Cause-Specific Infant Mortality in Copenhagen 1861–1911 Explored Using Individual-Level Data

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To cite this article: Ludvigsen, L., Revuelta-Eugercios, B., & Løkke, A. (2023). Cause-Specific Infant Mortality in Copenhagen 1861–1911 Explored Using Individual-Level Data. *Historical Life Course Studies, 13*, 9–43. https://doi.org/10.51964/hlcs12032

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VOLUME 13, SPECIAL ISSUE 6

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HISTORICAL LIFE COURSE STUDIES
VOLUME 13 (2023), published 17-01-2023

Cause-Specific Infant Mortality in Copenhagen 1861–1911 Explored Using Individual-Level Data

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ABSTRACT

This study explores cause-specific infant mortality in Copenhagen between 1861 and 1911, using newly available individual-level data from The Copenhagen Burial Register, as part of a larger comparative project within the SHiP network (Studying the history of Health in Port Cities). The aim is to determine the dominant cause of death patterns for infants and to explore how the ICD10h coding system performs with the Danish individual-level historical causes of death. The results show that in Copenhagen, infant mortality began a distinct decline during the period of study (1861–1911), but the city experienced only very few changes in the cause of death pattern. While a transition from symptomatic to more specific causes of death took place over time, the largest killers overall were the water-food borne and airborne diseases, with a respectively summer and winter peak. The airborne and water-food borne diseases were mainly dominant amongst the post-neonates, whose mortality made up an increasingly larger share of infant deaths. Finally, the results show that although coding the Danish causes of death to the ICD10h has proven successful, more attention needs to be paid to different uses of the same cause of death by different nations, such as the case of atrophy.

Keywords: Historical causes of death, Individual-level data, Infant mortality, ICD10h, Denmark, Copenhagen

e-ISSN: 2352-6343
DOI article: https://doi.org/10.51964/hlcs12032

1 INTRODUCTION

This study explores the cause-specific infant mortality in Copenhagen based on the individual-level cause of death information derived from all 80,521 infant deaths registered by the city's civil burial authorities in the period 1861–1911. The aim is twofold: first, to determine the dominant infant cause of death patterns in Copenhagen using the ICD10h coding system, to facilitate comparisons with other locations; second, to explore how the ICD10h coding system, based on British historical causes of death, performs on Danish ones. The study forms part of a special issue on infant mortality in Europe, produced within the SHiP (Studying the history of Health in Port Cities) network. This network collaboration provides new unique opportunities for international comparisons as all eight participating countries use individual-level cause of death data, coded to the same classification system (ICD10h) and perform the same analyses.

In the 19th and 20th centuries, infant mortality declined drastically in Europe, leading to a large increase in life expectancy. However, this did not happen homogenously or simultaneously. Previous studies have shown significant differences in the levels and trends of infant mortality, both between and within countries (Klüsener et al., 2014). Most researchers agree that these differences are the result of many different factors and that no single factor seems to explain it all (Løkke, 1998, pp. 16–17). Many researchers, in particular Sundin and Løkke, argue that models of exposure and resistance between all these factors are well suited to understanding infant mortality (Løkke, 1998, p. 127; Sundin, 1993, p. 385). Models of this type provide the framework to understand how "the different factors work by diminishing or increasing the child's resistance to falling ill, and diminishing or increasing the amount of contagion the child is exposed to." (Løkke, 1998, p. 127). This approach of looking at exposure and resistance is also seen on a larger scale in Johansson (2000), studying the mortality of the English population in the 19th century. Johansson suggests we understand mortality as a matrix of geographical diversity and different standards of living, resulting in a model of nine subnational populations, but acknowledges that the model is lacking a third dimension that makes space for cultural differences (S. R. Johansson, 2000, p. 62). These models are very useful when understanding which factors are at play, and how they work when studying infant mortality. However, as long as we only study the trends and levels of infant mortality at the aggregate level, as the majority of earlier studies have done, the discussion remains very theoretical. With newly available individual-level causes of death, we now have the opportunity for a much more in-depth analysis of the factors that influence infant mortality in a given population. This enables us to look closer not only at the levels and trends of infant mortality, but also at the composition and changes in the cause of death patterns, providing new insights into the decline of infant mortality in the 19th and 20th centuries.

The first part of the paper presents the historical background of the city of Copenhagen, and a descriptive account of the data sources used in the study; the second part gives an overview of the development of infant mortality over time. Parts three, four and five analyze and discuss cause-specific analysis of mortality in the infant, neonatal and post-neonatal age groups, as well as seasonal patterns throughout the year, while part six explores the special case of atrophy. Lastly, part seven discusses the main findings and their implications.

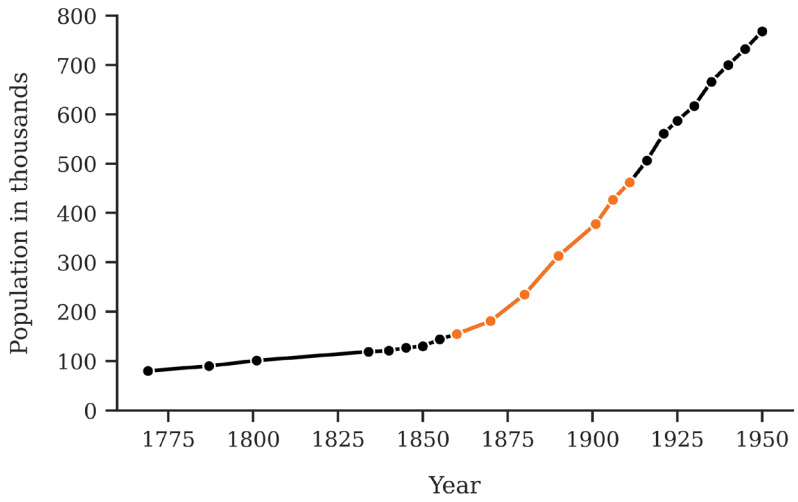
1.1 THE CITY OF COPENHAGEN

Copenhagen is a distinct setting for studying infant mortality in the 19th and 20th centuries, as it resembles other large European cities, but is unique in that it remains the only metropole in an otherwise rural society with very low infant mortality. The national average infant mortality rate (IMR) for Denmark was among the lowest in Europe, but Copenhagen's IMR was twice the national average and on a par with most other large European cities. The large contrast between the rural areas and the city makes the urban penalty very visible in Copenhagen, so by comparing shifts in the dominant cause of death patterns with coinciding macro changes in the city, the potential drivers may become clearer. Excess urban mortality was widespread in all age ranges, and was at least partly due to the fact that Copenhagen was a port city with a large and lively traffic of ships from both far away and nearby, making it vulnerable to epidemics. The effect of public health measures combined with improvements in living conditions is believed to have led to a generalized decrease in mortality with the urban penalty eventually disappearing for adults and children.

As the capital of Denmark and the largest city in the country, Copenhagen was a national hub of trade, culture, politics and education. Up until the 1880s, the city also housed the largest port in Denmark, handling as many ships as Hamburg (Salmonsens konversations leksikon, 1919; Salmonsens konversations leksikon, 1923a). However, the harbour needed expensive excavations as the ships became larger during the late 19th century, which was benefitting other Danish ports with more natural depth. This led to a stagnation of the importance of Copenhagen's harbour (Salmonsens konversations leksikon, 1923b) and, as a result, it could no longer compete with the largest European ports of London, Antwerp, Rotterdam and Hamburg in the years around 1900. Despite the port's decline, the city grew rapidly during the 19th and 20th centuries, due to industrialization as well as an increase in trade and commerce (Statens Statistiske Bureau, 1905, p. 15). Until the 1850s, the growth of Copenhagen's population was kept in check by the city's 17th-century ramparts, but from 1856 the construction of new neighbourhoods on the fields surrounding the old city was permitted. That provided space for a tripling of the population of Copenhagen, from 155,000 inhabitants in 1860 to 462,000 in 1911 (Figure 1, Appendix Table A1). This accounted for half the total Danish urbanization in these years.

The city government invested heavily in public hygiene and sanitation after a range of epidemics hit Copenhagen in the 19th century, with the cholera epidemic in 1853 hitting especially hard. The following decades saw several improvements: a new water supply system featuring iron pipes was initiated in the late 1850s, and the instalment of wastewater sewers began in the 1860s, covering almost the entire city by the 1880s. In the 1890s, new hygienic steel latrines with lids were introduced and disinfected by the authorities several times a year. Other hygienic measures introduced were building regulations and meat and milk inspections (Løkke, 1998, pp. 201–203). Part-publically financed health insurance for all came in 1892 (Løkke, 2007, p. 16) and smallpox vaccinations had already been implemented very successfully from 1802 onwards, so nearly all Danes were vaccinated throughout most of the 19th century (Bonderup, 2001, p. 134). Of particular importance for infant mortality were the many public and private infant health initiatives. From the late 18th century, the Royal Maternity ward provided birth care for unwed mothers free of charge, and from 1888, the poor relief authorities took care of paying the father's part of a child's subsistence in a timely fashion to single mothers and took responsibility for getting the payment from the father. In addition, several large philanthropic associations provided infant health facilities such as free in- and out-patient services and free food for lactating mothers; and in 1910, the National Research Hospital established a ward specializing in the treatment of infant diarrhoea (Hansen et al., 2010).

Figure 1 *Population growth of Copenhagen according to census years, 1769–1950*



Source: Statens Statistiske Bureau (1905, p. 17).

Note: The orange line marks 1861–1911, the focus years of this study. Each dot marks a census year.

1.2 DATA

This study is based on the Copenhagen Burial Register[1] from 1861–1911. The burial records are available online at the Copenhagen City Archive, both as scanned facsimiles and in a machine-readable version transcribed by volunteers with a link between the two versions of the same burial (Københavns Stadsarkiv, 2020, October). The transcription was organized by the city archive in close collaboration with its volunteer community and the resulting data are of high quality to use for research. We have chosen the years 1861–1911 because the burial records for this timespan were fully transcribed when this study began in 2020. The period 1912–1942 is expected to have been transcribed by the end of 2023.

The Copenhagen Burial Register was introduced in 1861 by the Copenhagen municipal authorities to centralize the administration of burials in the city. Until then, the burials in Copenhagen were registered in individual burial registers for each graveyard or cemetery. From 1861–1886, the central Burial Register recorded the vast majority of burials in Copenhagen in one single volume in chronological order, except for the relatively few burials in the military, Roman Catholic and Jewish graveyards. From 1887 to 1994, it was mandatory to record all Copenhagen deaths and burials in the register regardless of which graveyard or cemetery was used (Revuelta-Eugercios et al., 2021, p. 12). The Copenhagen Burial Register is exceptionally consistent, as no volumes are missing and they contain close to the same information for each burial throughout the period: name, age, occupation, date of death, cause of death, burial date and place, address at death and where the deceased's body was kept prior to burial. Extra information about the legitimacy of infants and information on husbands of married women were also often added (Københavns Stadsarkiv, 2022, May).

We have located 80,521 infants (i.e. children under one year of age, excluding stillbirths and miscarriages) out of the total 306,541 burials in the Copenhagen Burial Register 1861–1911 (both years inclusive; Københavns Stadsarkiv, 2020, October). The infants were identified following the procedures described in Appendix Table A2. The transcribed data from the Burial Register gives information on age in five possible columns: "AgeYears", "AgeMonths", "AgeWeeks", "AgeDays", "AgeHours". The last four variables are instructed to be used only for infants, making the age for infants very well described when given. After locating all possible infants, we removed 1,676 cases of double graves, where two people were registered in one record, e.g. infants buried together with an adult or a twin/sibling. This means our dataset is slightly smaller compared to the aggregated statistics, but it was not possible to split the two burials into two records, as the information registered primarily referred to the eldest person in the grave, leaving no age or cause of death for the younger one. Also removed were all miscarriages and stillbirths. These are exceptionally well registered in the Danish data (Woods et al., 2006), but could not be included in this comparative study since not all participating countries in SHiP had data on stillbirths. Finally, following the SHiP protocol for this study, we divided the infants into neonates, defined as children with a reported age of under 4 weeks or 28 days, and post-neonates, defined as children registered with an age of between 4 weeks, or 28 days, and a year. This division is standard in analyses of modern-day infant mortality, as neonatal and post-neonatal deaths typically have different risk patterns and the relative numerical importance of the two groups shows large differences over time and between rich and poor countries today.

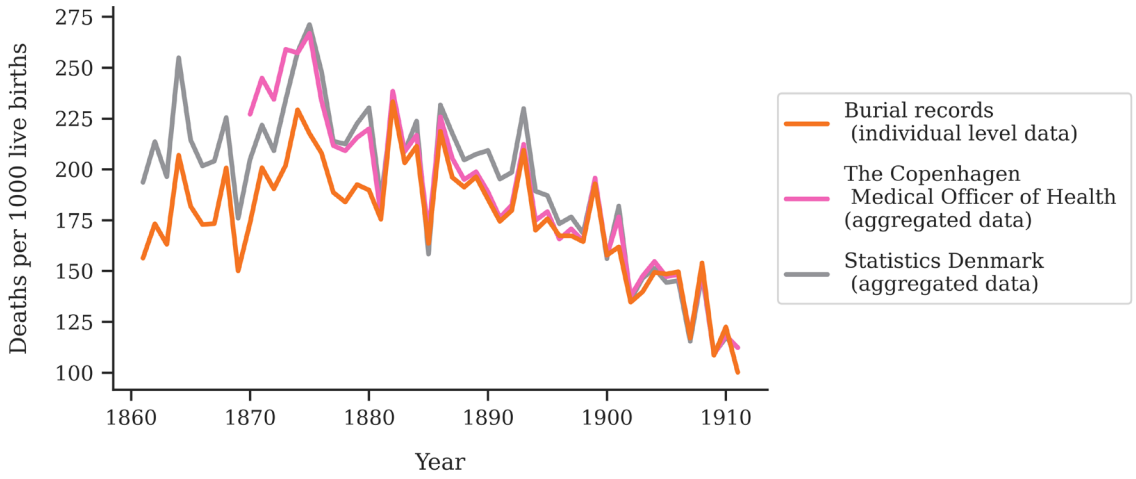
2 OVERVIEW OF INFANT MORTALITY RATES

To calculate the infant mortality rate of the deaths from the Copenhagen Burial Register, we obtained the number of live births from the published Danish vital statistics. The vital statistics feature detailed monitoring of Danish infant mortality, starting with stillbirths and live births in 1800 and from 1835 also yearly counts of infant deaths separated from deaths in other age groups, derived from the Parish Registers (Appendix Table A1, Appendix Figure A3). In addition, the Copenhagen Medical Officer of Health (*Københavns Stadslæge*) also recorded in his reports the number of infant deaths and live births in the city (Appendix Table A1, Appendix Figure A3). We decided to calculate IMRs based purely on the numbers from the vital statistics and the Copenhagen Medical Officer of Health, to

1 "Copenhagen Burial Register" is here used as the term for the entire series of volumes which hold the handwritten information of every single burial, whereas "burial record" is used as the term for the individual registration of a single burial in these volumes.

assess the completeness of our burial data and our extraction of infant deaths. Overall, the differences between the three sources are small and do not pose a challenge to interpreting long-term trends in infant mortality. Smaller differences are to be expected since the criteria for what was to be registered were not identical in the three sources. The vital statistics and the Copenhagen Medical Officer of Health registered all deaths in the city, excluding the deaths in hospitals of people travelling to the city from rural areas (Sundhedsstyrelsens Medicinalstatistiske Kontor, 1914, pp. 1–3). In contrast, the Copenhagen Burial Register was until 1887 only to register burials in the city, and not those for people who had died in Copenhagen but were buried elsewhere. However, administrative practices were rarely followed to the letter, either before or after 1887 (Revuelta-Eugercios et al., 2021, p. 21). This is evident from Figure 2, where the IMR based on the Burial Register is consistently a little lower than the IMRs based purely on the vital statistics and Copenhagen Medical Officer of Health, but from 1880 onwards is almost identical. Overall, Figure 2 and Appendix Table A1 demonstrate that we have data of a very high quality, particularly after 1880.

