporting, '… we expect the Pustules will make an appearance on Friday & then their Complaints will ease …' advising they would be 'quite recovered' by May of the same year.[177] A week after Ralph Thrale's inoculation, however, Hester admonished herself for her postulating, recording: '… Here I am well paid for my Presumption' as the child experienced a severe reaction.[178] In comparing the interpretations of Elizabeth Leathes and Hester Thrale, dependence on different cutting techniques may have been a factor although by the 1770s the less invasive method was more commonplace. Furthermore, the manifestations may have varied in different children and it is also possible that a ten-year time span was responsible for these differences in the reactions of parents. Notwithstanding, kinship support played a key role, a conclusion also reached in the previous chapter on the care of sufferers. Elizabeth Leathes consulted and confided in her parents for guidance on health matters and enjoyed good working relationships with the medical attendants around her. Hester Thrale, on the other hand, experienced little family support after the death of her mother the previous year and was known to be in dispute with her doctors, commenting in 1776, '… see what fools these physicians are! They presume to know better how to manage children than their mothers themselves'.[179]

[175] James, *The effect on family life*, 225.
[176] *NRO*, BOL 2/36/16. Letter E. Leathes to J. and E. Reading (26 December 1784).
[177] *NRO*, BOL 2/38/15. Letter E. Leathes to J. and E. Reading (3 May 1786).
[178] James, *The effect on family life, 225.*
[179] *Ibid.*, 92.

A perception of self-culpability was likely to have been at the forefront of their thoughts as parents meticulously monitored and recorded their children's symptoms. Seven out of the ten children tabled above were inoculated very soon after the publication of Buchan's treatise on domestic medicine in 1783 in which he identified the problem for parents in managing 'reflections' (blame if children died under inoculation) which he believed were responsible for a significant retardation of the practice.[180] In 1755, Dorothy Wentworth's friend experienced the death of two children by inoculation yet the survival of a third child who had the disease itself. The parents, Dorothy reported, were 'allmost destracted about yet theay may very well be' warning her correspondent not to subject his own child to such a risk.[181] Josiah Wedgewood was also remorseful, when, in 1767, his children were, '… so very ill [after inoculation] that I confess I repented what we had done'.[182]

When the effects of inoculation had passed, however, parents often expressed manifestations of liberation accompanied by spiritual gratitude. After Matthew Flinders inoculated his children in 1777 he pronounced, '… among the innumerable other mercies of God … they have passed through that calamitous disorder in the most favourable & easy manner'.[183] When Anna Hall and her cousins finally began to recover from the operation Anna's father recorded, 'Dear Baby through great mercy finally recovered from Inoculation – may we have a deep and abiding sense of His kindness'.[184] Even without expressions of spiritual fervour parents released outpourings of self-satisfaction and relief. The following story of Arthur Young's experiences of parental strife over inoculation and his mother's subsequent actions has been rightly highlighted by M. Bennett as an example of a woman's triumph over male patriarchy.[185] However, it perhaps reveals a shared triumph and demonstrates his parents'

[180] Buchan, *Domestic Medicine*, *or a Treatise on the Prevention and Cure of Diseases* 8th Edition (London: W. Strachan, 1784), 260.
[181] *Borthwick Institute of Historical Research*, C. P. I 1376, Godfrey Wentworth contra Dorothy Wentworth. Letter Dorothy Wentworth to Samuel Hawkridge (15 October 1755).
[182] I. And J. Glynn, *The Life and Death of Smallpox* (London: Profile Books 2005), 73
[183] Beardsley & Bennett, *Gratefull to Providence* (December 1777).
[184] *Private collection*. 'Diary of Richard Hall' (5 November 1784).
[185] M. Bennett, 'Inoculation of the Poor against Smallpox', 216.

liberation from further anxiety over the disease. When the newly-inoculated Arthur Young, aged 12, ran out to greet his father, he recalled his mother '… exclaimed in a triumphant tone, 'There! I have had Arthur inoculated, and you enjoy the comfort of knowing that your boy has had that terrible disorder''.[186] Fanny Burney and Elizabeth Leathes were equally celebratory after the inoculation of their children. Burney was, 'Relieved at length from a terror that almost from the birth of my little darling has hung upon my mind'[187] and Leathes wrote; '… I am much pleased with myself for having resolution to go thro' the arduous Task of Inoculating Mary'.[188] George Woodward in East Hendred, Berkshire was less expressive but mused contentedly in a letter in 1757 after his children were successfully inoculated, 'The children have inoculated and bleeded all the dolls – and have made us laugh very often'.[189]

The accounts above demonstrate the intense pressure practitioners operated under to ensure a successful outcome for their patients. Thomas Wright of Birkenshaw in Yorkshire illustrates this point. Wright's recollections are as follows:

> The doctor seated me in a chair in the left wing of the Hall, bared my arms, made an incision with his lance in both my arms, above the bend of my elbows, introduced the matter and then bound up the parts. A young man, an apprentice, I suppose, stood by all the time to observe the operation. The doctor gave me a penny saying I was a fine boy and observing that I was the first upon whom he had performed the operation who had not wept. The fever came on the Saturday following. The doctor, his wife, and apprentice, were assiduous in attending me, and very anxious for the consequence, as the practice was new in the neighbourhood, and depended for its credit upon the success of this and a few other instances. I well remember them bringing me syrups and sweatmeats almost every day … Several of those inoculated [in the 1740s] in the neighbourhood at the same time, died, which brought the practice into disrepute at that time.[190]

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[186] M. Betham-Edwards, *Autobiography of Arthur Young*, (1898), 9. http://archive.org/stream/autobiographyofa00youn#page/n17/mode/2up

[187] Glynn, *The Life and Death of Smallpox,* 73. (Madame D'Arblay (Fanny Burney) to Dr Burney, 16 March 1797).

[188] *NRO*, BOL 2/37/1. Letter E. Leathes to J.and E. Reading (2 January 1785).

[189] D. Gibson (ed.), A parson in the Vale of the White Horse: George Woodward's Letters from East hundred 1753 – 1761, 103 (5 October 1757). I am grateful to Jenifer Dyer for supplying this reference.

