Family Medicine and Community Health

Epidemics and primary care in the UK

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INTRODUCTION

The emergence of the novel coronavirus disease (COVID-19) in China has resulted in catastrophic events that echo worldwide. Primary care physicians are carrying some of the burden of managing the epidemic alongside secondary care, which is struggling to maintain a concerted effort in the face of the mounting pressure of cases. Epidemics affect communities not only biologically but also psychosocially. General practitioners (GPs) in the UK are well positioned to deliver care via a 'whole-person, holistic approach' as they are the first point of contact and provide continuity of care within communities. By reviewing historical epidemics in different countries, we may be able to address the current issues in worldwide by providing pragmatic solutions. In the UK, the successful response to the influenza and severe acute respiratory syndrome (SARS) epidemics was a result of effective collaboration between different organisations. Primary care services were considered a key player in delivering care as well as promoting protective behaviours to prevent the spread of infection. Effective communication, trust and the existence of primary care physicians within networks of allied health professionals allows for a variety of delivery mechanisms that offload pressures from GPs and ensure continuity of care. There is a need to evaluate the current epidemic to understand the challenges it poses. Finally, we recommend several solutions, one of which is a thorough assessment of the current community services and their ability to collaborate with GPs to jointly deliver care to their communities.

The WHO initially declared the coronavirus outbreak as 'a global health emergency' on 30 January 2020. On 11 March, the situation was declared 'a pandemic'. The novel coronavirus disease, designated as COVID-19, is a new strain of coronavirus that emerged in Wuhan at the end of 2019. The numbers infected and deaths have increased dramatically worldwide and resulted from human-to-human transmission.

This is not the first viral pandemic the world has witnessed. There has been epidemic experience with Ebola, SARS, Middle East respiratory syndrome (MERS) and pandemic experience with influenza. The lessons learnt by different countries have allowed us all to become better informed with deploying emergency responses to epidemics. Such outbreaks bring devastating circumstances to patients, their families and communities. We offer our experiences in the UK to provide possible solutions to alleviate this crisis as well as others that may occur in the future.

In this commentary, we offer our experiences as primary care professionals in the UK as opportunities to inform others of alternative approaches that may help assuage their current burden during this difficult crisis. In order to provide these proposed solutions and recommendations, we need to discuss the organisation of the NHS and other sectors to set the directorial framework required to mount a structured emergency response. We also deem it necessary to discuss the experiences and challenges faced by the UK in responding to previous epidemics for lessons learnt. The role of primary care in epidemic management is also discussed and, finally, we offer our recommendations to the primary care system in optimising their preparedness for emergency response to the current coronavirus epidemic as well as future epidemics.

Impact of epidemics on communities

From a bio–psycho–social perspective, epidemics can wreak havoc at the time they appear as well as long after they have gone. They may cause or worsen mental health in patients and their families due to stress and anxiety. Patients may lose family members resulting in grief and trauma. Those with co-morbidities or ill-health are more prone to dying in epidemics and this can be painful for their carers who look after them along with support from the social care sector. Business continuity plans constitute a mandatory aspect of emergency preparedness planning for epidemics due to the massive disruption caused when quarantines and travel

restrictions are applied. Public transport, schools and workplaces may also be closed down for quarantine ultimately resulting in the country slowing down to a standstill. This can impact a country's economy and may take a while for it to recover. It is clear that the effects of an epidemic cascade through society in a variety of ways. Primary care services need to take responsibility and play a crucial role in the epidemic crisis because they are well-positioned to not only address bio–psycho–social issues at the helm of the crisis but also afterwards. This is due to the fact that they are the regular point of contact for patients and communities and are able to offer on going advice and support. Trust plays a critical role in epidemics and general practitioners (GPs) and their primary care teams are trusted by their patients and communities to provide good quality care. This allows primary care staff to be a voice of reason that will be listened to in unnerved communities, hereby promoting a sense of calm, confidence and increased adherence to public health messages on protective behaviours.