Figure 2 *Annual IMRs, Copenhagen 1861–1911*

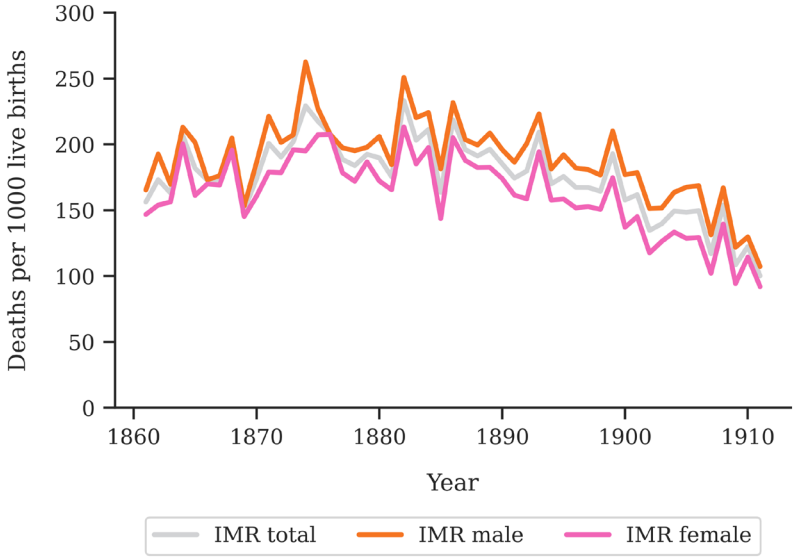


Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October), Aarsberetning ang. Sundhedstilstanden 1886, 1910, 1920 (Stadslægen i København, 1887, 1911, 1921) and Statistisk Tabelværk (Det Statistiske Bureau, 1868, 1873, 1879, 1882, 1886, 1893, Statens Statistiske Bureau 1896, 1903, 1908, 1913, Det Statistiske Departement, 1919).

2.1 OVERALL LEVELS AND TRENDS

Our data from the Copenhagen Burial Register from 1861–1911 only show the first part of the decline in infant mortality, as the largest part of the decline happens after the 1910s. Despite the annual IMRs showing very marked fluctuations during 1861–1911, it is a relatively stable period. The level of the IMR in Copenhagen was around 200 infant deaths per 1,000 live births from the 1860s to the mid-1880s, after which it started to decline, and increasingly so from around 1900 (Figure 2, Appendix Figure A4). Low mortality years during the high mortality decades from the 1860s to the 1890s saw an IMR at 150, while peak years were close to 250 infant deaths per 1,000 live births. After 1900, no peak reached 200 and the minimum seen in low mortality years started to decrease to 120 per thousand (Figure 2). Gender differences in infant mortality follow the expected trend of consistent excess male mortality (Figure 3; Alter et al., 2004, p. 327; Zarulli et al., 2018). Moreover, the difference between male and female mortality seems to remain relatively stable over the period, as the smoothed rates for five-year periods in Appendix Figure A4 underline.

Figure 3 *Annual IMRs by sex, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October) and Statistisk Tabelværk (Det Statistiske Bureau, 1868, 1873, 1879, 1882, 1886, 1893, Statens Statistiske Bureau 1896, 1903, 1908, 1913, Det Statistiske Departement, 1919).

2.2 ANNUAL FLUCTUATIONS

Given the substantial size of the dataset, the variations of the annual IMRs are not random fluctuations due to small numbers, and most of them can be explained by epidemics or very hot or cold summers. Years with a very low IMR compared to the surrounding years were 1869, 1881 and 1885. In these years, the annual medical reports from the Royal Board of Health describe cold summers with few cases of diarrhoea and *cholerine*[2] ('infantile diarrhoea'; Løkke, 1998, p. 197). Years with a particularly high IMR were 1864, 1875, 1882, 1893, 1899 and 1908. For these peaks, the medical reports do not suggest one singular explanation for all years. Instead, they indicate that a variety of different causes was to blame for each peak, in addition to the "normal" late summer outbreak of infant diarrhoea, especially during hot summers. In 1864, Denmark was at war with Prussia, and even though Copenhagen was not in the active combat zone, medical reports and contemporary statisticians discuss a significant rise in deaths among infants as well as in other age groups. The rise was thought to be the result of a synergy between several epidemic diseases, prominent among them typhus, scarlet fever and diphtheria, which were provided with ideal transmission opportunities by the war (Det Statistiske Bureau, 1868, p. XII; Løkke, 1998, p. 196; Statens Statiske Bureau, 1905, p. 157). The peak in 1875 is explained by a very warm summer with many cases of infantile diarrhoea. Also mentioned are smallpox, measles, whooping cough and influenza. The peak in 1882 is seen to be influenced by a combination of measles and scarlet fever, whereas peaks in the 1890s are explained by a significant rise of infantile diarrhoea, especially in 1893 and 1899, together with outbreaks of more-than-usually-virulent diphtheria (Det Kongelige Sundhedskollegium, 1905a).

3 CAUSES OF DEATH

3.1 THE REGISTRATION OF THE CAUSES OF DEATH

The 306,541 burials from the Copenhagen Burial Register 1861–1911 contain over 10,000 unique expressions of causes of death. These were typed by volunteers supervised by a super-user, using dropdown menus which pooled together spelling variations of known causes ("anemia, anæmia, etc." or "katarr, catarrh"), but also allowed for free text entries (Revuelta-Eugercios et al., 2021, p. 11).

2 *Cholerine,* which by wording alone would translate to 'cholera', is a Danish cause of death used only for infantile diarrhea (Secher, 1921).

The causes of death in the Copenhagen Burial Register were originally copied from the death certificates in the 18th and 19th centuries as part of an administrative process to avoid the (accidental) burial of asphyxiated people. In 1829, death certificates were introduced by the Copenhagen authorities, and no priest was allowed to officiate a burial of a deceased until a certificate had been issued by an authorized doctor, testifying that evidence of death was certain and beyond doubt (B. Johansson, 1946, p. 48). From 1832, doctors were instructed to also include a cause of death on the death certificate, as accurately as their knowledge and abilities permitted (B. Johansson, 1946, p. 56). In an attempt to improve the quality of the information in the death certificates, and thereby the aggregated mortality statistics, the Royal Board of Health issued an instruction to doctors in 1875 on how to correctly fill out the certificates: the cause of death was to be given with the use of terms from the nomenclature, and the doctors were to stay away from "terms of pathological symptoms or an entry of the final phenomenon of the diseases (embolism, heart failure, etc)" (Det Kongelige Sundheds-Collegium, 1875, p. 4). In addition, it was strongly advised that the doctors were consistent in their use of the cause of death terms: "so that Children, who die of Diarrhoea, is not one time noted as dying of acute Diarrhoea (Nr. 11 in the mortality table), another time of Enteritis or Colitis (Nr. 87 in the mortality table)." (Det Kongelige Sundheds-Collegium, 1875, p. 4). As a result of the legislation, all deaths in Copenhagen from 1829 onwards were recorded in death certificates by physicians and, from 1832, contained a cause of death. The system for recording and registering the causes of death was uniform and well organized, and together with the instructions to the doctors ensured cause of death data of a very high quality.

In relation to how the cause of death was transferred from the death certificate to the burial register, an earlier study compared the information in the death certificates and the burial registers. They found that the causes of death are described in more detail in the death certificates, whereas personal information is often more detailed in the burial records (Revuelta-Eugercios et al., 2021, p. 22). Therefore, the authors recommend analysing the death certificates and burial records in tandem. As the transcription of the death certificates is still ongoing, this has not been possible in this study.

3.2 THE PROCESS OF CODING

For this article, we did not perform any additional cleaning but manually coded each unique cause of death on a frequency list to ICD10h (and thereby to ICD10), and to the contemporary Danish classification system DK1875. The ICD10h system is based on English historical causes of death and follows the principle of coding causes of death by the wording, not meaning, to avoid unwanted levels of disease interpretation. As part of the principle of coding by wording, the ICD10h system codes different terms separately, in order to track the different terminologies and the use of older medical terms over time and between locations (Janssens, 2021). We also coded the unique causes of death to the Danish classification of 1875, which was first applied in the published cause of death statistics on January 1st, 1876 (B. Johansson, 1946, p. 167). In this article, we use the Danish classification only for examining the performance of ICD10h, and it will not be analysed on its own, following the SHIP protocol for this study as mentioned earlier.

We have coded 27% of the unique causes of death for infants, which accounts for 95% of the burials. Even though individuals might have more than one cause of death, we use just the first one listed. Using a set of checks, we tested what would happen if we used only the second cause, but the results of the paper remained unchanged. After coding the unique causes of death, we then grouped them into the broad causal groups defined for this comparative SHiP study: congenital and birth disorders, weakness, convulsions, water-food-borne, teething, air-borne, other infectious, other non-infectious, external causes, ill-defined, unknown and blank (no entry given).[3] The two causal groups 'teething' and 'external causes' are not visible in any of our figures because the numbers are very low (there are, respectively, none and fewer than 400 cases throughout the period), and have therefore not been included in the legends for the figures. The way we have coded and grouped each unique cause of death to ICD10h and the SHiP causal groups is outlined in Appendix Table A10.

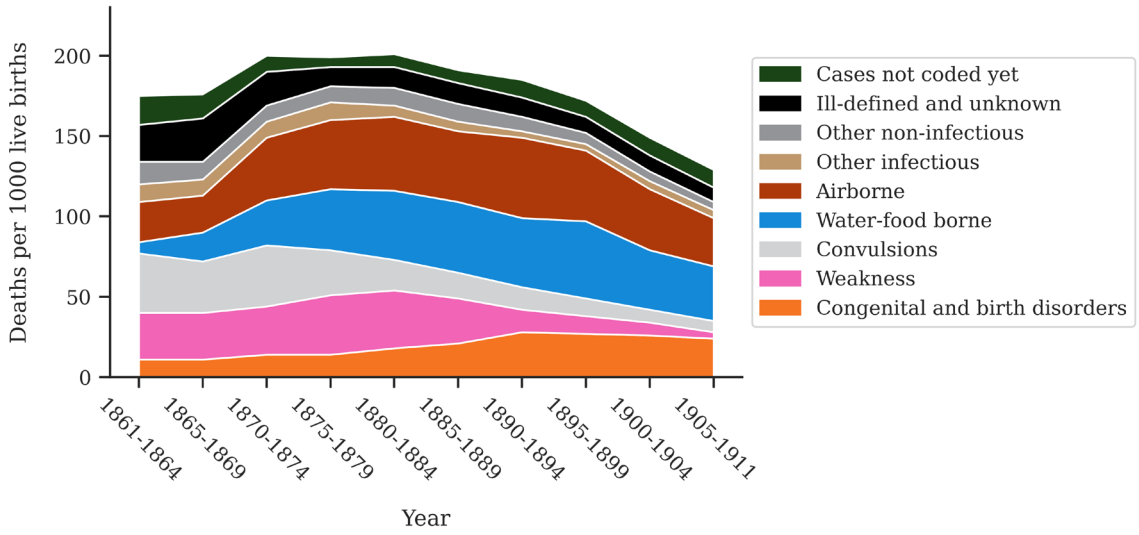
3 We have combined the two causal groups 'ill-defined' and 'unknown and blank' for this paper, as the numbers were very small.

3.3 OVERALL LEVELS AND TRENDS

During the period of the study (1861–1911), the cause of death pattern changed only slightly for infants in Copenhagen, but overall the symptomatic causes of death seem to give way to the more informative causes. The causal groups 'convulsions', 'weakness', and 'ill-defined and unknown' declined from 88 deaths per 1,000 live births in 1861 to 19 deaths per 1,000 live births in 1911 (Figure 4, Appendix Table A5). At the same time, the 'airborne', 'water-food borne' and 'congenital and birth disorders' causal groups rose from 43 deaths per 1,000 live births in 1861 to 88 deaths per 1,000 live births in 1911. The largest changes in the cause of death pattern occurred at the beginning and the end of the period. At the beginning of the period, there is a noticeable shift from the 1870s onwards, which is likely to do with the introduction of a new nomenclature and classification in 1875, and the introduction of the earlier-mentioned instructions to the doctors on how to fill out the certificates. We still do not know enough about this, and it therefore requires further investigation. At the end of the period, particularly from 1890 onwards, there is a marked increase in the 'congenital and birth disorders' causal group, which seems to almost take over from the causal group 'weakness' (Figure 4, Appendix Table A5). However, on closer inspection, this is not because of a development in diagnostics or a change in mortality patterns. The change is caused by the fact that the two major causes of death in these groups are two words for the same cause of death in the Danish context — *atrophia infantilis* (infantile atrophy) and *atrophia* (atrophy) — and one seems to take over from the other. Because of the ICD10h principle of coding by the wording (Janssens, 2021), the two causes of death end up in two different causal groups: *atrophia* is allocated to the causal group 'weakness', whereas *atrophia infantilis* is allocated to the causal group 'congenital and birth disorders'. Given the importance of this for the principles of coding and interpretation, we return to this phenomenon later in the article.

The overall pattern and development follow Løkke's earlier findings in her study of infant mortality based on the aggregated cause of death statistics. Studying a slightly longer period, from 1835–1920, Løkke demonstrated that the share of specific illnesses in the causes of death rose from around a quarter in 1836–39 to around two-thirds in 1915–1919 (Løkke, 1998, p. 57). Løkke suggested that the reason for this was that the symptomatic causes, such as atrophy and convulsions, were going out of fashion as more precise diagnoses that described actual illnesses, such as infantile diarrhoea (in particular *cholerine*), were introduced by medical science and became more frequently used. The re-categorization of the causes of death for infants was thus closely connected to research into the prevention and treatment of these illnesses, in particular for gastrointestinal diseases (Løkke, 1998, pp. 55–68, 1999, pp. 55–73).

Figure 4 *Quinquennial IMRs by causal groups, Copenhagen 1861–1911*



Source: As Figure 3.

Note: The first period includes only four years, and the final period includes seven years.

3.4 THE LARGEST CAUSAL GROUPS

Throughout the period 1861–1911, the largest killers of the infants in Copenhagen were the 'airborne' and 'water-foodborne' causal groups, followed by 'congenital and birth disorders', 'weakness' and 'convulsions' (Figure 4 and Appendix Table A5). However, while the 'airborne' and 'water-food borne' causal groups are twice as big as each of the other three, it should be noted that they consist of a combination of different causes of death, whereas the 'convulsions' and 'weakness' causal groups are dominated by one specific cause of death (cramps and atrophy respectively).