[190] T. Wright (ed.), *Autobiography of Thomas Wright of Birkenshaw*. London: John Russell Smith, 1864, 21-2. http://archive.org/stream/autobiographyoft00wrig#page/n7/mode/2up,

Wright's inoculation was carried out with attention to clinical observation, the patient was given reassurances both throughout and after the operation and aftercare involved a team of three persons whose reputations were clearly at stake. Wright was probably inoculated in the 1740s when the practice was in its infancy and before procedures were modified. The account also attests to the more approved regime of after-care later in the century. Wright reflected;

> … by an improper treatment, that of keeping me too hot both without and within [a theory which also lost ground in the treatment of the disease itself] which aftertimes and improved knowledge have rectified, the eruption was great, and I was much hazarded.[191]

Arthur Young later made reference to a similar regime when he was inoculated in 1753. Young recalled:

> Inoculation was so little understood that is utterly astonishing how anyone could escape; instead of the cool regimen afterwards prescribed by Sutton the practice was to keep the patient's chamber as close and hot as possible, the shutters were kept up, and the door never opened without being shut speedily. I suffered much, and Dr Kerrich, the Physician at Bury, for sometime attended every day. It pleased Almighty that I should recover – didn't deserve to.[192]

This second example also embodied the older idea, of course, with regard to the treatment of 'natural' smallpox. In reflection both inoculees felt their treatment had been incorrect and both alluded to the burden of the physicians in trying to achieve a positive outcome. When John Jenkinson, a shoe-maker's son from Market Harborough, Leicestershire was inoculated in 1802 at the age of three, he remembered the following:

> My earliest recollection is of a surgeon coming to our house to inoculate me and my younger sister with the smallpox, … I well remember screaming out, and resolutely refusing to be "cut" until after my sister, and then when I saw the lancet stained with blood I more resolutely refused to be cut at all. Happily, however, I was compelled to undergo the dreaded operation and I have now though a long life derived advantage therefrom, inasmuch as, in visiting persons fearfully afflicted by that terrible disease, I have felt myself comparatively safe from the malady.[193]

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[191] *Ibid.*

[192] Betham-Edwards, *Autobiography of Arthur Young, 8.*

[193] R. L. Greenall (ed.), *The Autobiography of the Rev John Jenkinson, Baptist Minister of Kettering and Oakham* (Northampton: Northamptonshire Record Society, 2010), 2 & 16.

6.9 Conflict and coercion

Accounts based on fear and uncertainty also reveal tensions between medical and personal opinion. In June 1780, Elizabeth Leathes had reservations about local expertise over the inoculation of the pregnant woman, writing:

> I cannot help being under a little apprehension for our man Charles' Wife who is three Months advance in her pregnancy a dangerous time (I think) to undergo such an Operation – but those who think themselves more knowing than I am in those things advise'd her to it.[194]

James Woodforde voiced similar concerns over the choice of inoculees eleven years later in 1791. The parish was under partial inoculation but the selection procedure generated local criticism. Not every family was eligible and Woodforde lamented, 'It is a pity that all the Poor in the Parish were not inoculated also. I am entirely for it.[195] One family had been excluded from the programme and the procedure was financed by a local gentleman which;

> was extremely kind and good of him – The Parish refusing to pay for the same … tho' at the same time they agreed to inoculating Case's Family and had had it done, tho' a Farmer and better off.[196]

Woodforde understood the debilitating effect of ill-health of the poor and foresaw further cases of the disease: 'There are many, many People in the Parish yet [who] have never had the Small-pox. Pray God all may do well that have it or shall have it'. [197] He and others were not satisfied with the parish's inadequacy in managing the process during the smallpox outbreak, and were taking steps to bolster the programme.

The following two cases reveal stories of familial discordance and concealment of inoculation. Both cases demonstrates the uneasiness and secrecy with which the operation could be performed and in one instance, only to be discovered by the manifestations of her symptoms. In 1784 in Norfolk,

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[194] *NRO*, BOL 2/30/11. Letter E. Leathes to J. Reading (18 June 1780).
[195] Beresford, *Diary of a Country Parson,* 395.
[196] *Ibid.*, 396.
[197] *Ibid.*, 397.

Elizabeth Leathes related a story to her parents 'so curious that I must give to you' of a disgraced and subsequently dismissed servant in another household who had been 'privately inoculated' by her suitor, a doctor's apprentice, after which 'the small pox came out very thick and she confess'd to her fellow servant what she had done'.[198] The indiscretion was considered irresponsible (again identifying the belief that a recently inoculated person was liable to spread the disease) as the household consisted of several vulnerable children and servants. When Arthur Young was inoculated in 1753 in the absence of his father and without his consent, it was; 'a scheme of my mother's and which she had more than once proposed, but my father would not consent to …' The practice was still in its infancy and Young's own words best sum up his father's opposition but subsequent acceptance of it. Young senior was '… a strong mixture of obstinacy and sang-froid … resolute in rejecting all proposals touching upon novelty and cool after their accomplishment'.[199]

Correspondence between Elizabeth Leathes and her parents reveals a wealth of knowledge on inter-generational dynamics over smallpox. Bailey has pointed out that eighteenth-century contemporaries assumed grand-parents were very fond of their grand-children, enjoying a relationship that was as profound as that for their own children.[200] Furthermore, James shows that inter-generational bonds were strong between the Leathes and Readings and the judgements of the older generation, James and Elizabeth Reading were heard and respected.[201] Despite, or perhaps due to, these bonds of affection, however, there were serious inter-generational tensions over inoculation. Elizabeth was a supporter of the practice generally although, as we have seen, she had reservations about the wisdom of inoculating a woman in early pregnancy. In June 1780 she reported

198 *NRO*, BOL 2/36/5. Letter E. Leathes to J. and E. Reading (9 March 1784).
199 Betham-Edwards, *Autobiography of Arthur Young,* 8-9.
200 J. Bailey, *Parenting in England 1760-1830: Emotion, Identity, and Generation* **(**Oxford: Oxford University Press, 2012), 201-203.
201 R. M. James, *Intergenerational relationships and the influences exerted by grandparents upon a family's welfare in a Georgian rectory.* Unpublished paper, 31.

'… two Children are fallen with it [smallpox] in this Parish & numbers are going to be inoculated' and two weeks later, 'Most of our Parish who had not before had the Small Pox are under Inoculation & are in a fair way doing well'.[202] The Readings, however, denounced the practice, replying, 'We are sorry to hear, that your Parish is under a Necessity of forestalling the Small Pox. We have had an unhappy Instance of the Practice lately at Witney', quoting the deaths of the Hoskins siblings in 1780.[203] In her reply Elizabeth confirmed the recovery of the pregnant woman and presented a cavalier argument about the Witney deaths, suggesting these were 'very remarkable' and challenging the wisdom of the mother of the girls in allowing inoculation after the death of her son.[204] Her comment of the 'very remarkable' deaths under the 'Suttonian' method are unsurprising given the Suttons' previous claims of successful inoculations of hundreds, or even thousands of people, with minimal loss of life. Elizabeth continued to cajole her parents about the benefits of the practice over a period of six years, delaying the inoculation of two older children, who were staying with their grand-parents, until their return home to Reedham, explaining to her parents, 'because you are so fearful'.[205] The Leathes' third child, Mary, was inoculated at home in Reedham the same year. Elizabeth wrote to her parents asserting her position:

> I hope the success we have had [with Mary] will encourage you to consent to your other two Grandchildren undergoing the same operation – I think it highly necessary to have it done before they go out into the World.[206]

The coercion continued and over the next 16 months reports of successful inoculations alongside several deaths from the natural form of smallpox were relayed back to the Readings as forerunners to being informed of the inoculation of the two older children, now back in Reedham, after finding, '… a very healthy Child in the Parish a very good subject to take the infection from'.[207] To support her argument Elizabeth regaled her parents with other inoculation stories, noting the vulnerability

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[202] *NRO*, BOL 2/30/11. Letter E. Leathes to J. Reading (18 June 1780).
[203] *NRO*, BOL 2/95/11. Letter J. Reading to E. Leathes (25 June 1780).
[204] *NRO*, BOL 2/30/12. Letter E. Leathes to J. Reading (9 July 1780).
[205] *NRO,* BOL 2/37/1. Letter E. Leathes to J. Reading (2 January 1785).
[206] *Ibid*.
[207] *NRO*, BOL 2/38/14. Letter E. Leathes to J. and E. Reading (12 April 1786).

of her servants and a neighbouring household, who were 'all inoculated', sending their errand boy to deliver meat to her house 'with an incision in his arm … a fine chance for us as he always sits by our kitchen fire with our servants'.[208] The arm-to-arm method of transferring matter from a pustule at the site of inoculation of a recently treated person into another was a known procedure.[209] Elizabeth had seen an opportunity here for an ad-hoc inoculation, whereby the servants would be protected against the full smallpox infection, providing a suitable story to relay to the sceptical grandparents.

With the Witney deaths in mind, the Readings were concerned about the danger to the children. Given their views on the benefits of allowing nature to take its course in the treatment of the disease itself, they were likely to have objected to what they saw as an 'unnatural', act and may have considered the practice ineffective. Although in June 1780 Elizabeth suggested that the spread of smallpox in the parish was finally under control, further inoculations took place in 1784/5. Furthermore, only fifteen months later, in April 1786, Elizabeth reported again: '... the Small Pox continues to spread & everybody is inoculating'.

Thomas Wright's story of his inoculation also discloses different opinions within his kinship network. Wright's older sister had died of smallpox when he was six months old and Wrights grandmother, acting in *loco-parentis*, agreed to his inoculation. Wright recalls:

> … my grandmother, who was extremely fond of me, as the only remains of her only offspring and consequently very anxious to preserve my life, was persuaded by a Dr Nettleton, who was intimate with the family, to inoculate me, as the safest method with that dreadful malady.[210]

Although the doctor held a position of trust and his grandmother was eventually compliant, Wright's phraseology implies some coercion on the part of the doctor. In the case of his own children,

[208] *NRO*, BOL 2/36/5. *Ibid.* (9 March 1784).
[209] See Joscelyne, *Medical Practice and Medical Theory,* 158.
[210] T. Wright, *Autobiography of Thomas Wright*, 21.

generational differences were unmistakeable. Wright, like Elizabeth Leathes, was in conflict with his elders over the decision on whether or not to inoculate the children. Despite early marital strife, Wright was a caring and attentive parent, supported latterly by his second wife. He claimed the children 'had often begged to be inoculated' but as their grandparents were 'bitterly prejudiced against the practice' in the hope of appeasing them he complied with their wishes. However, the children contracted smallpox from which his youngest child died and his daughter was critically affected. Wright recalled:

> … the beginning of the year 1782, my children were attached by that dreadful distemper the small-pox, which at this time raged in the neighbourhood … as their grandparents were bitterly prejudiced against the practice, to oblige them I had forbore to do it. For this I afterward blamed myself much …it exposed my children to more than double hazard and suffering … I regretted very much the ravage this nauseous disorder had made.[211]

Elizabeth Leathes finally gained her parents' approval through coercion. After the two older children were inoculated the older generation were impressed by empirical evidence in satisfying their scepticism. Its success had mitigated the conflict between the two families in as much as the previously-sceptical Readings were pleased to relate a positive local story of the impending inoculation of the daughter of the wealthy and influential Loveden family of Buscot, Berkshire, to be followed by her recuperation in Bath. Wright, on the other hand, had been unable to eradicate his elders' prejudices, at great cost to his family, revealing the life or death implication of his actions. In both families we see evidence of inter-generational opposition and coercion; cases that without personal testimonies, remain otherwise invisible. Wright's autobiography, written at the end of the eighteenth century, clearly illustrates his advocacy of inoculation. James Reading also demonstrates a change of viewpoint. The successful inoculation of his grandchildren and the Loveden's pre-emptive stance towards smallpox prevention had created a favourable impression. This was probably compounded by the Readings' knowledge of the long-lasting damaging effects of another infectious

[211] *Ibid.*, 152.

disease, measles. Mrs Loveden, they recalled, '… whose constitution is always delicate, is not, it seems, perfectly recovered of the severe Trial which she underwent in the Measles.'[212] This turning point in their philosophies may be due to what Anne Eriksen suggests as the gradual change, which was not clearly articulated until the end of the century, from the concept of inoculation as a therapeutic remedy for the individual, to the idea that smallpox could be conquered through inoculation.[213] Certainly, one later diary entry signifies that compliant attitudes were becoming more entrenched by this time. In 1799, William Holland of Somerset demonstrated his approval of inoculation through a negative description of an acquaintance. This excerpt also reveals the intensity of take-up at this point.

> Briffit is here to kill the sow. A horrible looking fellow, his very countenance is sufficient to kill anything, a large hulky fellow, a face absolutely furrowed with the small pox (a very uncommon thing in these days of innoculations).[214]

Returning to Thomas Wright and James Reading above, we see an attitudinal change based on empirical evidence. Both had witnessed the consequences of allowing an infectious disease to run its natural course unchecked.

Conclusions

This chapter adds new dimensions to the story of inoculation. Firstly, evidence indicates that details of the 'new' operating technique were published a decade before Robert Sutton and his family promoted this method, although, as skilful marketers, the Suttons were successful in turning it into a lucrative business opportunity. Secondly, although the 'preparation' period was deemed 'wholly unnecessary' by inoculators in the 1760s, life-writings of twenty years later show that this trend did not die out completely in the later part of the eighteenth century, an opinion probably entrenched

[212] *NRO*, BOL 2/103/10. Letter from J. and E. Reading to Edward Leathes (28 February 1787).
[213] A. Eriksen, 'Cure of Protection? The meaning of smallpox inoculation ca 1750-1775'. *Medical History* Vol 57 (October 2013): 517-518 & 535.
[214] J. Ayres (ed.), *Paupers & Pig Killers The Diary of William Holland A Somerset Parson, 1799-1818* (Stroud: Sutton Publishing 2003), 18.

through the regimen of 'physick', commonly used by all social groups in order to cleanse the constitution at a time of unhealthiness and vulnerability.