Organisation of the NHS

The Department of Health and Social Care (DHSC) is responsible for preparing and leading a response. It also plays in an important role in activating emergency response protocols via informing the Cabinet Office, which initiates a meeting with the four Chief Medical Officers (CMOs) for England, Scotland, Northern Ireland and Wales. The CMOs play a major role in pandemic response, as they are the most senior government advisers on issues pertaining to health. The Chief Scientific Adviser to the DHSC also plays a significant role by advising the CMO by providing independent advice to ensure policies are supported with science. The Cabinet Office also notifies other government departments and works closely with DHSC throughout the epidemic to keep government and the public informed of developments. This communication occurs via the DHSC media centre or, in cases of extended and austere events, the Government News Coordination Centre. Pandemic preparedness in England allows the Secretary of State for Health to have a clear line of communication to frontline response, which includes primary care services. Public Health England (PHE) plays a fundamental role in diagnostics, analysis, monitoring and screening among other deliverables. It works closely with local authorities, clinical commissioning groups (CCGs) and primary care to ensure plans are in place and guidance is up-to-date. NHS England carries responsibility for numerous pandemic preparedness and response activities.[1]

The response of the health system is also governed by statutory requirements and the bedrock of emergency preparedness, resilience and response. Under the Civil Contingencies Act (CCA) 2004 statutory requirements, Category 1 responders (primary responders) are organisations at the core of the emergency response and these comprise; DHSC, NHS England, PHE, acute service providers, ambulance services and local authorities which includes Directors of Public Health. Category 2 responders (supporting agencies) are expected to work closely with Category 1 organisations to optimise the response and this is the role of the CCGs. Primary care services are not included in the CCA 2004 but are expected to respond with a level that is pertinent to the scale of the event.[2]

International collaboration with PHE plays an important role to ensure the UK responds appropriately to international requests from the WHO. Furthermore, it allows the UK to gather intelligence from other countries to provide a framework for initial assessment nationally. It also offers the UK with an opportunity to contribute to the international arena via collaborations and assessments.[3]

Epidemic experience in the UK

Previous epidemics, such as SARS in 2003, provided valuable lessons. The important role of strong central leadership and organisation is paramount to navigate such crises. In addition, the existence of the Health Protection Agency reference laboratory in rapidly diagnosing cases with laboratory confirmation is also deemed requisite. Effective and timely communication with the public was vital in raising awareness and mitigating risks via public education on reducing transmission. However, some gaps were identified which included the lack of a national and up-to-date database of identified cases and the protection of staff handling samples in the reference laboratory.[4]

The Pandemic Influenza Response Plan and Strategic Framework documents[3 5] (2014) developed by PHE provide extensive information on how a PHE-driven response would address the influenza pandemic. The documents focus on clear communication between different directorates and agencies, their designated responsibilities and business continuity planning. The Pandemic Influenza Response Plan 2014 document also discusses the important work being undertaken in mathematical modelling of future epidemics or pandemics to address the challenge of uncertainty that the UK and other countries face. Historically, the UK has used five response phases; detection, assessment, treatment, escalation and recovery (DATER) to underpin the strategic approach it takes to tackle the influenza epidemic. In the current COVID-19 pandemic, the proposed strategy phases are: containment, delay, research and mitigate. It is unclear why this response has changed but interesting to note that the response adopted by the UK differs from other countries, such as China and Singapore, that have undertaken a more stringent approach with early travel restriction policies and whole-country quarantine measures.

The challenges faced by the UK in managing the influenza pandemic were dealing with the uncertainty and unpredictability of the future viral outbreak.[3] In addition, the managing of surge and escalation decision-making procedures was a challenge and work continues around this.[6] In 2016, the UK's influenza pandemic preparedness was exercised with NHS England participating in 'Exercise Cygnus'. It ran over 7 weeks and assumed a severe

pandemic outbreak with an overwhelmed service and reduced staff numbers. Plans were revised to incorporate the learning from this training.[6]

Effective communication during an epidemic is paramount to organise and coordinate a successful response between responsible health agencies but also plays an important role in preventing negative public reactions to epidemics as well as increasing compliance in implementing recommended behavioural advice to reduce the risk of viral transmission. A review by Bich and Mishie (2010)[7] highlighted the demographic and attitudinal factors associated with adopting protective behaviours during a pandemic and these are; being female, older or more educated. This allows a tailored and targeted campaign towards higher risk populations. Another important component of effective communication is gaining trust in order to maintain the integrity of information being provided by health services/authorities to ensure the public adheres to advice given. There are principles to effective communication that include transparency, clear and simple announcements, the acknowledgement of uncertainty, communication of risk in negative framing as well as the timing of communication.[8]