The 'water-food borne' causal group experienced an increase from 7 deaths per 1,000 live births in 1860–1864, to roughly around 40 deaths per 1,000 live births for the rest of the period, with a peak in the years 1895–1899 where it reached 48 deaths per 1,000 live births (Appendix Table A5). The rise and subsequent consistent size of the 'water-food borne' causal group was likely caused by a combination of deaths transferred from cramps and atrophy as well as an actual rise in water-food borne diseases related to the rapid growth of the city (Løkke, 1998, p. 63). Interestingly, there is hardly any decline at the end of the period, despite the implementation of a state-of-the-art water system in the 1890s, with water supply from artesian drillings to deep sources and the implementation of effective wastewater sewers, even as the IMR declined overall. However, we think that this phenomenon is to be expected in low infant mortality regions like Denmark, where prolonged breastfeeding was prevalent and many infants were kept away from drinking water until well into their second or third year of life (Løkke, 2002). Davenport et al. (2019) have also shown that infant mortality was not very responsive to these hygienic interventions. The main decline for the 'water-food borne' causal group happened from 1905 and onwards, outside the period of our study. Although medical interest in these diseases started in the 1870s, it gained greater hold between the years 1900 and 1920 accompanied by a focus on treatment and prevention (Løkke, 1998, p. 63).

Both the 'congenital and birth disorders' and 'airborne' causal groups remain large throughout the period, as they were difficult to prevent and did not get much medical attention until after the decline of the 'water-food borne' causal groups. The main cause of death in the 'congenital and birth disorders' causal group is given as *for tidlig født* (prematurely born), which remained a challenge for medical science throughout our period, while many of the other causes of death become better diagnosed or even treatable. The same goes for the 'airborne' causal group which did not get much medical attention until the overall infant mortality declined and, in particular, the mortality from the 'water-food borne' deaths declined (Matthiesen, 1964, pp. 26–27).

4 NEONATAL AND POST-NEONATAL MORTALITY

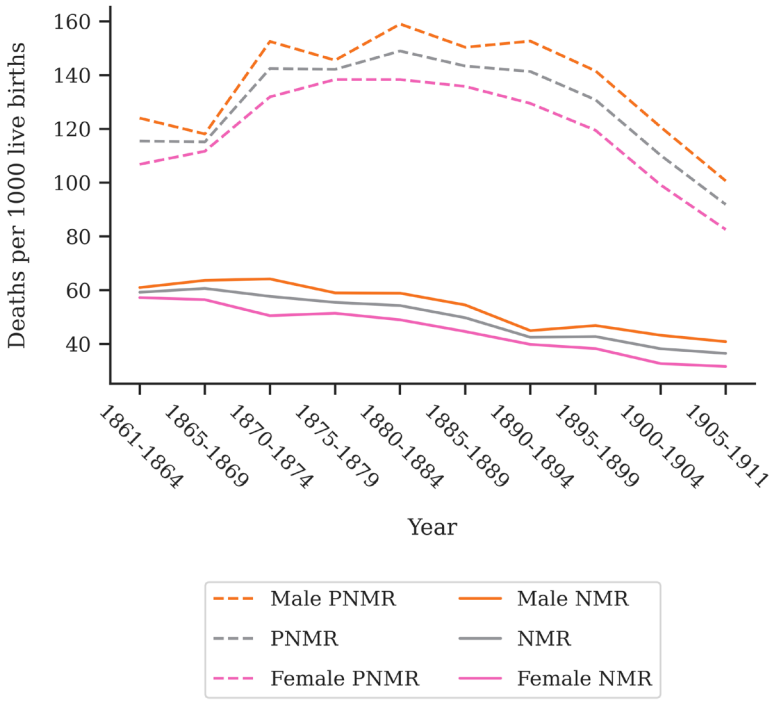
There were over 2.5 times as many post-neonatal deaths (58,660) than neonatal deaths (21,861) in Copenhagen in the period 1861–1911, meaning that any analysis of all infants under the age of one is very much dominated by the development and trends amongst the post-neonates. Mortality during the first year is therefore divided into neonatal and post-neonatal mortality to examine the differences in exposure to risk factors and the numerical importance within the two age groups. Neonatal mortality rates are calculated as the number of infants who died aged 0–28 days in a particular period, divided by the number of births in that period, multiplied by 1,000. Post-neonatal mortality rates are calculated as the number of infants who died aged 29–364 days in a particular period, divided by the number of births in that period, multiplied by 1,000.

4.1 OVERALL LEVELS AND TRENDS

Between 1861 and 1911, both the neonatal mortality rate (NMR) and the post-neonatal mortality rate (PNRM) in Copenhagen experienced an overall decline, as shown in Figure 5 (see also Appendix Table A6). However, while the NMR experienced a steady decline throughout, from 59 to 37 deaths per 1,000 live births, the PNMR experienced a significant rise in the first half of the period, from 116 to 149 deaths per 1,000 live births, before then stagnating and declining from the late 1880s, settling on 92 deaths per 1,000 live births in 1905–1911. As the rise in PNMR happened simultaneously with the steady decline of the NMR, the PNMR constituted an increasingly larger percentage of all infant deaths, from 66% in 1860–1864 to 77% in 1890–1894. After this, the PNMR and NMR converged as they both declined, but never reached the same level of proximity as in the first five years of the period

(Appendix Table A6). There are only a few differences between the sexes regarding the overall trends for both the neonatal and the post-neonatal age groups (Figure 5). Male rates are higher than female rates, which is consistent with boys reacting more strongly to negative influences such as exposure to illnesses and bottle feeding. The overall rise in PNMR, including the three small peaks for the male PNMR, suggests that the rapid growth of the city was harder on the post-neonates than the neonates, and even harder for the post-neonatal males. This will become even more visible as we look at the cause of death patterns for the two age groups.

Figure 5 *Quinquennial NMRs & PNMRs by sex, Copenhagen 1861–1911*



Source: As Figure 3.

Note: The first period includes only four years, and the final period includes seven years.

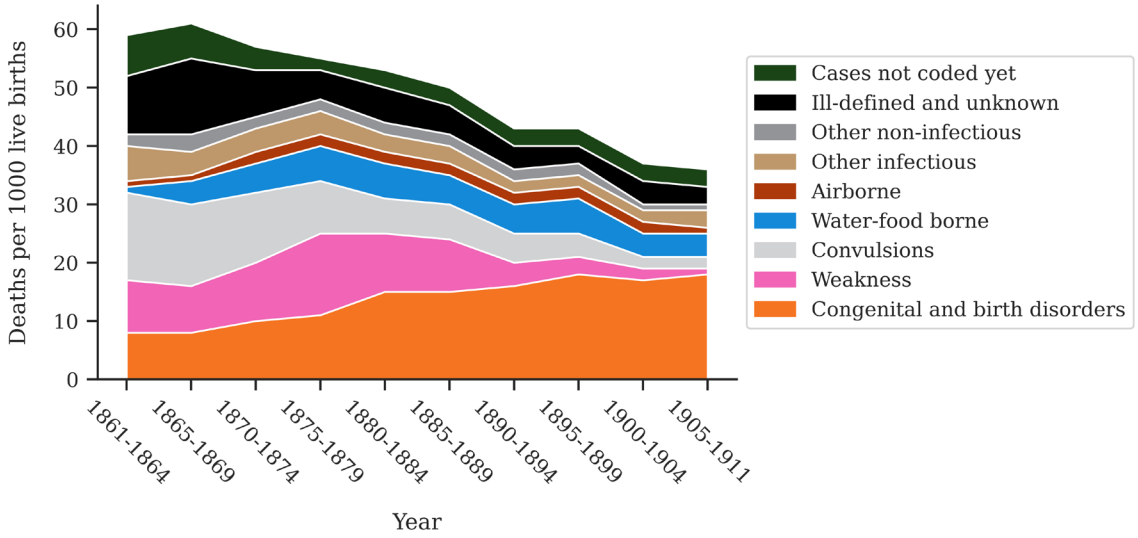
4.2 NMRs AND PNMRs BY CAUSE OF DEATH

The mortality pattern for the neonatal and post-neonatal age groups reflects the overall trends in infant mortality, with a change from more symptomatic to more specific causes of death.

The decline in neonatal mortality is not dominated by any specific causal group, but rather a decline across all groups, except for 'congenital and birth disorders' which experience a large increase throughout the period (Figure 6, Appendix Table A7). The dominant causal groups at the beginning of the period ('convulsions', 'weakness', and 'ill-defined and unknown') all diminish over time, with the exception of a temporary rise in 'weakness' in the 1870s. At the same time 'congenital and birth disorders' experienced a significant rise, covering approximately 50% of the deaths by the end of the period. This is primarily because the main cause of death in the 'congenital and birth disorders' causal group is *for tidlig født* (prematurely born), which increases in number as the 'weakness' causal group declines, as more and more premature infants are given the cause of death 'prematurity' instead of 'atrophy'.

The rise in post-neonatal mortality is dominated by a significant increase in the causal groups 'airborne' and 'water-foodborne' (Figure 7, Appendix Table A8). At the same time, the causal groups 'convulsions' and 'weakness' see an overall decline, except for a small peak in 'convulsions' in 1870–1874. The small peak in 'congenital and birth disorders' around 1885–1895, which only declines slightly afterwards, is most likely caused by a change in diagnostic terms of atrophic causes of death, which we will return to later. As seen in the IMR for all infants, there is very little decline in the 'water-food borne' and 'airborne' causal groups, despite an overall decline in post-neonatal mortality from 1880 onwards. A large number of 'airborne' and 'waterfood-borne' diseases seem to indicate that the post-neonates were more at risk in the city.

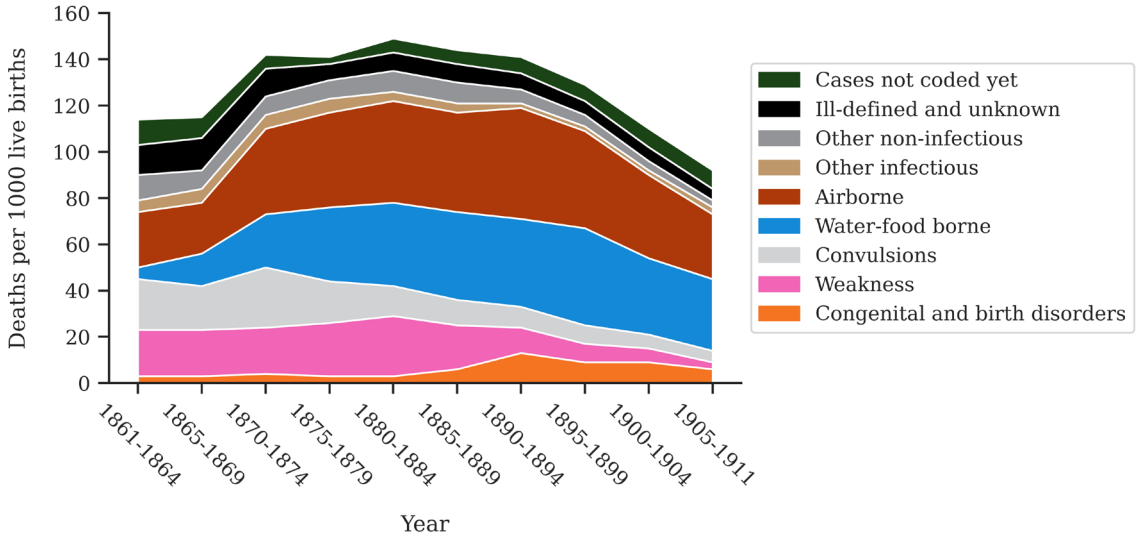
Figure 6 *Quinquennial NMRs by causal groups, Copenhagen 1861–1911*



Source: As Figure 3.

Note: The first period includes only four years, and the final period includes seven years.

Figure 7 *Quinquennial PNMRs by causal groups, Copenhagen 1861–1911*



Source: As Figure 3.

Note: The first period includes only four years, and the final period includes seven years.

It is clear from Figures 6 and 7 that certain causal groups are quite age-specific, such as the 'airborne' and 'water-foodborne' causal groups, which are much more dominant in the post-neonatal age group. The causal group 'ill-defined and unknown' seem to be used more for the neonates, but by the end of the period, the two age groups have approximately the same proportion. 'Congenital and birth disorders' is used almost exclusively for neonates, in particular during the first half of the period. Looking at the changes in the cause of death patterns for the two age groups, the shifts do not seem to have a clear connection to the increase and decline in the NMR and PNMR. While the cause of death pattern changes significantly for the post-neonates in the late 1860s to the early 1870s as mortality increases, it does not change again as mortality starts to decline. For the post-neonates, the cause of death pattern seems to change slowly over time until around 1890, when 'weakness' declines drastically. This is caused by a change in terminology as mentioned earlier, moving from 'atrophia' to 'atrophia infantilis', to which we will return later.

Despite the differences in levels and trends, the neonatal and the post-neonatal age groups both have a similar overall development in the cause of death patterns, as the more vague and symptomatic

causes of death decline and the more specific causes of death increase. As part of this trend, it would seem that, over time, deaths that were earlier being classified as 'convulsions' and 'weakness' were more likely to be classified as 'water-food borne' for the post-neonates and as 'congenital and birth disorders' for the neonates. This is in accordance with Løkke's analysis of the aggregated cause of death statistics, which shows that the share of deaths assigned to causes that can be considered a specific illness increases from 25% to approximately 75% from the 1830s to 1915–1918 (Løkke, 1998, p. 65). This suggests that the physicians were improving their diagnostics, and the data from the Copenhagen Burial Register seems to suggest that it happens a little faster for the post-neonates than for neonates.