The provision of inoculation was variable and some inoculators needed to work hard to maintain a presence in the marketplace. The routes into inoculation were also various. Some families gave the procedure great thought and discussion before making a decision or others could be treated urgently. The latter group was most likely to be poor. However, both individuals and communities were not always satisfied with the management of local programmes, especially the decisions on who should be selected for treatment. Despite this, a large proportion of the employee class would have been protected from smallpox through inoculation.

The study of Oxfordshire provides a comprehensive portrayal of local provision, depicting tightly controlled inoculation programmes by practitioners who were required to balance the constraints and concerns of local communities with the economic requisites of their enterprises, whilst at the same time managing aggressive inter-professional rivalry. Activity peaked very noticeably in the area in 1768; prices rose and remained high indicating a demand-driven provision. The increase in inoculation advertising in the *Journal* in the 1760s and 1770s does not appear to be particularly unique; Joscelyne found a similar picture in East Anglia where 1767 saw more advertisements for inoculation houses in local newspapers than in any other year in the 1760s and 70s.[215] In the Oxfordshire region, the lucrative market, ease of operation and growing empirical evidence of the success of inoculation were likely to be the key drivers. It is unclear why the number of inoculators advertising their provision in Oxfordshire fell towards the end of the century. Three scenarios are possible; firstly, inoculation had become so entrenched into community care that operators did not need to advertise. As programmes for general inoculations became more commonplace, inoculation houses were less central to the

[215] Joscelyne, *Medical Practice and Medical Theory,* 283.

operations. Secondly, initial fervour for the procedure had waned, or thirdly, demand was low because by the 1780s the pool of those susceptible to smallpox had become too small to merit advertising inoculation on a large scale. This third point is exemplified by the claim by practitioner, Mr. l'Ony in 1766, noted above, who had been in practice in Essex, where 'few in Comparison remain now to be inoculated in that Part of the Country'.[216]

The study also complies with the evidence in the overview of Oxfordshire in Chapter Two where we do not see severe epidemics of smallpox in the county from the 1760s onwards similar to those in Burford in 1758 and Banbury in 1718/19 and 1731-33. Although people were still choosing to be inoculated, as seen by the personal recollections discussed in this chapter, it is speculated that without the experience of the trauma of major epidemics and with a reduced pool of susceptibles due to mass programmes, demand for inoculation via the route of preparation and residential care was lower than it had been in the 1760s and 70s. There is also evidence to indicate the validity of the second point, that enthusiasm for the procedure had waned. In William Buchan's treatise on family health, not published until the 1780s, various initiatives to encourage the practice are suggested, indicating persistent opposition by some people.[217] However, this thesis suggests that this group was in the minority.

In assessing the dangers of smallpox, parents, in particular, were faced with two underlying fears; of the disease itself and of inoculation, making smallpox different to all other illnesses of the period. Families also needed to balance persuasive trends and marketing strategies with contradictory empirical evidence brought to them through widely-read publications, letters and personal experiences. This scenario often continued for two generations with (on the evidence reviewed

[216] *JOJ* (5 April 1766).
[217] Buchan, *Domestic medicine*, 252-265.

here) a general move towards acceptance in the younger generation. The procedure was traumatic, particular for children. Although parental interpretation of symptoms was diverse, parents kept a close vigil on their offspring and recorded progress reports in letters and diaries. On recovery, relief was intense. The experience for parents drew out expressive and emotive language, probably further evoked by the parents' own instigation of the difficulties their children were facing. With these point in mind, tensions radiated at all levels; personal and private, marital, family and kinship.

Previous research has suggested the existence of 'little evidence' to show the extent to which people took up the offer of inoculation, particularly from the labouring classes.[218] Reasons to look again at this assumption are persuasive. This section has examined advertisements for inoculation services in a provincial newspaper ranging from George Ridler's first promotion in 1758 until the end of the century. The advertisements reflect an interest in the practice and the level of take-up. Evidence of a demand-led provision, claims by practitioners, together with the implementation of general inoculation programmes, all go to support a continued local interest in the offer.

By the end of the period inoculation had become more commonplace and accepted, as seen in the observation of William Holland in Somerset in 1799. However, concerns about its safety had persisted for over half a century, when as late as 1795, an Essex newspaper reported that a William Carpenter was threatened with legal action if he carried out his wishes in inoculating his child.[219] When Edward Jenner published his work on vaccination against smallpox at the end of the century[220] a writer in the *Oxford Journal* noted the following*:*

> The Cow Pox is likely to extirpate that dreadful disorder the Small Pox. A great many people have recently been inoculated [vaccinated] for this new disease in the metropolis, who have all taken it and all recovered in a few days without any illness except a few pustules.[221]

[218] C. E. Joscelyne, *Medical Practice and Medical Theory,* 179.
[219] Smith, *Speckled Monster*, 46
[220] E. Jenner, *An Inquiry into the Causes and Effects of the Variolae Vaccinae, or Cowpox* http://www.bartleby.com/38/4/1.html
[221] *JOJ* (9 March 1799).

In June 1802 an award of £10,000 to Jenner was proposed in the House of Commons and a motion to double this amount only narrowly lost the vote. In comparison, at the same sitting £1,200 was awarded to the pioneer and builder of the first lifeboat, thus indicating the esteem held by Jenner.[222] Five years later inoculation had lost favour locally. In 1807, the following announcement appeared in the *Journal*:

> Worcester Physicians and surgeons are so convinced of inoculation with Cow Pox unanimously entered into a resolution, not, under any circumstances or applications whatever, to inoculate or sanction the inoculation for the Small Pox.[223]

The popularity of vaccination continued to spread rapidly although inoculation was also practiced into the nineteenth century. Inoculation was permanently replaced by vaccination in 1840 through an Act of Parliament forbidding its use thus indicating the final acceptance of a new method.[224]

[222] *JOJ* (5 June 1802).
[223] *JOJ* (7 March 1807).
[224] F. F. Cartwright in collaboration with M. D. Biddis, *Disease and History* (London: Rupert Hart-Davis (1972), 128.