The role of primary care

The value of primary care in responding to an epidemic crisis has been highlighted by Scott *et al*[9] in their critique of the Ebola epidemic response in West Africa through a primary healthcare approach. The importance of a strong, well-organised health system with primary care centred as the first point of contact for communities as a consistent source of care was emphasised. Trust in primary care and the health system as a whole was also identified as a pivotal factor for community engagement and adherence to protective behaviours.[9]

The government response is changing rapidly. At the time of writing this commentary, the public are being asked to stay at home and self-isolate if they have a fever or dry cough and not to attend their GP, pharmacies or hospitals. The recommended duration of self-isolation has changed from 2 weeks to 7 days. Health promotion in the form of hand-washing, social distancing and self-isolation is being advertised in mass communication. Diagnostic testing is arranged by the local Health Protection Team (HPT) in different settings; hospitals, designated hubs or patients' homes. More specifically in primary care, measures must be put in place to reinforce the government's approach. Examples include pre-recorded automated messages on telephone systems and screening questions on entry into the practice. Some practices have adopted a closed-door policy. Furthermore, GPs are advised to telephone triage all patients with suspension of face-to-face appointments. If a case is suspected on telephone triage, then the course of action depends on the severity of symptoms. For mild illness, patients are re-directed to contact 111. For severe disease or critically unwell patients, the GP will arrange an ambulance and alert the local HPT. Healthcare professionals in primary care are donning personal protective equipment (PPE) as standard practice. If patients are identified as suspected cases during face-to-face consultations undertaken for any reason, the healthcare professional must leave the room, change their PPE and ask the patient to call 111 with deep cleaning of the room afterwards.[10]

The current structure of primary care may play a role in pandemic response. As part of the NHS Long Term Plan 2019, GP practices now sit within Primary Care Networks (PCNs), which serve populations of between 30 000 and 50 000 patients. Within these PCNs, GP practices work more closely alongside other practices as well as allied health professionals/services that include, but are not limited to; clinical pharmacists, paramedics, advanced nurse practitioners, link workers for social prescribing and others. GPs are well embedded within the community and are able to function within a multi-disciplinary team to provide holistic care by looking at the patient as a whole. The working relationship may be useful for swift communication updates at the primary care level between organisations. However, the majority of cases will be managed in secondary care.

Primary care receives direct communication from NHS England and the local CCG regarding PHE guidance and updates on pandemics. At this current time, GPs are receiving information about COVID-19 with advice and guidance on how to manage suspected cases and where to refer, with local support provision from public health specialists. However, this guidance is rapidly changing. An example of the first protocol for management of COVID-19 in primary care can be found in figure 1.[11]