5 SEASONALITY

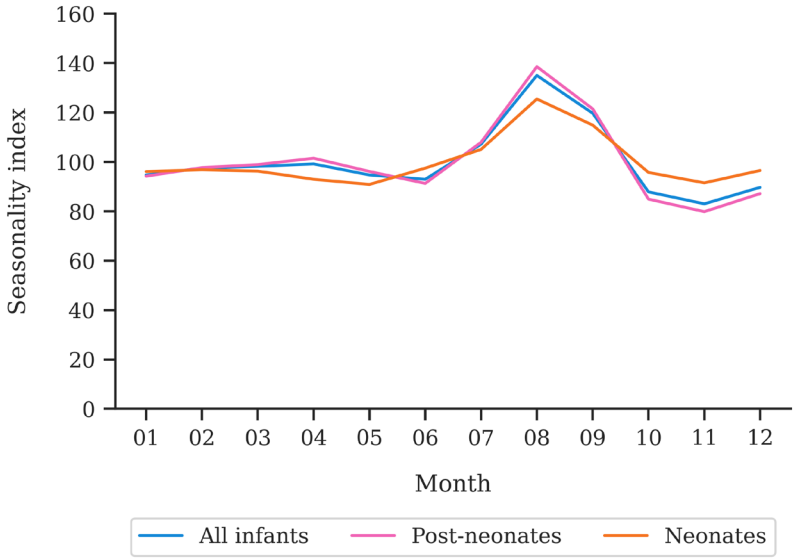
The indices of seasonality are based on counts of deaths rather than rates, a calculation established in the SHiP collaboration. Seasonality is calculated as follows:

For each month: $\frac{no\ of deaths\ in\ the\ month \div total\ deaths\ in\ year}{no\ of\ days\ in\ the\ month \div 365.25} \times 100$

5.1 LEVELS AND TRENDS OF SEASONALITY

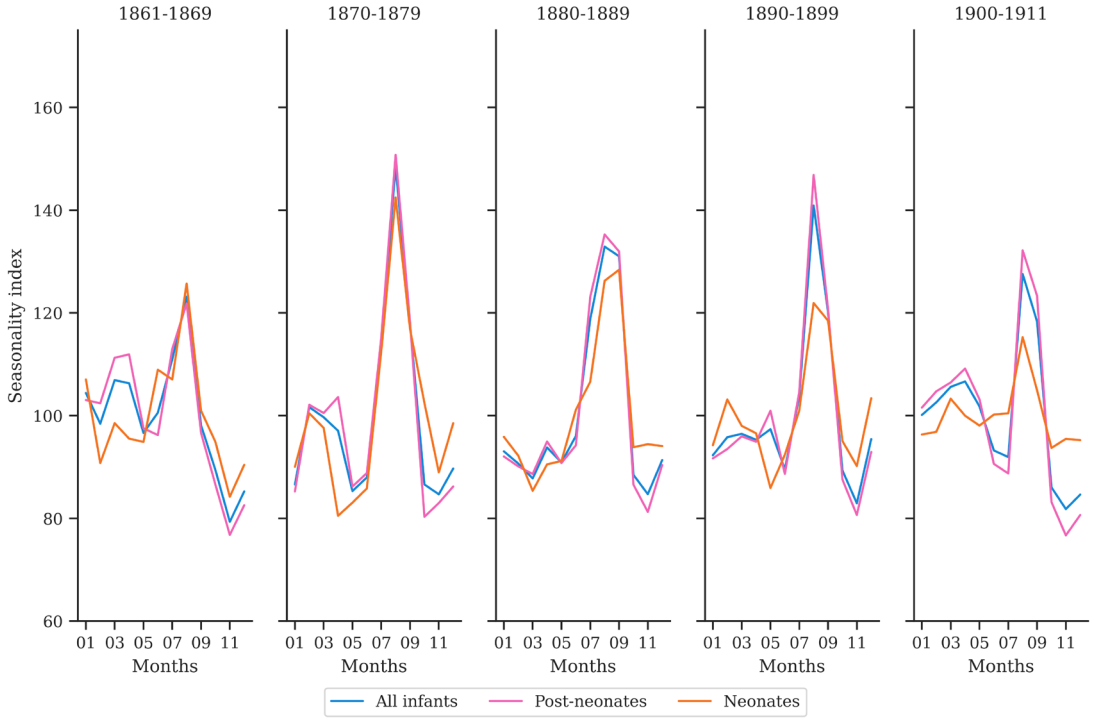
The seasonality pattern indicates higher mortality in July–September, with comparatively fewer deaths in October–November, but with no clear indication of a winter peak (Figure 8). This is the case for both neonates and post-neonates, who have a very similar pattern when looking at all the years combined. However, when looking at how seasonality changes over the decades, the two age groups experience different developments. As the fluctuations for neonatal mortality seem to flatten out over time, the post-neonates still experience high fluctuations in seasonality by the end of the period (Figure 9), and thus seem to be more affected by seasonality than neonatal mortality over time.

Figure 8 *Seasonality of infant, neonatal and post-neonatal mortality, Copenhagen 1861–1911*



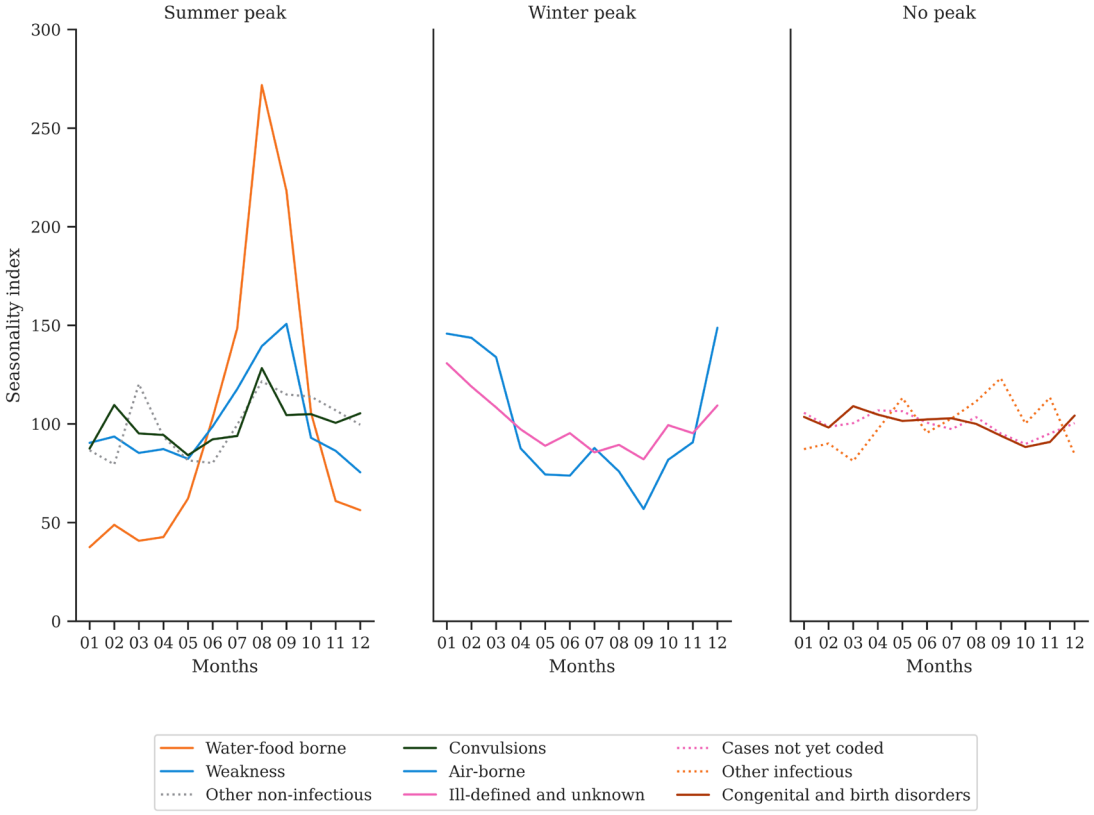
Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Figure 9 *Seasonality of infant, neonatal and post-neonatal mortality by decades, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

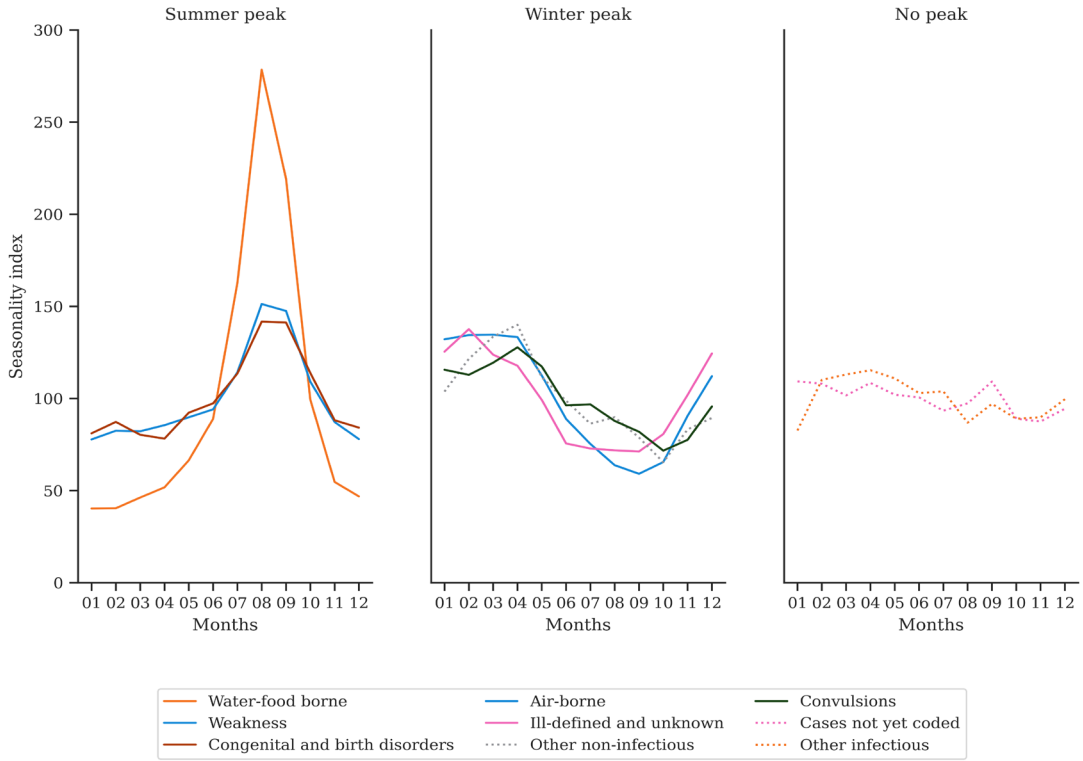
Figure 10 *Seasonality of neonatal mortality by causal groups, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Note: The dotted lines are causal groups with fewer than 5,000 cases throughout the period for all infants, making them relatively small compared to the others that range between 6,000–18,500 cases each throughout the entire period for all infants.

Figure 11 *Seasonality of post-neonatal mortality by causal groups, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Note: The dotted lines are causal groups with fewer than 5,000 cases throughout the period for all infants, making them relatively small compared to the others that range between 6,000–18,500 cases each throughout the entire period for all infants.

As seen in Figures 10 and 11, as well as Appendix Figure A9, most of the causal groups have quite distinct seasonality patterns even though the intensity differs in the two age groups. For both age groups, it is evident that the late-summer peak in July–September is driven primarily by the 'water-food borne' causal groups. The largest causes of death within this causal group are *diarrhoea*, *cholerine,* and *catarrh*, which fits well with the earlier-mentioned descriptions from the medical reports of hot summers and infant diarrhoea. For post-neonatal mortality, 'weakness' and 'congenital and birth disorders' also have clear summer peaks, and seem to follow each other almost identically. This is most likely because of the cause of death *atrophy*, which, depending on its terminology, will end up in either 'weakness' or 'congenital and birth disorders'. For neonatal mortality, there is a similar substantial summer peak for 'weakness', but 'congenital and birth disorders' does not seem to have any significant seasonality for this age group. Despite the winter-spring peaks being less clear in Figures 8 and 9, the causal groups 'air-borne' and 'ill-defined and unknown' in both age groups seem to have a peak in November–March, as shown in Figures 10 and 11. For post-neonatal mortality, this is also the case for 'ill-defined and unknown', although it seems to peak slightly later for the post-neonates than for neonates.

Overall, these patterns of mortality could indicate that 'weakness' has a connection to the 'water-food borne' diseases for both age groups, whereas 'congenital and birth disorders' only seem to be connected to the 'water-food borne' diseases in post-neonatal mortality. This suggests that some infants succumbing to water and foodborne diseases may have been registered with congenital and birth disorders as the main cause of death, even if the actual death was caused by infant diarrhoea. Also, the trends for the winter seasonality causal groups could suggest that 'ill-defined and unknown' could have a connection to 'airborne'. The only causal group that has quite different patterns of seasonality across the two age groups is 'convulsions', which peaks in the late winter to early spring period for both age groups, but interestingly also in the summer for neonatal mortality. This indicates that convulsions are not clearly connected to any specific causal group, but are used for a range of conditions which later become very different specific illnesses.

6 THE CASE OF ATROPHY

As previously mentioned, the atrophic causes of death create some challenges in our analysis, as the different terms are split across two causal groups in the ICD10h, but in the Danish context seem to be used identically. To look into this further, we decided to create an individual causal group for the atrophy deaths, locating them by searching for the text strings "atroph" and "tæring" in the cause of death variable.

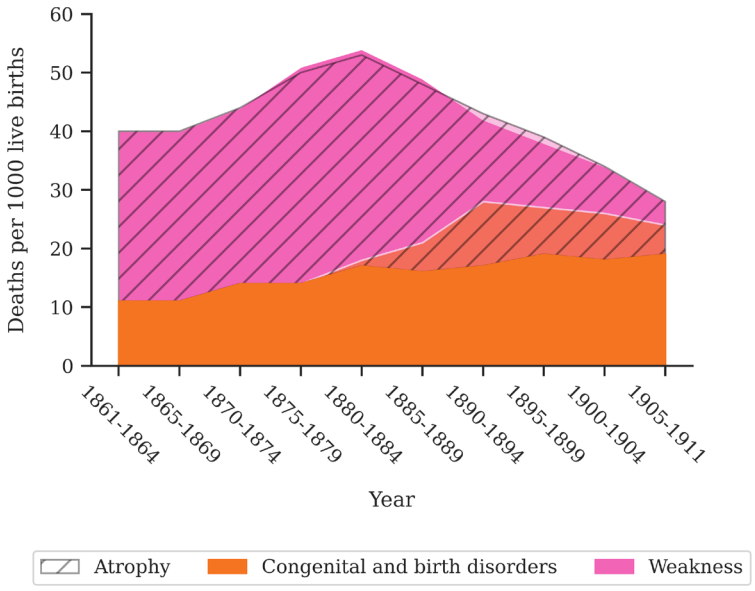
6.1 THE DIFFERENT TERMS AND THEIR USE

Atrophy was the largest individual cause of death for infants in Copenhagen 1861–1911 (see Appendix Table A10). It is registered under the terms *atrophia, atrophia infantilis, atrophia congenita,* and *tæring (*'wasting') in the burial records. Despite the different terms, which are all taken directly from the official classifications (except for *atrophia congenita*), these all end up in the same cause of death category in the published cause of death statistics. Until 1860, the Danish classification systems placed atrophy in adults and children in the same category. In 1860 *atrophia infantilis* was added in parenthesis to the code in the classification, and from then on adults were no longer included in the same category (Løkke, 1998, p. 61). In the new 1875 classification, atrophy was categorized as *Tæring hos Smaabørn* ('Wasting in infants') or, in Latin, *Atrophia infantilis*.

During the 19th century, physicians and statisticians were already complaining about 'atrophy' being a very problematic diagnosis and cause of death, despite its widespread use ((Det Kongelige Sundhedskollegium, 1905a, p. 4). It was very often left out of in-depth statistical calculations, and it was speculated that the numbers for atrophy were too high, possibly covering several other diseases (Det Kongelige Sundhedskollegium, 1905b, p. 4; Det Statistiske Bureau, 1890, p. III). Atrophy describes a condition where a child never thrived or began not to thrive, before eventually dying. As such, it was more specific than 'cramps', as it was not only a symptom but also a state of being that was considered sickly (Løkke, 1998, p. 61).

Together, the four atrophic causes of death (*atrophia, atophia infantilis, atrophia congenital* and *tæring*) increased from 29 infant deaths per 1,000 live births in 1860–1864 to a peak of 36 deaths per 1,000 live births in 1875–1884, and then slowly decreased to 9 infant deaths per 1,000 live births in 1905–1911 (Figure 12). As described earlier, the literal word/expression approach to coding in ICD10h has allocated the same cause to two causal groups. *Atrophia* is assigned to 'weakness' and *atrophia infantilis, tæring,* and *atrophia congenita* are assigned to 'congenital and birth disorders' (see Appendix Table A10). As seen in Figure 12, the atrophic causes of death constituted the majority of the 'weakness' causal group throughout the entire period, but also a significant part of the 'congenital and birth disorders' causal group in the last part of the period.