OVERALL CONCLUSIONS

'My daughter now lyes ill of the Small pox, and I am now reduced to the utmost Extremity …' [1]

By examining smallpox from a wide range of perspectives including parish register data, life-writings and evidence of community responses to the disease this thesis offers a deeper understanding of the trends, prevalence, course, and management of smallpox. It shows that the location and function of some towns contributed to susceptibility to the disease in Oxfordshire, confirming that, unlike other infections such as fever, smallpox was not influenced by privation or prior unhealthiness. As such, the wealthy were as vulnerable as the poor. The thesis also argues that influences on the course of smallpox were community-constructed rather than epidemiologically based especially through practices of containment and isolation, a factor that has been relatively neglected so far in the secondary literature. Mary Dobson for example, only briefly recognizes the impact of a community's own attempts to restrict the spread of smallpox upon the disease's limited diffusion in the south-east of England.[2] This thesis demonstrates that the disease was absent in parishes in Oxfordshire contiguous to those recording smallpox mortality throughout the century. Clearly, thus, smallpox was being controlled before inoculation became widely available and measures to contain the disease within a confined locality through the isolation of sufferers were effective in restricting its spread. The motives for this were two-fold; to prevent the disease from spreading any further and to protect other family members. Parishes or communities led on the former; when an outbreak occurred sufferers were removed to a pesthouse or specially–provided isolation houses. After the danger had passed cleansing measures were undertaken, and, often, an announcement

[1] T. Sokoll, *Essex Pauper Letters 1731-1837* (Oxford: Oxford University Press for British Academy, 2006), 603. Letter from Sarah Stone (5 November 1736).

[2] See M. Dobson, *Contours of death and disease in early modern England* (Cambridge: Cambridge University Press, 1997), 478-481. Dobson highlights particularly the individuality of each place in having its own smallpox rhythm or periodicity in connection with the size of the pools of susceptibles available to contract and transmit the disease.

appeared in the local newspaper to encourage trade back to the town. In protecting family members, individuals implemented isolation practices. When smallpox struck a household those likely to be vulnerable were segregated and removed elsewhere, since the home, alongside the sufferer, was seen as an infectious environment. It is unclear how broadly this applied to all social groups although overseers' accounts indicate that sufferers, rather than susceptibles, were also removed and isolated under the Poor Law. Evidence from Banbury in 1718-19 and 1731-33 supports the proposition that either parent would be segregated from the family, once they had become infected since many children survived the disease despite the smallpox death of a parent, with surprisingly little evidence of transmission of fatal smallpox from mother to child. It was also extremely rare for families to loose both parents.

A close examination of the disease's impact reveals the effect of familial physiological and behavioural conditions on local demographic change. In Burford and Banbury, reductions in baptisms during and immediately after an epidemic indicate a decrease in conceptions and a likely increase in foetal loss and early infant death. The wider historiography on smallpox commonly highlights the dangers of smallpox to pregnant women and their unborn children. Yet, though pregnant women were particularly vulnerable to fatal smallpox and the tendency towards premature spontaneous termination of the foetus was high, this thesis challenges the claim that there was increased susceptibility to smallpox in pregnancy, since many of the pregnant women in households affected by smallpox mortality (meaning they were in close contact with severe cases of the disease) carried their children to term and the mothers' life chances were unaffected. Also, there was no immediate detrimental effect on the longevity of their infants. Furthermore, all three epidemics in the two Oxfordshire parishes created a change in the male/female

ratio of births, commensurate with more recent findings on the effects of stress-related conditions, such as major terrorist attack or earthquake, reducing the odds of male live births.[3]

Aside from physiological changes, a novel point to emerge from the demographic study of Burford and Banbury is the direct relationship between changes in behavioural patterns and adult deaths. Heightened levels of disruption to normal life patterns accompanied high adult mortality, particularly in the early stages of an epidemic. Behavioural change was most pronounced in Burford where adult mortality was high, and least in the first year of the outbreak in Banbury in 1731-33, which had little impact on adult deaths. Smallpox epidemics affected marriage patterns indicating people's reluctance to interact during an epidemic and a tendency to re-group shortly afterwards, re-aligning normal trends. Taking marriages in Burford and Banbury during the epidemic periods and Banbury in the late 1720s, evidence of a relationship between marriage by licence, customary norms, and sudden rises in adult mortality emerges with licences being the preferred option for weddings, indicating a desire for speed and reduced direct contact.

This thesis sheds light on the ongoing and unresolved debate over the impact of inoculation on smallpox mortality.[4] This is still a conundrum which, as recently as June 2015 remains 'disputed', since, as Davenport *et al* suggest, evidence is mainly anecdotal and the heat of the debate makes it partisan in nature.[5] Certainly, James Jurin's calculations for the Royal Society in the first half of the eighteenth

[3] Whether this is due to the impact on hormone levels and sperm quality or excess male foetal deaths is unresolved.

[4] R. Davenport, L. Schwarz, J. Boulton, 'The decline of adult smallpox in eighteenth century London'*, Economic History Review* 2011; 64(4), 1289 -314.

[5] R. Davenport, L. Schwarz, J. Boulton, 'Urban inoculation and decline of smallpox mortality in eighteenth century cities – a reply to Razzell', *Economic History Review*, Early View (2015), 1, 3.

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century, although grounded in local empirical evidence, were disputed by his opponents who attacked both the vagaries of diagnosis and selective nature of his data. Confusion could arise over symptoms associated with inoculation or the natural form of the disease. Moreover, at the time of Jurin's work in the 1720s those inoculated mainly comprised the rich and healthy, whereas figures for deaths from natural smallpox were based on the London Bills of Mortality.[6] Later in the century anecdotal evidence was provided by practitioners, alert to promoting inoculation with stories of large numbers of successfully treated patients. This study, however, deploys reliable evidence on the contribution of inoculation towards saving lives from the parish of Cuxham in Oxfordshire, where a smallpox survey of a population of 121 inhabitants was made, carried out during an outbreak in the village in 1772. It showed that of 49 parishioners (adults and children) with natural smallpox there were ten fatalities (one in five dying of smallpox) and 29 inoculated persons with no deaths.[7] These are, of course, very small numbers. Inoculation did not eliminate smallpox altogether and, in Cuxham, the concurrent smallpox outbreak would make the numbers dying of the disease itself unclear.

Despite these caveats, one of the clearest findings from the examination of eighteenth-century parish burial registers for Oxfordshire is the notable absence of major smallpox epidemics in the county after the 1760s. It is possible to be confident that a change in the nature of the disease was not responsible for fewer later outbreaks.[8] This suggests that inoculation was affecting smallpox mortality. Furthermore, where adult and child deaths are identified, children fared worse in the earlier part of the century. After the 1760s, however, the number of child smallpox deaths fell considerably and by the last decade of the

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[6] A. Rusnock, *Vital Accounts Quantifying Health and Population in Eighteenth-Century England and France* (Cambridge: Cambridge University Press, 2002), 60-70.

[7] *Cuxham Marriage Register*. Appendix B. Small Pox 1772. 'The Names of the several Persons who had the Small Pox in the Natural Way, or by Inoculation, at Cuxham, beginning Aug 1772'.