The delivery of services in an epidemic by primary care professionals is multi-faceted and operates similarly to day-to-day practice but under regular updates on advice and guidance from PHE. GPs triage patient calls to determine whether a face-to-face appointment is appropriate. Telemedicine has a major role to play in this current pandemic as GPs are opting to use video consultations where feasible. If the patient is deemed possibly infected with a virus causing an epidemic, they are advised to remain indoors and are offered disease prevention advice and symptom relief self-help measures. Nurses, healthcare assistants, advanced nurse practitioners, clinical pharmacists and clinical paramedics all work in GP practices and are also frontline in offering this advice. If a patient attends the practice and is deemed to be a suspected case of infection, then they are isolated in a room with their belongings, clinical examinations are not undertaken and the local HPT is called for further advice. In addition to this multi-disciplinary team within a GP practice setting, community pharmacies, dental clinics and optometrists form the remainder of primary care services. They are also resources of advice for the public and follow PHE guidance on epidemics similar to GP practices. Finally, in the context of out-of-hours, patients are able to contact NHS 111 for advice from protocol-guided telephone handlers and GPs.
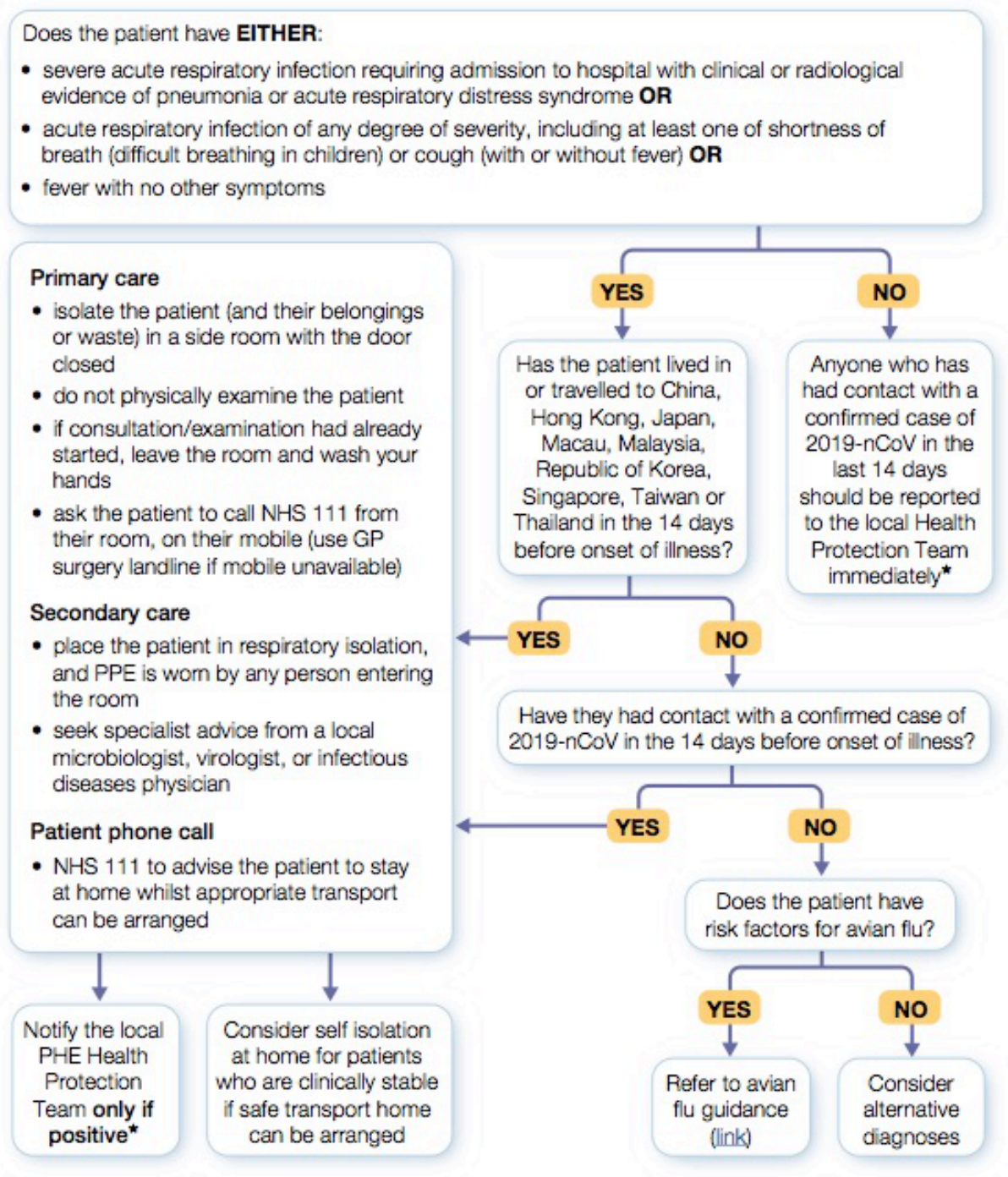
Figure 1 Public Health England (PHE) guidance flowchart for management of coronavirus in primary care.[11] PPE, personal protective equipment.

The health and social sector in the UK work closely together. For example, services such as nursing homes are supported by GPs and their staff provide the GP with insight into the social needs of the patient to provide a 'whole-person, holistic approach' in managing a patient. In epidemics, this working relationship proves useful as a resource to help detect suspected cases early by having social care sector staff alert the GP for a swift clinical response and assessment to be undertaken with support from the local HPT. This relationship is especially important for early testing and isolation of suspected cases to reduce transmission within multi-morbid and elderly populations that constitute the bulk of social care institutions.