Figure 12 *Infant deaths from atrophic causes of death according to causal groups, Copenhagen*

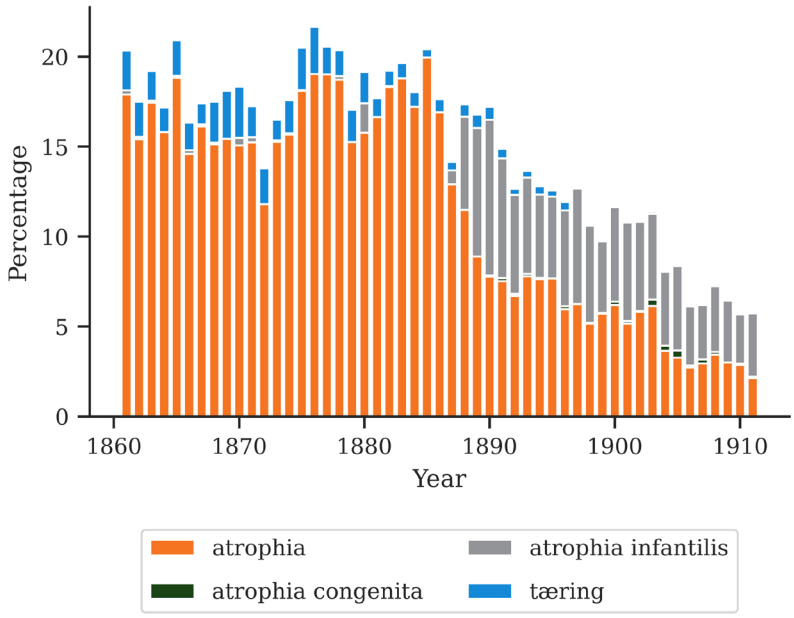


Source: As Figure 3.

Note: The first period includes only four years, and the final period includes seven years.

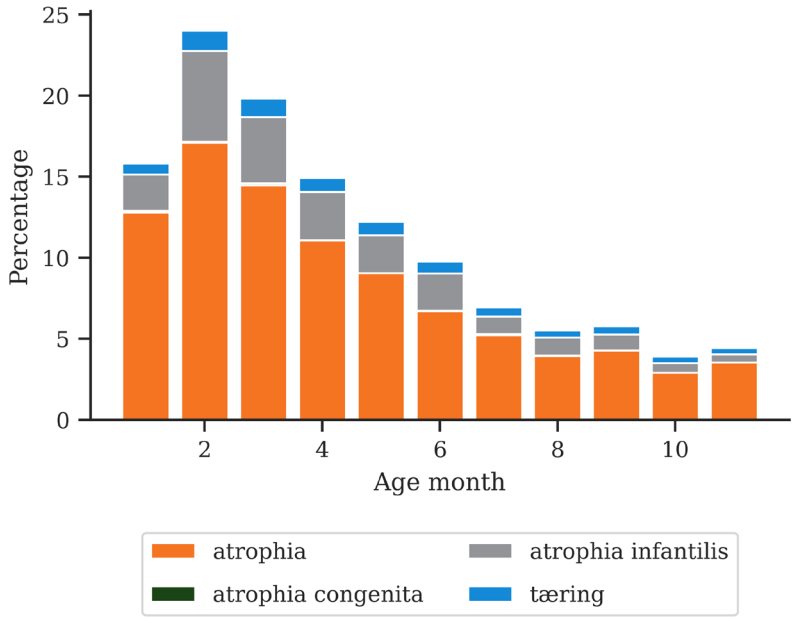
When looking into the different versions of atrophy that were used over time, it is clear that while *atrophia* was used throughout the period, *atrophia congenita* and *atrophia infantilis* seem to be new terms primarily coming into use from the late 1880s onwards, as we see in Figure 13. However, there is still a large percentage of burials with *atrophy* as a cause of death after the 1880s when the new terms start to occur. The new terms from the 1880s could be a way for 19th and 20th century doctors to distinguish between newborns and older infants. However, looking at how the different terminologies were used across the infants' ages at death, this is not entirely clear. From 1887 onwards *atrofia infantilis* was used slightly more for infants dying at 1–3 months of age, and then increasingly less so as the ages increase. However, it was not used very often for neonatal deaths, partly because atrophic causes were not used much in general for this age group, since other causes of death were much more dominant, such as *debilitas congenita* 'congenital debility' and *for tidlig født* 'prematurely born' (Figure 14).

Figure 13 *Yearly percentage of atrophic causes of death for infants in the Copenhagen Burial Records 1861–1911*



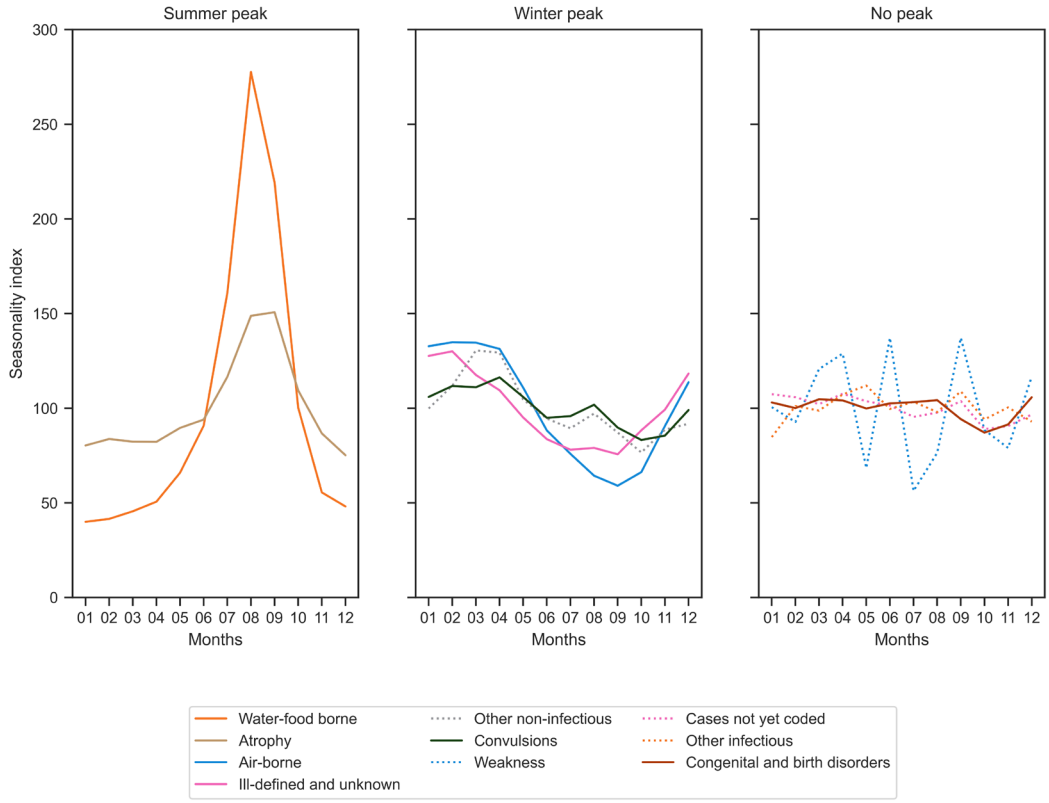
Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Figure 14 *Percentage of atrophic causes of death for age at death for infants in the Copenhagen Burial Records, 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Figure 15 *Seasonality of atrophic causes of death for infants in the Copenhagen Burial Register 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Note: The dotted lines are causal groups with fewer than 5,000 cases throughout the period for all infants, making them relatively small compared to the others that range between 6,000–18,500 cases each throughout the entire period for all infants.

Examining the seasonality of the atrophy causal group might make clearer what underlying diseases the causal group might be including. As shown in Figure 15, atrophy has a clear summer peak, together with the 'water-food borne' causal group. This is to be expected, since the majority of the atrophy cases are located in the 'weakness' category for both neonatal and post-neonatal deaths, which also had a summer peak (as seen earlier). However, it is significantly higher than the 'water-food borne' causal group for the rest of the year, and therefore likely covers several different types of diseases.

Considering all these results, the different atrophic cause of death terms do not seem to have been used differently but, conversely, seem to record the same thing. They are all used to describe the same cause of death in the classifications, except for *atrophia congenita* which is rarely used in the burial records. Despite new terms appearing, the old one, *atrophia,* does not stop being used, and the four terms do not seem to differ depending on age at death. Only for the children aged less than a month at death does *atrophia* seem to be used a little more than *atrophia infantilis.* Finally, the atrophic causes of death have a clear summer peak in the pattern of seasonality, resembling the 'water-food borne causal' group. We would therefore recommend the creation of an 'atrophy' causal group that pulls together these different terms, as they seem to record the same underlying condition all through infancy.

7 CONCLUSIONS

This study has examined the dominant cause of death patterns of infants in Copenhagen using the ICD10h coding system, and explored how the ICD10h coding system performs when applied to Danish historical causes of death. As this article is part of a collaborative project within the SHiP network, the key comparative conclusions will be in the introductory chapter to the special issue.

In our study period, the cause of death pattern barely changed when looking at the causes of death through the SHiP causal groups, despite an initial increase and then onset of a distinct decline in the level of infant mortality. A transition from symptomatic to more specific causes of death can be seen, but primarily in the first part of the period, after which the cause of death pattern is relatively stable. It is intriguing that the cause of death patterns change so little despite the rise and fall in mortality rates, and that the overall mortality decline is not driven by any specific causal group; instead there is a simultaneous decline across all groups. This indicates that while the many hygienic measures that were introduced in the late 18th and early 19th century may have had an effect on the overall decline, they did not directly influence any one of the causal groups. This needs further investigation, and a first step would be to look closer at the individual causal groups to see how, and whether, the individual causes of death change.

Post-neonatal mortality made up an increasingly larger share of infant deaths over the period. This makes it clear that in Copenhagen the problem was post-birth diseases, particularly after the first month, rather than the birth itself. This is also evident from the cause of death patterns, as the largest killers of infants over time were the 'airborne' and 'water-food borne' causal groups, which were primarily dominant amongst the post-neonates.

This is the first historical study to look at cause-specific seasonality in Danish infant mortality. It confirms contemporary physicians' observations of large summer peaks because of water-food borne diseases, especially infant diarrhoea, and smaller winter/spring peaks mainly due to airborne diseases, such as lung infections. There is a clear seasonality for all the major causal groups, and only very few differences between neonates and post-neonates, except for the causal group 'convulsions', which acts very differently across the two age groups. For the neonatal period, the seasonality suggests 'convulsions' may be connected to 'water-food borne', while in the post-neonatal period it shows the same pattern as 'airborne'. More research is needed to understand these differences.

Based on our data on burials in Copenhagen from 1861 to 1911, the ICD10h system has proven to be a useful way to code and examine Danish 19th century unique expressions of causes of death for infants. This is despite the fact that ICD10h is a classification system made for modern-day usage adapted to English 19th century unique cause of death expressions. This is very promising, since fruitful international comparisons are dependent on classification systems that perform well across a range of different languages and health care systems. However, we have also detected challenges in using ICD10h in the Danish context in terms of specific Danish use of causes of death such as *cholerine* 'infantile diarrhoea', and changing terminologies and 'false friends' across languages such as the atrophic causes of death. These challenges disturbed the comparability, and thus more work needs to be done to learn how to handle these.

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Det Statistiske Bureau. (1879). *Statistisk tabelværk, fjerde rk., litra a, no 1. vielser, fødsler og dødsfald i aarene 1870–1874* [Statistical tabulations, fourth row, litra a, first volume, marriages, births and deaths in the Kingdom of Denmark in the years 1870–1874]. Bianco Lunos Bogtrykkeri.