[8] See, for example, R. Davenport, L. Schwarz, J. Boulton, *The decline of adult smallpox in eighteenth-century London (2011),* 4, 5, 33. http://www.geog.cam.ac.uk/people/davenport/davenport8.pdf

century, when very few smallpox deaths were reported, these were almost all of adults. Inoculation programmes in the county and its regions were most probably a factor in this drop. Demand-led inoculation activity is evident in the region from the late 1750s until the end of the century, the most active period being between 1767 and 1779. People of all age groups were treated. Evidence from other areas of the country also suggests high levels of inoculation activity at this time. In Essex in 1766 for example, where 'few in Comparison remain now to be inoculated', the supply of clients appeared to be shrinking.[9] In Norfolk in the 1780s repeat programmes were initiated in four years out of seven, presumably to protect the youngest or newest members of the community. We do not know how the selection process worked although sources indicate that both individuals and communities were dissatisfied with the management of local programmes, especially over decisions on who should be selected for treatment. Nonetheless, a large proportion of the employee class were likely to have been protected from smallpox through inoculation and, further, children were particularly targeted.

However, historians generally agree that the incidence of smallpox mortality appeared to rise for a period in the 1760s with a temporary increase in transmission in a ten-year period around 1770.[10] This thesis proposes that this spike in smallpox mortality was caused by a spike in inoculation activity. Inoculation practice peaked very noticeably in Oxfordshire and its regions in 1768; prices rose and remained high as the number of practitioners increased, indicating a demand-led provision. This increase does not appear to be particularly unique; Joscelyne found a similar picture in East Anglia where 1767 saw more advertisements for inoculation houses in local newspapers than in any other year in the 1760s and 70s.[11]

[9] *Jackson's Oxford Journal* (5 April 1766).
[10] See, for example, J. Landers, *Death and the metropolis: Studies in the Demographic History of London, 1670-1830* (Cambridge: Cambridge University Press, 1999), 170 & 279.
[11] C. E. Joscelyne, (1990). *Medical Practice and Medical Theory: smallpox in Britain during the long eighteenth century*. PhD thesis. University of Essex, 283.

Further research would help to establish whether these were years of high inoculation activity at a national level. Nonetheless, a direct outcome of the rise in smallpox, either through the natural form of the disease or by inoculation, was a consequential rise in the number of persons protected against the disease and incapable of spreading it further, leading to subsequent lower infection rates later in the century. It is also plausible that communities were becoming increasingly vigilant in isolating inoculees after this period; separate 'airing' houses for those recently inoculated began to appear in Oxfordshire in the late 1770s.

The decline in infant mortality begins too early in the period to be connected to improved living standards and both inoculation against smallpox and increased breast-feeding have been cited as contributory factors.[12] This thesis offers three further inter-linked proposals. Firstly, inoculation was a likely factor in the rise in smallpox mortality in the late 1760s and early 1770s. Once the danger had passed, however, those rendered immune, either though inoculation or the natural form of the disease, comprised large sections of local communities. Prior immunity was a key element in shaping the prevalence of smallpox. In Banbury, for example, which suffered two epidemics within 12 years, fewer adults were fatally affected in the second outbreak. Secondly, infants were most at risk of smallpox from within the home environment, mainly experiencing the disease during the later stages of an outbreak. Transmission routes indicate that parents and older siblings were the key vectors in familial transmission. With high levels of immunity in these groups non-migrant infants were less likely to contract the disease if their parents were immune. High infant smallpox mortality in the migrant group confirms this point. The third factor concerns the familial dilemma over inoculation. Although empirical evidence overcame prejudices in the older

[12]Breast-feeding practices in urban areas are a current enquiry. Romola Davenport has shown seasonal infant mortality was high in summer in London which is indicative of babies being artificially fed. In Manchester, on the other hand, infant mortality was moderate, improving at the end of the century. R. Davenport, *Infant mortality in industrialising communities 1600-1850.* Local Population Studies Society conference (November 2014).

generations, this research suggests that the procedure was generally more accepted by a younger generation, that is, parents of young children. This is a crucial point. Young people and children inoculated in the 1760s to 80s were the parents of the late eighteenth century. As protected parents they were not transmitting smallpox to the next generation of children**.** In other words, the next generation of young children were protected through the immunity of their parents (although it is still also likely that parents were still inoculating their children). This had a likely effect on infant mortality and adding to the current debate on declining infant mortality at the end of the century.

This thesis also provides more insight into the practices and sentiments of two groups associated with smallpox which have been relatively neglected by historians: smallpox carers and inoculation practitioners. Nonetheless, carers were an important group involved in managing the disease, and were often the primary recorder of the condition of the patient. Neglecting the carer's role ignores the level of influence of eighteenth century medical strictures in relation to the everyday realities of care. Furthermore, attending to the carer uncovers their empirical knowledge on etiology and their expectations as to the disease's outcome. This indicates eighteenth-century perceptions of prognosis, conditions that caused concern and those that did not, and values and expectations attached to care. The life-writings show that the smallpox carers often received considerable support from spousal, parental and kinship networks. Indeed, reciprocal care was an important element of smallpox nursing although for those without this support network, smallpox nurses were reimbursed with well-paid and regular work.

The inoculation practitioner has received similarly little attention from historians, though his/her activity is significant because it suggests the likely levels of immunity in a community. Analysis of inoculation activity in Oxfordshire and its regions shows that programmes were well-organised and demand-led with life-writings revealing that the practice could also be adhoc and undertaken on an individual level based

on need. Also apparent is the anxiety parents expressed about placing their children in deliberate danger.

Smallpox had a profound emotional and cultural impact because it was extremely infectious at close proximity and potentially more fatal than most other illnesses, the anxiety intensified by apprehensions over the risks and benefits of inoculation. The outward manifestations of the disease were also disturbing and required careful management to aid the comfort of the patient and help minimise resultant scarring. This is seen in literary sources, which could not be fully examined here given the limitations of space. For example, Lady Mary Wortley-Montagu, a key figure in introducing inoculation into England in the 1720s, wrote about facial disfigurement in the poem, *Saturrday, the Small-Pox,* (1715). Wortley-Montagu had been scarred by the disease and drew from her personal experiences.[13] In the poem, her heroine, Flavia, bemoans lost beauty and power over the male sex, viewing herself as a 'frightful spectre, to myself unknown!' She continues; 'Now beauty's fled and lovers are no more!' she donates her 'useless Jewells' [now redundant cosmetics] to 'Fairer Heads'.[14] In the final verses the heroine concludes;

Cease, hapless maid, nor more thy tale pursue,
Forsake mankind, and bid the world adieu!
... in some obscure recess,
… There let me live in some deserted place,
There hide in shades this lost inglorious face.[15]

As this demonstrates, there was a close relationship between fear of the disease in fiction and people's experiences. When we look back to the aftermath of the disease for Catharine Cappe, we see Catharine's story of her fear in facing the adult world as a scarred woman resonating with the literature of Wortley-

[13] D. Shuttleton, *Smallpox and the Literary Imagination 1660 – 1820* (Cambridge: Cambridge University Press, 2007), 133, 135, 115.
[14] http://www.poetryfoundation.org/bio/lady-mary-wortley-montagu accessed 4 June 2014.
[15] http://www.poetryfoundation.org/bio/lady-mary-wortley-montagu accessed 4 June 2014.