Primary care plays a critical role in all historical five phases of DATER by drawing on the variety of its allied health services and professionals within the community to provide support throughout these phases. Specific to the recovery phase, staff working within primary care services are offered support following an epidemic including psychological support. Furthermore, primary care service providers are the frontline staff responsible for giving appropriate advice involving self-quarantine, self-help measures and education on reduction of transmission in the community. The close working relationship of primary and social care is integral to help provide professional advice as well as support to social care services to help mitigate the risks of viral transmission via health promotion and patient education. Therefore, not only is primary care pivotal in detecting and managing cases early, but also extremely vital in prevention and health promotion within the community by supporting mass communication delivered by DHSC, PHE and NHS England.

In current time and within the framework of the four proposed phases, primary care has had a role in the containment and delay phases to date, with more emphasis on reduction of transmission by good hygiene measures (hand washing, and catch it, bin it, kill it), wearing PPE, switching to telephone triage as well as telemedicine and re-iterating government advice on self-quarantine and isolation. This outbreak has highlighted the role of digital communication, different ways of working and handling large unexpected events that will need to be evaluated in primary care. The relevant COVID-19 research in primary care will play an important role in gathering evidence about effective interventions and management in order to inform decision-making going forward and guide practice. The UK Government will keep emerging research needs under close review and progress research activities set out. Based on the understanding of the Mitigate phase-next steps in DHSC report[12] (3 March, 2020), primary care will continue to play important roles in this phase, such as in further publicity of advice to individuals about protecting themselves and others; integrating with social care services to support early discharge from hospital, and to look after people in their own homes; dealing with the increase in deaths arising from the outbreak; providing residents and GP practice staff psychological support for the pressure raised at work, as well as potentially their own personal illness or caring responsibilities.

Emphasis must be made on frontline staff well-being from both a mental and physical health point of view. Testing of suspected staff members must be highlighted and contact tracing deployed if they test positive. Primary care cannot afford to have infected staff members quarantined for up to 2 weeks as this will create a higher workload on other staff members and may possibly reduce primary care's ability to respond swiftly. Furthermore, and most importantly, pandemic situations can result in frontline staff feeling overwhelmed. Steps must be taken to ensure they are well supported by ensuring that all staff members able to work are deployed, that the appropriate level of PPE is available and that services are available for mental health support. Social media seems to be playing an active role in the UK by providing regular updates on the situation between staff members, especially GPs, along with public health promotion advice and mental well-being advice focussing on meditation and mindfulness practice. Risk stratification for frontline staff members is also required for those at increased risk of having poorer outcomes if infected with COVID-19, such as those above 60 years of age and with co-morbidities. Risk stratification measures can include re-deployment from front line activities and if not feasible, then adopting strict telemedicine-only policies for those at risk.

The challenges relevant to primary care in the UK, are the shortage of staff despite the variety of providers within the community. Furthermore, demographics vary greatly within the UK and some demographics such as elderly populations; high burden of chronic disease and lower socio-economic status groups may pose a challenging demand for care by the existing primary care services. Over the preceding years, the NHS 111 service has been improved to help non-clinicians direct patients to the appropriate service provider by using protocols and 111 has been a major role player in this current pandemic alongside secondary care and ambulance services in responding to cases requiring treatment. This can be adopted in other countries to help alleviate the demand burden from clinicians by providing a telephone advice and guidance service to the community.

RECOMMENDATIONS

Based on the UK's experiences and challenges in the past and in the context of how the primary care sector is set up, we put forth the following recommendations to the other primary care service and its department of health.

1. Re-organisation of GPs to operate within a network with other allied health professionals and the social sector to allow for delegation within epidemic situations.
2. Provision of support to GPs throughout and after dealing with an epidemic by the local responsible health department.

3. Utilisation of effective and transparent communication between primary care and its responsible department within the health system.

4. Deployment of telephone triage staff trained for epidemic case management and health promotion to off-load the burden of demand from GPs.

5. Development of clear and easy-to-follow national standardised health promotion materials and efficient communication channel for public in order to enhance public awareness and self-quarantine.

6. Provision of up-to-date advice and guidance from public health authorities to GPs and the public with local public health support provision.

7. Rigorous assessment of the capacity of existing community services coordinating with GPs to develop clear pathways and responsibilities in case management.

8. Evaluate current epidemic to learn from the challenges it posed.

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