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APPENDICES

Table A1 *Basic descriptives for Copenhagen 1861–1911*

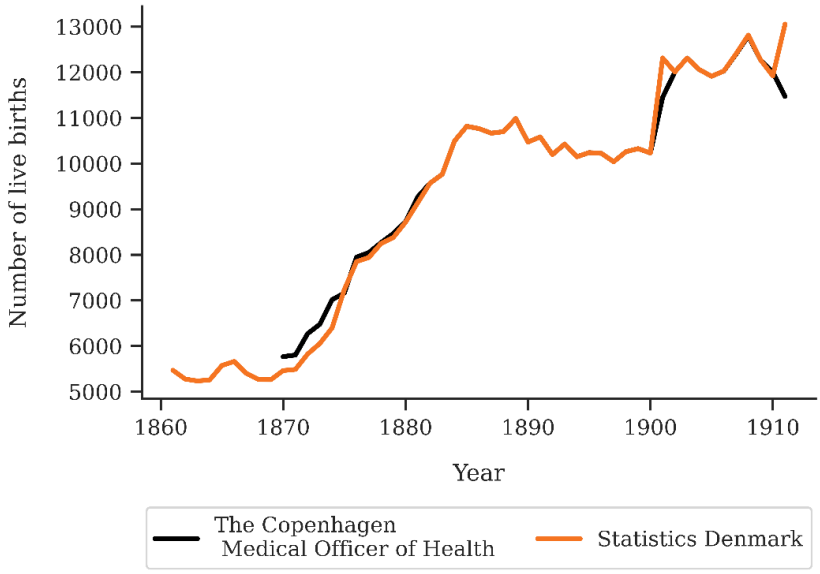
Year	Population of Copenhagen in census years	Infant deaths							Live births				Stillbirths		Miscarriages
	Statistics Denmark	Total *Copenhagen burial records*	Total *Statistics Denmark*	Total *The Copenhagen Medical Officer of Health*	Male *Copenhagen burial records*	Male *Statistics Denmark*	Female *Copenhagen burial records*	Female *Statistics Denmark*	Total *The Copenhagen Medical Officer of Health*	Total *Statistics Denmark*	Female *Statistics Denmark*	Male *Statistics Denmark*	*Copenhagen burial records*	*Statistics Denmark*	*Copenhagen burial records*
1861	-	855	1,059	-	462	580	393	479	-	5,469	2,676	2,793	154	245	0
1862	-	914	1,127	-	496	607	416	520	-	5,276	2,702	2,574	154	232	0
1863	-	854	1,028	-	451	547	403	481	-	5,235	2,578	2,657	155	244	0
1864	-	1,088	1,340	-	572	722	516	618	-	5,258	2,574	2,684	136	217	0
1865	-	1,014	1,196	-	571	682	442	514	-	5,574	2,741	2,833	165	264	0
1866	-	979	1,142	-	521	630	451	512	-	5,662	2,653	3,009	163	246	0
1867	-	936	1,102	-	485	573	448	529	-	5,400	2,648	2,752	164	238	0
1868	-	1,057	1,187	-	552	651	503	536	-	5,266	2,571	2,695	119	208	0
1869	-	790	926	-	412	505	374	421	-	5,263	2,575	2,688	149	228	2
1870	181,291	949	1,119	1,310	519	629	429	490	5,768	5,462	2,671	2,791	137	209	0
1871	-	1,102	1,217	1,421	610	669	489	548	5,803	5,488	2,732	2,756	134	222	0
1872	-	1,109	1,218	1,470	599	668	509	550	6,271	5,824	2,851	2,973	150	240	0
1873	-	1,224	1,419	1,678	658	775	565	644	6,478	6,057	2,884	3,173	147	235	0
1874	-	1,467	1,649	1,805	848	949	618	700	7,016	6,398	3,168	3,230	130	228	0
1875	-	1,575	1,963	1,912	838	1,050	736	913	7,162	7,238	3,550	3,688	168	261	0
1876	-	1,634	1,949	1,859	844	1,032	786	917	7,949	7,851	3,787	4,064	214	302	0
1877	-	1,498	1,698	1,704	799	939	695	759	8,049	7,940	3,893	4,047	214	236	0
1878	-	1,517	1,752	1,729	812	937	703	815	8,267	8,247	4,088	4,159	197	227	1
1879	-	1,613	1,865	1,826	842	983	770	882	8,466	8,379	4,123	4,256	187	258	4
1880	234,850	1,654	2,007	1,919	908	1,097	742	910	8,725	8,714	4,307	4,407	182	283	3
1881	-	1,604	1,690	1,647	868	910	735	780	9,269	9,141	4,439	4,702	233	285	4
1882	-	2,232	2,223	2,282	1,249	1,251	979	972	9,570	9,570	4,590	4,980	301	313	6
1883	-	1,984	2,038	2,039	1,090	1,104	892	934	9,764	9,764	4,816	4,948	317	340	6
1884	-	2,218	2,348	2,275	1,201	1,281	1,015	1,067	10,494	10,494	5,136	5,358	263	322	8
1885	-	1,769	1,713	1,828	1,014	979	751	734	10,816	10,816	5,227	5,589	336	401	75
1886	-	2,354	2,494	2,431	1,254	1,342	1,098	1,152	10,765	10,765	5,354	5,411	308	371	116
1887	-	2,091	2,322	2,191	1,114	1,254	976	1,068	10,665	10,665	5,195	5,470	311	365	70
1888	-	2,046	2,189	2,086	1,088	1,158	957	1,031	10,698	10,698	5,246	5,452	297	340	121
1889	-	2,157	2,279	2,184	1,186	1,238	968	1,041	10,986	10,986	5,302	5,684	297	349	126
1890	312,859	1,940	2,191	1,978	1,042	1,170	898	1,021	10,470	10,470	5,157	5,313	259	273	129
1891	-	1,846	2,066	1,865	1,021	1,126	825	940	10,583	10,583	5,108	5,475	274	295	111
1892	-	1,833	2,024	1,860	1,028	1,132	805	892	10,196	10,196	5,073	5,123	227	230	97
1893	-	2,183	2,397	2,214	1,205	1,344	978	1,053	10,428	10,428	5,029	5,399	228	241	93
1894	-	1,726	1,921	1,775	947	1,034	777	887	10,149	10,149	4,927	5,222	234	259	138
1895	-	1,799	1,916	1,835	1,003	1,066	796	850	10,240	10,240	5,020	5,220	218	236	154
1896	-	1,711	1,771	1,694	939	977	769	794	10,222	10,222	5,065	5,157	240	244	115
1897	-	1,680	1,773	1,714	940	1,003	740	770	10,039	10,039	4,843	5,196	288	320	110
1898	-	1,687	1,729	1,690	931	963	752	766	10,259	10,259	4,991	5,268	264	311	148
1899	-	1,992	2,013	2,021	1,105	1,115	886	898	10,326	10,326	5,069	5,257	266	300	127
1900	-	1,614	1,597	1,613	925	921	686	676	10,230	10,230	5,005	5,225	233	276	110
1901	378,235	1,993	2,240	2,023	1,092	1,241	900	999	11,450	12,313	6,198	6,115	267	329	104
1902	-	1,617	1,631	1,653	921	920	696	711	12,007	12,005	5,917	6,088	268	308	113
1903	-	1,721	1,803	1,816	967	1,009	751	794	12,311	12,311	5,940	6,371	271	307	124
1904	-	1,801	1,824	1,865	1,031	1,047	768	777	12,057	12,057	5,755	6,302	288	333	142
1905	-	1,769	1,720	1,754	1,013	980	755	740	11,913	11,913	5,867	6,046	276	302	133
1906	426,540	1,800	1,747	1,783	1,030	1,004	766	743	12,026	12,028	5,921	6,107	250	294	129
1907	-	1,452	1,432	1,469	831	824	621	608	12,396	12,405	6,078	6,327	279	307	133
1908	-	1,973	1,903	1,924	1,099	1,044	870	859	12,793	12,813	6,233	6,580	276	323	134
1909	-	1,332	1,342	1,336	762	749	568	593	12,270	12,270	6,019	6,251	255	316	103
1910	-	1,460	1,397	1,420	803	769	656	628	12,000	11,921	5,735	6,186	244	297	126
1911	462,161	1,308	1,467	1,288	721	819	583	648	11,469	13,055	6,335	6,720	267	327	171
Total		**80,521**	**87,163**	**76,186**	**44,219**	**47,999**	**36,205**	**39,164**	**418,815**	**467,133**	**228,362**	**238,771**	**11,554**	**14,337**	**3,286**

Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October), Aarsberetning ang. Sundhedstilstanden 1886, 1910, 1920 (Stadslægen i København, 1887, 1911, 1921) and Statistisk Tabelværk (Det Statistiske Bureau, 1868, 1873, 1879, 1882, 1886, 1893, Statens Statistiske Bureau 1896, 1903, 1908, 1913, Det Statistiske Departement, 1919).

Table A2 *Methods used for extracting infants from the Copenhagen Burial Register 1861–1911*

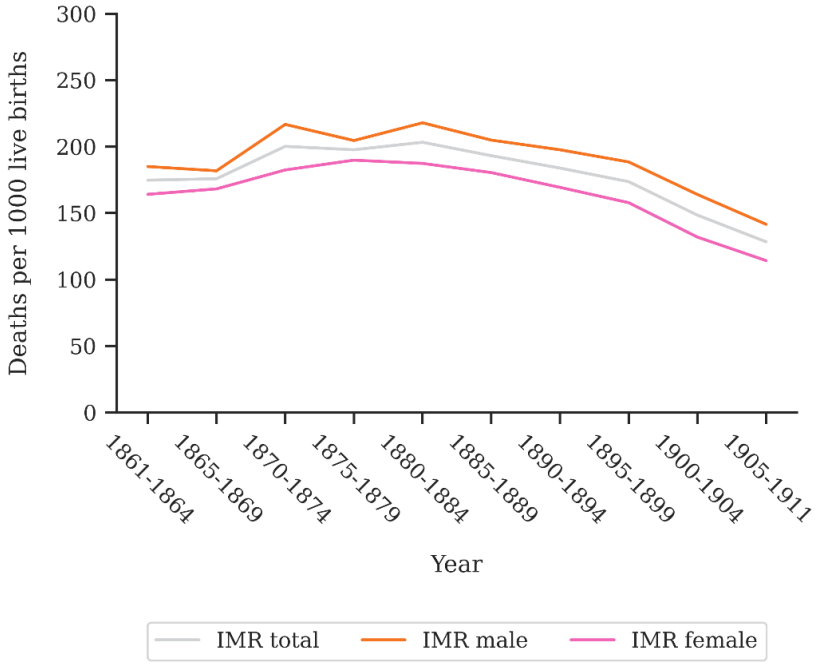
Combination number	Terms or ages searched for										Number of all infants located	Percentage of all infants located
	No age in years, but something in the variables "hours", "days", "weeks" and/or "months"	No age given at all	"ufuldbåren" (premature) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"spædbarn" (infant) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"nyfødt" (newborn) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"udøbt" (unbaptized) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"uoplyst" (not given) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"for tidlig" (prematurily) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	"ante tempus" (prematurily) in one or more of the following variables: "firstnames", "lastnames", "deathcauses"	Age year registered as "0"		
1	0	0	0	0	0	0	0	0	0	1	63,609	79.0
3	0	0	0	0	0	0	0	0	1	1	30	0.04
5	0	0	0	0	0	0	0	1	0	1	1,220	1.52
6	0	0	0	0	0	0	1	0	0	0	224	0.28
7	0	0	0	0	0	0	1	0	0	1	152	0.19
9	0	0	0	0	0	0	1	1	0	1	6	0.01
10	0	0	0	0	0	1	0	0	0	0	21	0.03
11	0	0	0	0	0	1	0	0	0	1	9,341	11.6
13	0	0	0	0	0	1	0	0	1	1	15	0.02
14	0	0	0	0	0	1	0	1	0	0	3	0.0
15	0	0	0	0	0	1	0	1	0	1	1,077	1.34
16	0	0	0	0	0	1	1	0	0	0	4	0.0
17	0	0	0	0	0	1	1	0	0	1	156	0.19
19	0	0	0	0	0	1	1	1	0	1	6	0.01
21	0	0	0	0	1	0	0	0	0	1	1	0.0
23	0	0	0	0	1	0	1	0	0	1	2	0.0
24	0	0	0	0	1	1	0	0	0	0	1	0.0
27	0	0	0	1	0	0	0	0	0	1	1	0.0
29	0	0	0	1	1	0	0	0	0	1	9	0.01
30	0	0	0	1	1	0	1	0	0	0	1	0.0
31	0	0	0	1	1	0	1	0	0	1	4	0.0
32	0	0	0	1	1	1	0	0	0	0	1	0.0
33	0	0	0	1	1	1	0	0	0	1	31	0.04
34	0	0	0	1	1	1	1	0	0	0	2	0.0
35	0	0	0	1	1	1	1	0	0	1	104	0.13
37	0	0	0	1	1	1	1	1	0	1	5	0.01
38	0	0	1	0	0	0	0	0	0	0	1	0.0
39	0	0	1	0	0	0	0	0	0	1	62	0.08
41	0	0	1	0	0	0	0	1	0	1	1	0.0
43	0	0	1	0	0	0	1	1	0	1	1	0.0
45	0	0	1	0	0	1	0	0	0	1	62	0.08
47	0	0	1	0	0	1	0	1	0	1	2	0.0
49	0	0	1	0	0	1	1	0	0	1	1	0.0
51	0	0	1	1	1	1	1	0	0	1	3	0.0
52	1	0	0	0	0	0	0	0	0	0	3,814	4.74
54	1	0	0	0	0	0	0	0	1	0	4	0.0
56	1	0	0	0	0	0	0	1	0	0	29	0.04
58	1	0	0	0	0	0	1	0	0	0	5	0.01
60	1	0	0	0	0	1	0	0	0	0	465	0.58
62	1	0	0	0	0	1	0	0	1	0	3	0.0
64	1	0	0	0	0	1	0	1	0	0	36	0.04
66	1	0	0	0	0	1	1	0	0	0	3	0.0
68	1	0	0	1	1	1	0	0	0	0	1	0.0
70	1	0	1	0	0	0	0	0	0	0	1	0.0
72	1	0	1	0	0	1	0	0	0	0	1	0.0
TOTAL	**11**	**0**	**10**	**11**	**13**	**24**	**17**	**11**	**4**	**25**	**80,521**	**100**

Figure A3 *Annual number of live births for Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October), Aarsberetning ang. Sundhedstilstanden 1886, 1910, 1920 (Stadslægen i København, 1887, 1911, 1921).

Figure A4 *Quinquennial IMR by sex, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October) and Statistisk Tabelværk (Det Statistiske Bureau, 1868, 1873, 1879, 1882, 1886, 1893, Statens Statistiske Bureau 1896, 1903, 1908, 1913, Det Statistiske Departement, 1919).

Note: The first period includes only four years, and the final period includes seven years.

Table A5 *Quinquennial IMRs by causal groups, Copenhagen 1861–1911*

SHiP causal group	Quinquennium										Total
	1861–1864	1865–1869	1870–1874	1875–1879	1880–1884	1885–1889	1890–1894	1895–1899	1900–1904	1905–1911	
Congenital and birth disorders	11 (232)	11 (296)	14 (414)	14 (561)	18 (861)	21 (1149)	28 (1471)	27 (1404)	26 (1532)	24 (2,072)	21 (9,992)
Weakness	29 (625)	29 (779)	30 (866)	37 (1,453)	36 (1,738)	28 (1,522)	14 (733)	11 (570)	8 (495)	4 (362)	20 (9,143)
Convulsions	37 (781)	32 (877)	38 (1,124)	28 (1,095)	19 (926)	16 (872)	14 (705)	11 (582)	8 (493)	7 (578)	17 (8,033)
Water-food borne	7 (139)	18 (488)	28 (819)	38 (1,491)	43 (2,030)	44 (2,369)	43 (2,218)	48 (2,441)	37 (2,165)	34 (2,980)	37 (17,140)
Airborne	25 (528)	23 (620)	39 (1,148)	43 (1,708)	46 (2,189)	44 (2,386)	50 (2,576)	44 (2,238)	38 (2,211)	30 (2,553)	39 (18,157)
Other infectious	11 (240)	10 (280)	10 (300)	11 (420)	7 (342)	6 (340)	4 (191)	4 (212)	5 (272)	5 (435)	6 (3,032)
Other non-infectious	14 (288)	11 (292)	10 (289)	10 (413)	11 (540)	11 (595)	9 (445)	7 (360)	6 (334)	5 (399)	8 (3,955)
External causes	0 (3)	0 (1)	0 (3)	0 (14)	1 (34)	0 (21)	0 (23)	0 (17)	0 (18)	0 (32)	0 (166)
Ill-defined and unknown	23 (494)	27 (734)	21 (606)	12 (462)	13 (631)	13 (707)	12 (620)	10 (509)	10 (583)	9 (740)	13 (6,086)
Cases not coded yet	18 (381)	15 (409)	10 (282)	6 (220)	8 (401)	8 (456)	11 (546)	10 (536)	11 (643)	11 (943)	10 (4,817)
Total	**175 (3,711)**	**176 (4,776)**	**200 (5,851)**	**198 (7,837)**	**203 (9,692)**	**193 (10,417)**	**184 (9,528)**	**174 (8,869)**	**148 (8,746)**	**128 (11,094)**	**172 (80,521)**

Source: As Figure A4.

Note: The first period includes only four years, and the final period includes seven years.

Table A6 *Quinquinnial NMRs and PNMRs and percentage of infant deaths, Copenhagen 1861–1911*

Quinquennium	Mortality rate			% of infant deaths	
	IMR	NMR	PNMR	neonatal	post-neonatal
1861–1864	139.0	59.0	116.0	34.0	66.0
1865–1869	176.0	61.0	115.0	35.0	65.0
1870–1874	200.0	58.0	142.0	29.0	71.0
1875–1879	198.0	55.0	142.0	28.0	72.0
1880–1884	203.0	54.0	149.0	27.0	73.0
1885–1889	193.0	50.0	143.0	26.0	74.0
1890–1894	184.0	43.0	141.0	23.0	77.0
1895–1899	174.0	43.0	131.0	25.0	75.0
1900–1904	148.0	38.0	110.0	26.0	74.0
1905–1911	128.0	37.0	92.0	28.0	72.0

Source: As Figure A4.

Note: The first period includes only four years, and the final period includes seven years.