Montagu. The dilemma thus faced by parents, particularly, and the sometimes irreconcilable family differences over inoculation are another two clear findings to emerge. This is an important facet of the practice and one which is not exposed through statistical data alone. These conflicts have a contemporary resonance as a forerunner to modern debates on the protection against childhood diseases today such as polio, mumps, measles and rubella and possibly in the future in the management of meningitis and ebola. Risks were arguably higher in the eighteenth century, although empirical evidence helped allay fears.

One of the challenges in understanding the prevalence of smallpox in the country in the eighteenth century is the distinctive nature of the disease in the north and south of England. Smallpox appears to have been endemic in the north of the country and epidemic in the south. In assessing the age structure of the disease in the countryside, Peter Razzell has exposed regional differences in the age incidence of the disease. Smallpox was a childhood disease in most northern parishes whilst affecting adults and children in southern ones, creating greater fear and a high demand for inoculation. In the north, on the other hand, a more fatalistic approach ensued with less interest in inoculation.[16] Razzell suggests that this may be linked to the impact of industrialisation in the north, with more densely populated communities and regular communication systems, conditions being more favourable to an endemic state. However, some areas did not conform to this explanation.[17] A congruent and detailed examination of a northern county would be the next stage in uncovering why these variations existed. Such a study would test this study's proposed relationship between adult smallpox deaths and changed behavioural patterns and allow further investigations into whether an age-biased clientele affected the principles on which practitioners operated in the north of the country.

[16] P. Razzell, *Population and Disease: Transforming English Society, 1550-1850* (Caliban Books, 2007), 177-187.
[17] *Ibid.,* 183.

Another line of enquiry would be how far the nature and behaviour of some southern communities had an impact on levels of epidemicity. Was the disease epidemic in the south because families had a greater opportunity for retreat when an outbreak occurred, thereby ensuring immediate familial protection but re-creating a large enough pool of susceptibles to contract and transmit the disease? Were northern families as likely to retreat from the risks of smallpox infection as families in the south? Did families respond in different ways to smallpox and inoculation when the disease was endemic? Was behaviour, therefore, a factor in endemicisation? Another line of enquiry concerns the related risks between adults and children of contracting smallpox fatally. Although we know that adult smallpox mortality was high in places where the disease had been absent for long periods, we do not understand why in some areas, for example in Aynho in 1723-24 and Cuxham in 1772-73 children had a greater chance of survival than adults once infection had occurred. Understanding this may also help to explain why so many children in Banbury survived smallpox despite a parental death.

These lines of enquiry could be pursued through further demographic research at county level and comparisons made. Results could be tested further through detailed work on the expanding source of ego-documents becoming available, allowing a new contribution to knowledge in the field of the history of medicine.

APPENDICES

APPENDIX 1 Under-registration in Banbury: the same-name technique

It was customary to give the name of a dead child to a subsequent sibling of the same sex, therefore in every case of same-naming a burial of the first child should be recorded. The same-name technique can form the basis of a method for measuring burial registration reliability. The number of first same name children in burial registers can be expressed as a proportion of all first same name children.[18] In my analysis of both smallpox samples in Banbury I have identified 102 cases of same-naming, with nine instances of missing burial dates of the first child. One of these concerns children with burial dates thirty years apart (of two difference mothers), where the older 'child' was likely to have been out of observation and possibly dead and in another, date discrepancies in registers and transcripts suggest these were the same child. This gives a proportion of same-name siblings in the burial registers of 93 per cent, ie in 93 per cent of cases there is a recorded death of a previous child of that name, indicating good burial registration reliability.

APPENDIX 2 Inoculation activity in Oxfordshire and surrounding counties 1758-99[19]

Year	Parish	County	Date	Parish	County
1758	Stroud	Gloucs	1779	Adderbury	Oxon
1760	Banbury	Oxon		Bicester	Oxon
1764	Abingdon	Berks		Broughton	Bucks
	Wantage	Berks		Oxford	Oxon
1765	Abingdon	Berks		Rollright	Oxon
	Wantage	Berks		Wantage	Berks
1766	Amersham	Bucks		Warborough	Oxon
1767	Campden	Gloucs	1780	Oxford	Oxon
	Fairford	Gloucs		Wantage	Berks
	Hucklecote	Gloucs		Witney	Oxon
	Oxford	Oxon	1781	Cassington	Oxon
	Reading	Berks		Warborough	Oxon
	Wantage	Berks		Witney	Oxon
1768	Abingdon	Berks	1782	Bampton	Oxon

[18] P. Razzell, *Population and Economy in England, 1650 – 1850* unpublished

[19] Parishes are listed once only in each year

	Amersham	Bucks		Great Kington	Warwicks
	Aylesbury	Bucks		Marston	Oxon
	Banbury	Oxon		Wantage	Berks
	Bishopstone	Wilts		Warborough	Oxon
	Brackley	Northants		Woodstock	Oxon
	Buckingham	Bucks	1783	Milton	Oxon
	Burford	Oxon		Oxford	Oxon
	Charlbury	Oxon		Wantage	Berks
	Chipping Norton	Oxon		Warborough	Oxon
	Coltshill	Bucks	1784	Abingdon	Berks
	Eynsham	Oxon		Cassington	Oxon
	Evesham	Worcs		Chalgrove	Oxon
	Fairford	Gloucs		Cumner	Berks
	Great Rollright	Oxon		Garsington	Oxon
	Hambledon	Bucks		Oxford	Oxon
	Henley	Oxon		Shiplake	Oxon
	Highworth	Wilts		Wantage	Berks
	High Wycombe	Bucks		Warborough	Oxon
	Oxford	Oxon	1785	Pudlicot	Oxon
	Shipston	Warwicks		Wantage	Berks
	Wantage	Berks		Warborough	Oxon
	Wendover	Bucks	1786	Thame	Oxon
	Witney	Oxon	1787	Beckley	Oxon
	Woodstock	Oxon		Benson	Oxon
	Wychwood Forest	Oxon		Thame	Oxon
1769	Beckley	Oxon		Wantage	Berks
	Buckingham	Bucks	1788	Beckley	Oxon
	Burford	Oxon		Chipping Norton	Oxon

	Chipping Norton	Oxon		Henley	Oxon
	Oxford	Oxon		Kidlington	Oxon
1770	Beckley	Oxon		Wantage	Berks
	Buckingham	Bucks	1789	Dorchester	Oxon
	Burford	Oxon		Cassington	Oxon
1771	Burford	Oxon		Wantage	Berks
	Charlbury	Oxon		Witney	Oxon
	Cumnor	Oxon	1790	Abingdon	Berks
	Fairford	Gloucs		Burford	Oxon
1772	Burford	Oxon		Culham	Oxon
	Thame	Oxon		Rollright	Oxon
	Wantage	Berks		Wantage	Berks
	Warborough	Oxon	1791	Daventry	Northants
1773	Bampton	Oxon		Farringdon	Berks
	Burford	Oxon		Salford	Oxon
	Oxford	Oxon		Wantage	Berks
	Wantage	Berks	1792	Daventry	Northants
1774	Aylesbury	Bucks		Farringdon	Berks
	Bampton	Oxon		Wantage	Berks
	Burford	Oxon	1794	Cirencester	Gloucs
	Charlbury	Oxon		Dorchester	Oxon
	Dorchester	Oxon		Great Rollright	Oxon
	Garsington	Oxon		Hook Norton	Oxon
	Oxford	Oxon		Yarnton	Oxon
	Wantage	Berks	1795	Ardington	Berks
1775	Aylesbury	Bucks		Cirencester	Gloucs
	Bampton	Oxon		Witney	Oxon
	Warborough	Oxon	1796	Aylesbury	Bucks
	Broughton	Bucks		Freeland	Oxon

	High Wycombe	Bucks		Wardington	Oxon
	Risborough	Bucks		Wendover	Bucks
	Oxford	Oxon	1797	Freeland	Oxon
1776	Bampton	Oxon		Stow	Gloucs
	Oxford	Oxon		Wantage	Berks
	Quainton	Bucks	1799	Culham	Oxon
	Warborough	Oxon		Dorchester	Oxon
1777	Bampton	Oxon		Wheatley	Oxon
	Chipping Norton	Oxon			
	Quainton	Bucks			
	Warborough	Oxon			
	Warwick	Warwicks			
1778	Abingdon	Berks			
	Broughton	Bucks			
	Campden	Gloucs			
	Chipping Norton	Oxon			
	Oxford	Oxon			
	Stoney Stratford	Bucks			
	Wantage	Berks			
	Warborough	Oxon			
	Warwick	Warwicks			

Sources: *Jackson's Oxford Journal;* E. G. Thomas, 'The Old Poor Law and Medicine' *Medical History* 24 (1980): 10-11; J. Moody, *The Great Burford Smallpox Outbreak* (Burford: Hindsight 1998), 22; *NRO*, BOL 2/95/11. Letter James Reading to Elizabeth Leathes (25 June 1780)

APPENDIX 3.i Banbury 1718-19: paternal smallpox deaths

Paternal smallpox death	Child smallpox deaths	Surviving children	Total in household at beginning of epidemic		Percentage of surviving children
			Adults	Children	
Joseph Barnes	0	3	2	3	100
Jasper Bedlam*	0	2	2	2	100
Thomas Bull*	0	4	2	4	100
Ambrose Dixsone	2	0	2	2	0
Richard Ennock	0	1	2	1	100
Samuel Grant	1	2 (+1)	2	4 Ω	50
William Humphris	1	0	2	1	0
John Major	1	4	2	5	80
John Osborne	1	2	2	3	67
John Rymill*	0	4	2	4	100
John Salmon	0	4	2	4	100
Hawtayne West	1	2	2	3	67
John Wyatt	1	2	2	3	67
Joseph Wyatt	0	1	2	1	100
Total	8	32	28	39 (+1)	80

* The children of fathers marked with an asterisk were 15 years and over at the time of the epidemic. It is possible that some were not living at home

Ω Includes a child death from another cause during epidemic

Source: Figures derived from Banbury Burial Register and reconstitution

APPENDIX 3.ii Banbury 1718-19: maternal smallpox deaths

Maternal smallpox death	Child smallpox deaths	Surviving children or stepchildren	Total in household at beginning of epidemic		Percentage of surviving children
			Adults	Children	
Ann Calket*	0	2	1	2	100
Hannah Crook	0	1	2	1	100
Anne Dawkes*	1	3	2	4	75
Joane Dixsone	2	0	2	2	0
Elizabeth Elkington	0	3	2	3	100
Ann Franklin	1	6	2	7	86
Mary Howse*	0	5	1	5	100
Anne Jakeques*	0	2	2	2	100
Elizabeth Shaw	0	4	2	4	100
Susannah Spurr	0	2	2	2	100
Abigail Usher	0	2	2	2	100
Mary Ward	0	3	2	3	100
Anne Williams	0	3	2	3	100
Total	4	36	26	40	90

- The children of mothers marked with an asterisk were 15 years and over at the time of the epidemic

Source: Figures derived from Banbury Burial Register and reconstitution.

APPENDIX 4: Banbury 1731-33: parental smallpox deaths

Parental smallpox death	Child smallpox deaths	Child deaths from other causes during epidemic	Surviving children	Total in family at beginning of epidemic		Percentage of surviving children
				Adults[II]	Children	
Fathers						
William Baker	-	-	2	2	2	100
Michael Gardner	-	-	1	2	1	100

George Glover	1	-	-	2	1	0
John Harper	-	-	1	2	1	100
Andrew Harvey*	-	-	2	2	2	100
Walter Wells	-	-	5	2	5	100
Total	**1**	**-**	**11**	**12**	**12**	**92**
Mothers						
Susannah Austin	-	2	1	2	3	100
Catherine Baughan	1	-	3	2	4	75
Edith Bennett	1	-	4	2	5	80
Katherine Callow	1	-	2	2	3	67
Anne Cox	-	-	1	2	1	100
Hannah Gilkes	1	-	2	2	3	67
Elizabeth Goode	2	-	2	2	4	50
Anne Gulliver*	-	-	2	1	2	100
Mary Jarvis*	1	-	2	2	3	67
Mary Palmer	-	1	5	2	6	100
Elizabeth Rainbow*	-	-	3	2	3	100
Frances Wise	-	-	1	1	1	100
Mary Wise	-	-	3	2	3	100
Total	**7**	**3**	**31**	**24**	**41**	**83**
Total (fathers and mothers)	**8**	**3**	**42**	**36**	**53**	**85**

[II] In four cases burial dates of spouses are unknown. As the families were in observation until at least 1731 it is assumed that spouses were still alive at that time.

*Includes children over 21, out of observation and likely to be living away from home.

Source: Figures derived from Banbury Burial Register and reconstitution.

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