Table A7 *Quinquennial NMRs by causal groups, Copenhagen 1861–1911*

SHiP causal group	Quinquennium										Total
	1861–1864	1865–1869	1870–1874	1875–1879	1880–1884	1885–1889	1890–1894	1895–1899	1900–1904	1905–1911	
Congenital and birth disorders	8.0 (168.0)	8.0 (212.0)	10.0 (299.0)	11.0 (426.0)	15.0 (708.0)	15.0 (805.0)	16.0 (822.0)	18.0 (923.0)	17.0 (1026.0)	18.0 (1551.0)	15.0 (6940.0)
Weakness	9.0 (191.0)	8.0 (230.0)	10.0 (282.0)	14.0 (542.0)	10.0 (482.0)	9.0 (475.0)	4.0 (186.0)	3.0 (151.0)	2.0 (120.0)	1.0 (104.0)	6.0 (2763.0)
Convulsions	15.0 (320.0)	14.0 (371.0)	12.0 (362.0)	9.0 (375.0)	6.0 (305.0)	6.0 (305.0)	5.0 (237.0)	4.0 (188.0)	2.0 (145.0)	2.0 (165.0)	6.0 (2773.0)
Water-food borne	1.0 (26.0)	4.0 (97.0)	5.0 (141.0)	6.0 (235.0)	6.0 (306.0)	5.0 (295.0)	5.0 (246.0)	6.0 (302.0)	4.0 (228.0)	4.0 (322.0)	5.0 (2198.0)
Airborne	1.0 (25.0)	1.0 (29.0)	2.0 (67.0)	2.0 (73.0)	2.0 (101.0)	2.0 (82.0)	2.0 (106.0)	2.0 (93.0)	2.0 (99.0)	1.0 (117.0)	2.0 (792.0)
Other infectious	6.0 (124.0)	4.0 (121.0)	4.0 (120.0)	4.0 (165.0)	3.0 (156.0)	3.0 (147.0)	2.0 (91.0)	2.0 (92.0)	2.0 (130.0)	3.0 (218.0)	3.0 (1364.0)
Other non-infectious	2.0 (46.0)	3.0 (72.0)	2.0 (61.0)	2.0 (99.0)	2.0 (98.0)	2.0 (128.0)	2.0 (109.0)	2.0 (89.0)	1.0 (80.0)	1.0 (129.0)	2.0 (911.0)
External causes	0.0 (0.0)	0.0 (0.0)	0.0 (1.0)	0.0 (9.0)	1.0 (24.0)	0.0 (12.0)	0.0 (9.0)	0.0 (6.0)	0.0 (7.0)	0.0 (13.0)	0.0 (81.0)
Ill-defined and unknown	10.0 (217.0)	13.0 (364.0)	8.0 (247.0)	5.0 (192.0)	6.0 (273.0)	5.0 (284.0)	4.0 (233.0)	3.0 (178.0)	4.0 (221.0)	3.0 (269.0)	5.0 (2478.0)
Cases not coded yet	7.0 (141.0)	6.0 (152.0)	4.0 (107.0)	2.0 (84.0)	3.0 (136.0)	3.0 (151.0)	3.0 (164.0)	3.0 (163.0)	3.0 (197.0)	3.0 (266.0)	3.0 (1561.0)
Total	**59.0 (1258.0)**	**61.0 (1648.0)**	**58.0 (1687.0)**	**55.0 (2200.0)**	**54.0 (2589.0)**	**50.0 (2684.0)**	**43.0 (2203.0)**	**43.0 (2185.0)**	**38.0 (2253.0)**	**37.0 (3154.0)**	**47.0 (21861.0)**

Source: As Figure A4.

Note: The first period includes only four years, and the final period includes seven years.

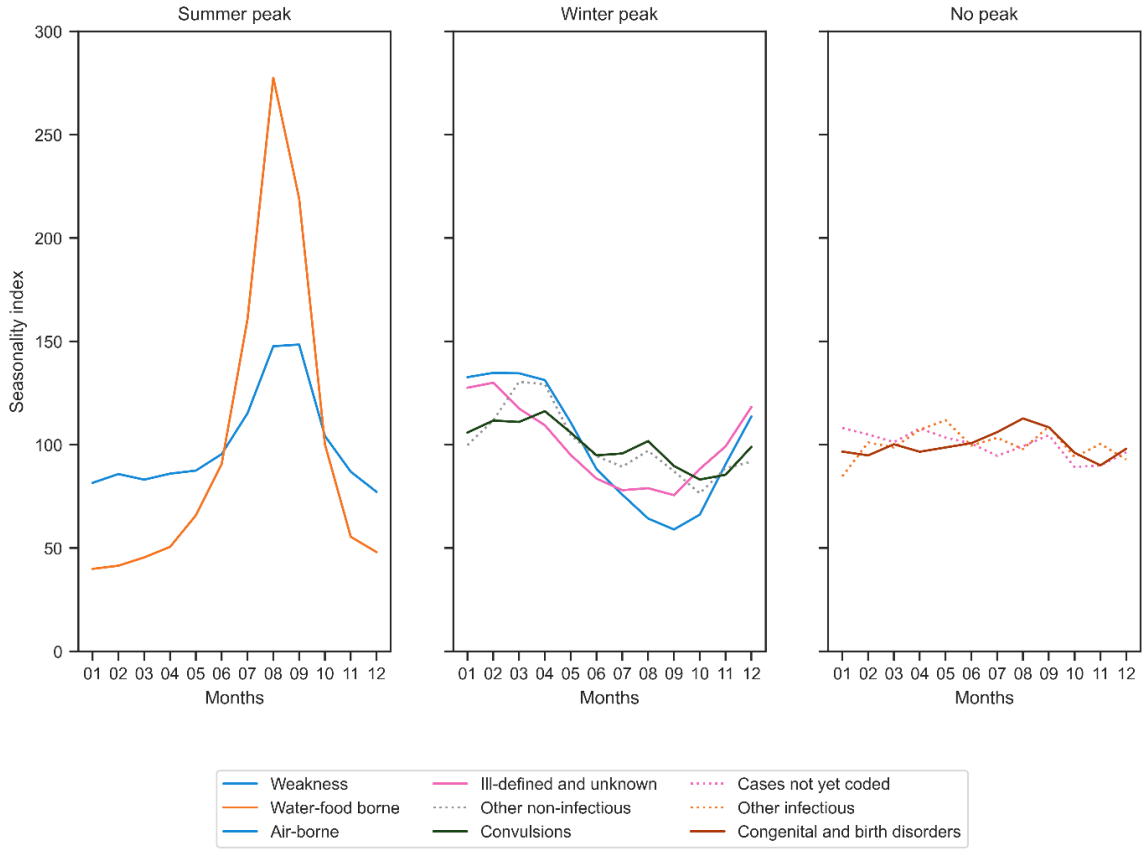
Table A8 *Quinquennial PNMRs by causal groups, Copenhagen 1861–1911*

SHiP causal group	Quinquennium										Total
	1861–1864	1865–1869	1870–1874	1875–1879	1880–1884	1885–1889	1890–1894	1895–1899	1900–1904	1905–1911	
Congenital and birth disorders	3.0 (64.0)	3.0 (84.0)	4.0 (115.0)	3.0 (135.0)	3.0 (153.0)	6.0 (344.0)	13.0 (649.0)	9.0 (481.0)	9.0 (506.0)	6.0 (521.0)	7.0 (3052.0)
Weakness	20.0 (434.0)	20.0 (549.0)	20.0 (584.0)	23.0 (911.0)	26.0 (1256.0)	19.0 (1047.0)	11.0 (547.0)	8.0 (419.0)	6.0 (375.0)	3.0 (258.0)	14.0 (6380.0)
Convulsions	22.0 (461.0)	19.0 (506.0)	26.0 (762.0)	18.0 (720.0)	13.0 (621.0)	11.0 (567.0)	9.0 (468.0)	8.0 (394.0)	6.0 (348.0)	5.0 (413.0)	11.0 (5260.0)
Water-food borne	5.0 (113.0)	14.0 (391.0)	23.0 (678.0)	32.0 (1256.0)	36.0 (1724.0)	38.0 (2074.0)	38.0 (1972.0)	42.0 (2139.0)	33.0 (1937.0)	31.0 (2658.0)	32.0 (14942.0)
Airborne	24.0 (503.0)	22.0 (591.0)	37.0 (1081.0)	41.0 (1635.0)	44.0 (2088.0)	43.0 (2304.0)	48.0 (2470.0)	42.0 (2145.0)	36.0 (2112.0)	28.0 (2436.0)	37.0 (17365.0)
Other infectious	5.0 (116.0)	6.0 (159.0)	6.0 (180.0)	6.0 (255.0)	4.0 (186.0)	4.0 (193.0)	2.0 (100.0)	2.0 (120.0)	2.0 (142.0)	3.0 (217.0)	4.0 (1668.0)
Other non-infectious	11.0 (242.0)	8.0 (220.0)	8.0 (228.0)	8.0 (314.0)	9.0 (442.0)	9.0 (467.0)	6.0 (336.0)	5.0 (271.0)	4.0 (254.0)	3.0 (270.0)	7.0 (3044.0)
External causes	0.0 (3.0)	0.0 (1.0)	0.0 (2.0)	0.0 (5.0)	0.0 (10.0)	0.0 (9.0)	0.0 (14.0)	0.0 (11.0)	0.0 (11.0)	0.0 (19.0)	0.0 (85.0)
Ill-defined and unknown	13.0 (277.0)	14.0 (370.0)	12.0 (359.0)	7.0 (270.0)	8.0 (358.0)	8.0 (423.0)	7.0 (387.0)	6.0 (331.0)	6.0 (362.0)	5.0 (471.0)	8.0 (3608.0)
Cases not coded yet	11.0 (240.0)	9.0 (257.0)	6.0 (175.0)	3.0 (136.0)	6.0 (265.0)	6.0 (305.0)	7.0 (382.0)	7.0 (373.0)	8.0 (446.0)	8.0 (677.0)	7.0 (3256.0)
Total	**116.0 (2453.0)**	**115.0 (3128.0)**	**142.0 (4164.0)**	**142.0 (5637.0)**	**149.0 (7103.0)**	**143.0 (7733.0)**	**141.0 (7325.0)**	**131.0 (6684.0)**	**110.0 (6493.0)**	**92.0 (7940.0)**	**126.0 (58660.0)**

Source: As Figure A4.

Note: The first period includes only four years, and the final period includes seven years.

Figure A9 *Seasonality of infant mortality by causal groups, Copenhagen 1861–1911*



Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).

Note: The dotted lines are causal groups with less than 5000 cases throughout the period, making them relatively small compared to the others that range between 6000-18.500 cases each throughout the entire period.

Table A10 *Unique standardised causes of death and their ICD10h code, causal group, frequency and proportion of all infant deaths*

Unique cause of death	ICD10h	ICD10	SHiP causal group	Number	% of all infant deaths
kighoste med brystbetændelse	a37.900	a37.9	air-borne	1	0.0
bronchitis efter mæslinger (bronchitis efter morbilli)	b05.900	b05.9	air-borne	1	0.0
bronchopneumonia in tussis	a37.900	a37.9	air-borne	1	0.0
tussis convulsiva? (muligvis tussis convulsiva)	a37.900	a37.9	air-borne	1	0.0
morbilli in tussi	b05.900	b05.9	air-borne	1	0.0
bronchopneumonia variae in pertussis	a37.900	a37.9	air-borne	1	0.0
tuberculosis pulmonum duplex (tub. pulm. dupl.)	a16.200	a16.2	air-borne	1	0.0
morbilli? (muligvis morbilli)	b05.900	b05.9	air-borne	1	0.0
brysttilfælde efter mæslinger	b05.900	b05.9	air-borne	1	0.0
meningitis	g03.900	g03.9	air-borne	1,234	1.63
bronchopneumonia dext. efter mæslinger	b05.900	b05.9	air-borne	1	0.0
tuberculosis (tuberkulose)	a16.905	a16.9	air-borne	452	0.6
pneumonia catarrhalis (pneumonia cath.)	j18.000	j18	air-borne	441	0.58
meningitis tuberculosa (meningitis tub.)	a17.000	a17.0	air-borne	419	0.55
tussis convulsiva	a37.900	a37.9	air-borne	1,343	1.78
mors subitanea in tussis convulsiva	a37.900	a37.9	air-borne	1	0.0
otitis dext.	h66.900	h66.9	air-borne	1	0.0

otitis suppurativa (otitis supp.)	h66.900	h66.9	air-borne	1	0.0
phthisis tuberculosa	a16.901	a16.9	air-borne	1	0.0
morbilli in rachitis (morbilli in rhachitide)	b05.900	b05.9	air-borne	1	0.0
bronchopneumonia post morbilli (bronchopneumonia efter morbilli)	b05.900	b05.9	air-borne	14	0.02
bronchitis capillaris in morbilli	b05.900	b05.9	air-borne	2	0.0
bronchitis capillaris post morbilli	b05.900	b05.9	air-borne	5	0.01
tuberculosis acuta (akut ruberkulose)	a16.905	a16.9	air-borne	22	0.03
bronchopneumonia in morbilli	b05.900	b05.9	air-borne	22	0.03
bronchopneumonia dext.	j18.000	j18.0	air-borne	23	0.03
otitis media suppurativa (otit. med. supp., otitis med. c. supp.)	h66.900	h66.9	air-borne	6	0.01
bronchitis acuta	j20.900	j20.9	air-borne	24	0.03
meningitis cerebrospinalis (cerebrospinalmeningitis)	g03.902	g03.9	air-borne	26	0.03
diphteria faucium (diphteritis fauc.)	a36.900	a36.9	air-borne	27	0.04
otitis interna	h66.900	h66.9	air-borne	2	0.0
kapillær bronkitis (capillær bronchitis)	j21.901	j21.9	air-borne	29	0.04
otitis media chron. supp.	h66.900	h66.9	air-borne	1	0.0
pneumoni efter tussis	a37.900	a37.9	air-borne	1	0.0
tussis	a37.900	a37.9	air-borne	270	0.36
bronchitis (bronkitis)	j40.009	j40	air-borne	2,208	2.92
bronchopneumonia	j18.000	j18.0	air-borne	2,196	2.91
eclampsia infantum in tussis convulsiva	a37.900	a37.9	air-borne	1	0.0
sequelae tussis convulsiva (tussis convulsiva seq.)	a37.900	a37.9	air-borne	1	0.0
eclampsia in pertussis	a37.900	a37.9	air-borne	1	0.0
pneumonia (pneumoni)	j18.900	j18.9	air-borne	2,082	2.75
kighoste med kapillær bronkitis	a37.900	a37.9	air-borne	1	0.0
kighoste? (muligvis kighoste)	a37.900	a37.9	air-borne	1	0.0
diphteria (diphteritis, difteri)	a36.900	a36.9	air-borne	262	0.35
phthisis cavernosa	a16.903	a16.9	air-borne	1	0.0
otitis media duplex	h66.900	h66.9	air-borne	1	0.0
pneumonia catarrhalis in morbilli	b05.900	b05.9	air-borne	2	0.0
pneumonia crouposa (pneumonia croup., pneum. croup.)	j05.000	j05.0	air-borne	258	0.34
tuberculosis pulmonum (tub. pulm.)	a16.904	a16.9	air-borne	179	0.24
pneumonia lobularis post morbilli	b05.900	b05.9	air-borne	1	0.0
gastroenteritis subacuta post tussis convulsiva	a37.900	a37.9	air-borne	1	0.0
croup	j05.000	j05.0	air-borne	153	0.2
scarlatina	a38.002	a38.0	air-borne	143	0.19
pneumonia duplex post morbilli	b05.900	b05.9	air-borne	1	0.0
pneumonia duplex in morbilli	b05.900	b05.9	air-borne	1	0.0
bronchopneumonia duplex (bronchopneumonia utriusque)	j18.000	j18.0	air-borne	136	0.18
influenza	j11.100	j11.1	air-borne	123	0.16
bronchitis capillaris (bronchit. capill., bronch. cap.)	j21.901	j21.9	air-borne	2,048	2.71
otitis media suppurativa sin. (otit. med. supp. sin.)	h66.900	h66.9	air-borne	1	0.0
mæslinger	b05.900	b05.9	air-borne	357	0.47
otitis media suppurativa chron. sin.	h66.900	h66.9	air-borne	1	0.0
lungebetændelse	j18.900	j18.9	air-borne	827	1.09
kighoste	a37.900	a37.9	air-borne	714	0.94
morbilli	b05.900	b05.9	air-borne	705	0.93
pertussis	a37.900	a37.9	air-borne	33	0.04

pertussis convulsiva	a37.900	a37.9	air-borne	1	0.0
meningitis cerebrospinalis epidemica	g03.902	g03.9	air-borne	5	0.01
bronchitis post morbilli	b05.900	b05.9	air-borne	2	0.0
bronchitis in morbilli	b05.900	b05.9	air-borne	2	0.0
svindsot	a16.903	a16.9	air-borne	4	0.01
gangræna pulmonum (gangraena pulm.)	j85.000	j85.0	air-borne	2	0.0
bronchopneumonia in influenza	j11.100	j11.1	air-borne	2	0.0
krampe under kighoste (eclampsia i kighoste)	a37.900	a37.9	air-borne	2	0.0
meningitis cerebralis (meningitis cerebri, cerebromeningitis)	g03.900	g03.9	air-borne	92	0.12
catarrhus gastrointestinalis post morbilli	b05.900	b05.9	air-borne	2	0.0
kopper	b03.000	b03	air-borne	99	0.13
convulsiones in morbilli	b05.900	b05.9	air-borne	2	0.0
strubehoste	j05.000	j05.0	air-borne	50	0.07
pneumonia catarrhalis duplex	j18.900	j18.9	air-borne	47	0.06
scrophulosis (skrofulose)	a18.201	a18.2	air-borne	46	0.06
spasmus glottidis	j05.000	j05.0	air-borne	44	0.06
sequelae morbilli (sequelae morbillorum, seq. morbilli)	b05.900	b05.9	air-borne	4	0.01
convulsiones in tussis convulsiva	a37.900	a37.9	air-borne	4	0.01
lungebetændelse under kighoste	a37.900	a37.9	air-borne	4	0.01
skarlagensfeber	a38.000	a38.0	air-borne	34	0.04
morbilli cum pneumonia	b05.900	b05.9	air-borne	4	0.01
morbilli in tussi convulsiva	b05.900	b05.9	air-borne	4	0.01
bronchopneumonia variae	j18.000	j18.0	air-borne	35	0.05
pneumonia lobularis in tussis convulsiva	a37.900	a37.9	air-borne	3	0.0
tuberculosis universalis	a16.905	a16.9	air-borne	38	0.05
pneumonia catarrhalis post morbilli	b05.900	b05.9	air-borne	3	0.0
pneumonia dext.	j18.900	j18.9	air-borne	40	0.05
katarrhalsk lungebetændelse (catarrhalsk lungebetændelse)	j18.001	j18.0	air-borne	42	0.06
tussis convulsiva in pneumonia	a37.900	a37.9	air-borne	3	0.0
pneumonia crouposa dext.	j05.000	j05.0	air-borne	3	0.0
lungebetændelse efter mæslinger	b05.900	b05.9	air-borne	5	0.01
kighoste med katarrhalsk pneumoni	a37.900	a37.9	air-borne	2	0.0
bronchitis capillaris efter mæslinger	b05.900	b05.9	air-borne	3	0.0
bronchopneumonia in tussis convulsiva	a37.900	a37.9	air-borne	43	0.06
lungetuberkulose (lungetuberculosis, lungetub.)	a16.200	a16.2	air-borne	14	0.02
pleuritis	r09.100	r09.1	air-borne	30	0.04
tuberculosis miliaris	a19.900	a19.9	air-borne	66	0.09
pneumonia in influenza	j11.000	j11.0	air-borne	4	0.01
mæslinger med lungebetændelse	b05.900	b05.9	air-borne	4	0.01
kighoste med krampe (kighoste m. krampeanfald)	a37.900	a37.9	air-borne	4	0.01
pneumonia efter mæslinger (pneumonia efter morbilli)	b05.900	b05.9	air-borne	4	0.01
pneumonia in tussi convulsiva	a37.900	a37.9	air-borne	21	0.03
phthisis pulmonum (phthisis pulm.)	a16.903	a16.9	air-borne	20	0.03
atrofi efter mæslinger	b05.900	b05.9	air-borne	7	0.01
pneumonia crouposa sin.	j05.000	j05.0	air-borne	7	0.01
otitis	h66.900	h66.9	air-borne	12	0.02
bronchitis purulenta	j40.009	j40	air-borne	15	0.02
tuberculosis pulmonum et intestin. (tub. pulm. et intestin.)	a16.904	a16.9	air-borne	11	0.01
pneumonia chron. (chronisk pneumoni)	j18.900	j18.9	air-borne	16	0.02
laryngitis crouposa	j05.000	j05.0	air-borne	10	0.01

pneumonia crouposa duplex (pneumonia crouposa utriusque)	j05.000	j05.0	air-borne	11	0.01
miliær tuberkulose	a19.900	a19.9	air-borne	10	0.01
laryngitis	j04.000	j04.0	air-borne	60	0.08
pneumonia duplex (pneumonia utriusque)	j18.900	j18.9	air-borne	57	0.08
bronchopneumonia post tussis convulsiva	a37.900	a37.9	air-borne	3	0.0
kighoste med konvulsioner	a37.900	a37.9	air-borne	2	0.0
phthisis	a16.901	a16.9	air-borne	115	0.15
pneumonia lobularis	j18.100	j18.1	air-borne	34	0.04
otitis media	h66.900	h66.9	air-borne	10	0.01
pneumonia sin. (pneumonia sinistra)	j18.900	j18.9	air-borne	33	0.04
tuberculosis miliaris acuta	a19.900	a19.9	air-borne	9	0.01
pneumonia in morbilli	b05.900	b05.9	air-borne	19	0.03
brystsyge	j22.000	j22	air-borne	17	0.02
lungesvindsot	a16.903	a16.9	air-borne	10	0.01
pneumonia post morbilli	b05.900	b05.9	air-borne	10	0.01
pleuropneumonia	j18.800	j18.8	air-borne	19	0.03
død straks efter fødslen (død lige efter fødslen)	p96.901	p96.9	congential and birth disorders	52	0.07
icterus neonatorum	p59.900	p59.9	congential and birth disorders	95	0.13
atelectasis pulmonum (atelectasis pulm.)	p28.100	p28.1	congential and birth disorders	373	0.49
ante tempus natus (ante temp. nat., a. t. n.)	p07.300	p07.3	congential and birth disorders	49	0.06
atrophia congenita	p96.901	p96.9	congential and birth disorders	50	0.07
icterus gravis neonatorum	p59.900	p59.9	congential and birth disorders	2	0.0
mangelfuld levedygtighed (mangel på levedygtighed)	p96.901	p96.9	congential and birth disorders	36	0.05
livssvag fra fødslen (medfødt livssvaghed)	p96.901	p96.9	congential and birth disorders	409	0.54
livssvag	p96.901	p96.9	congential and birth disorders	505	0.67
spina bifida	q05.900	q05.9	congential and birth disorders	160	0.21
medfødt svaghed (medfødt svækkelse)	p96.901	p96.9	congential and birth disorders	360	0.48
tæring	p96.904	p96.9	congential and birth disorders	651	0.86
cyanosis	p28.200	p28.2	congential and birth disorders	61	0.08
meget for tidligt født	p07.300	p07.3	congential and birth disorders	31	0.04
asphyxia (asfyxi)	p21.900	p21.9	congential and birth disorders	280	0.37
partus præmaturus	p07.300	p07.3	congential and birth disorders	79	0.1
icterus congenitus	p59.900	p59.9	congential and birth disorders	5	0.01
for tidligt født (for tidlig fødsel)	p07.300	p07.3	congential and birth disorders	2,248	2.97

atrophia infantilis (atrophia infantum)	p96.904	p96.9	congential and birth disorders	2,186	2.89
debilitas congenita (debilitas cong.)	p96.903	p96.9	congential and birth disorders	1,809	2.39
ikke levedygtig	p96.901	p96.9	congential and birth disorders	28	0.04
død under fødslen (barn)	p95.000	p95	congential and birth disorders	16	0.02
ufuldbåren (ufuldbårenhed)	p07.300	p07.3	congential and birth disorders	121	0.16
svag fra fødslen (svaghed ved fødslen)	p96.901	p96.9	congential and birth disorders	71	0.09
atelectasis (athelektase)	p28.100	p28.1	congential and birth disorders	282	0.37
miseries	p96.904	p96.9	congential and birth disorders	2	0.0
medfødt hjertefejl	p96.901	p96.9	congential and birth disorders	31	0.04
pludselig krampe (pludseligt krampetilfælde)	r56.800	r56.8	convulsions	2	0.0
krampe (kramper)	r56.800	r56.8	convulsions	4,320	5.72
formentlig krampe	r56.800	r56.8	convulsions	16	0.02
krampe under tandudbrud (tandkrampe)	r56.800	r56.8	convulsions	11	0.01
krampe? (muligvis krampe)	r56.800	r56.8	convulsions	5	0.01
convulsiones in dentitione	r56.800	r56.8	convulsions	1	0.0
convulsiones (konvulsioner)	r56.800	r56.8	convulsions	1,741	2.3
død under krampe	r56.800	r56.8	convulsions	11	0.01
tandbrud med krampe (dentitionskrampe)	r56.800	r56.8	convulsions	6	0.01
krampeanfald	r56.800	r56.8	convulsions	8	0.01
formentlig krampetilfælde	r56.800	r56.8	convulsions	1	0.0
eclampsia infantum (eclampsia infantilis)	r56.801	r56.8	convulsions	106	0.14
eclampsia (ecclampsia, eklampsi)	r56.800	r56.8	convulsions	1,771	2.34
krampetilfælde	r56.800	r56.8	convulsions	34	0.04
fractura cranii	y34.001	y34	external causes	7	0.01
suffocatio (suffokation)	y20.002	y20	external causes	27	0.04
brud af hjerneskallen (brud af hovedskallen)	y34.001	s09.9	external causes	1	0.0
nedstyrtning	w19.000	w19	external causes	6	0.01
kvælning	y20.002	y20	external causes	63	0.08
strangulatio (strangulation)	x70.002	x70	external causes	1	0.0
forbrænding	y26.001	y26	external causes	17	0.02
contusio cerebri (contus. cerebri)	y34.001	s06.9	external causes	3	0.0
formentlig drukning	w74.000	w74	external causes	9	0.01
formentlig drukning ved ulykkestilfælde	w74.000	w74	external causes	1	0.0
ambustio (ambustiones)	y26.001	y26	external causes	11	0.01
drukning (druknet)	w74.000	w74	external causes	15	0.02
suffocatio? (muligvis suffocatio)	y20.002	y20	external causes	2	0.0
ulykkestilfælde	x59.900	x59.9	external causes	3	0.0
død uden lægebehandling (død uden lægehjælp)	r99.001	r99	ill-defined and unknown	327	0.43
mors subitanea (mors subita)	r96.000	r96.0	ill-defined and unknown	85	0.11
pludselig død uden kendt årsag (pludselig død, ubekjendt aarsag)	r96.000	r96.0	ill-defined and unknown	92	0.12

hæmorrhagia (haemorrhagia)	r58.000	r58	ill-defined and unknown	25	0.03
fundet død (spædbarn, nyfødt)	r99.001	r99	ill-defined and unknown	18	0.02
pludselig død (død pludselig)	r96.000	r96.0	ill-defined and unknown	1,175	1.55
collapsus	r96.001	r96.0	ill-defined and unknown	30	0.04
*tydning eller verificering mangler	r99.000	r99	ill-defined and unknown	30	0.04
ukendt (ubekendt, ubekjendt)	r99.001	r99	ill-defined and unknown	3,654	4.83
mors repentina	r96.000	r96.0	ill-defined and unknown	14	0.02
ignota (causa ignota, causa mortis ignota)	r99.001	r99	ill-defined and unknown	19	0.03
død uden forudgående sygdom	r96.000	r96.0	ill-defined and unknown	26	0.03
ikke oplyst (uoplyst, uangivet, ingen dødsårsag angivet)	r99.001	r99	ill-defined and unknown	321	0.42
*kan ikke læses	r99.000	r99	ill-defined and unknown	14	0.02
mors repentina sine nota causa (mors repentina causa ignota)	r96.000	r96.0	ill-defined and unknown	35	0.05
kollaps (collaps)	r96.001	r96.0	ill-defined and unknown	13	0.02
anasarca (anasarka)	r60.101	r60.1	ill-defined and unknown	5	0.01
vattersot	r60.901	r60.9	ill-defined and unknown	2	0.0
fundet død	r96.000	r96.0	ill-defined and unknown	4	0.01
ødemata (oedemata, ødemer)	r60.900	r60.9	ill-defined and unknown	3	0.0
blodstyrtning	r58.000	r58	ill-defined and unknown	1	0.0
indbragt død (død indbragt)	r99.001	r99	ill-defined and unknown	5	0.01
hydrops	r60.901	r60.9	ill-defined and unknown	6	0.01
ødema (oedema)	r60.900	r60.9	ill-defined and unknown	6	0.01
vandsot	r60.900	r60.9	ill-defined and unknown	2	0.0
pludselig død uden forudgående sygdom	r96.000	r96.0	ill-defined and unknown	30	0.04
lungetæring	??	??	notyetcoded	2	0.0
cyanosis congenita	?	p28.4	notyetcoded	8	0.01
hæmatemesis (hæmatemese)	??	??	notyetcoded	7	0.01
tuberculosis pulmonum et laryngis (tub. pulmon. et laryngis)	??	??	notyetcoded	1	0.0
nephritis acuta	n05.901	n05.9	other	16	0.02
epilepsia (epilepsi)	g40.900	g40.9	other	5	0.01
brystsygdom	j98.900	j98.9	other	5	0.01
organisk hjertesygdom	i51.900	i51.9	other	5	0.01
ødema pulmonum (oedema pulm.)	j81.000	j81	other	10	0.01

tumor abdominis	c76.205	c76.2	other	9	0.01
nephritis chron. (nefritis chron.)	n03.900	n03.9	other	4	0.01
morbus hepatis (mb. hepatis, mb. hepaticus)	k76.900	k76.9	other	5	0.01
hjernetilfælde	g93.900	g93.9	other	29	0.04
apoplexia (apopleksi)	i64.001	i64	other	17	0.02
hjertelammelse	i46.900	i46.9	other	16	0.02
embolia arteriae pulmonalis (embolia art. pulm.)	i26.900	i26.9	other	4	0.01
hjerneblødning	i61.900	i61.9	other	28	0.04
endocarditis	i38.000	i38.0	other	4	0.01
empyema (empyem)	j86.901	j86.9	other	5	0.01
cancer	c80.901	c80.9	other	4	0.01
emphysema pulmonum (emfysema pulm.)	j43.900	j43.9	other	6	0.01
empyema pleurae	j86.901	j86.9	other	4	0.01
lungeødem (lungeoedem)	j81.000	j81	other	6	0.01
abscessus cerebri	g06.000	g06.0	other	3	0.0
hæmoptysis (haemophthisis)	r04.200	r04.2	other	3	0.0
kronisk hjertesygdom (chronisk hjertesygdom)	i51.900	i51.9	other	2	0.0
asystolia (asystolia cordis)	i46.900	i46.9	other	1	0.0
brystbetændelse	n61.000	n61	other	394	0.52
phlebitis	i80.900	i80.9	other	16	0.02
marasmus (marasme)	r54.005	r54	other	10	0.01
arthritis (artritis, arthroitis)	m13.900	m13.9	other	3	0.0
astma (asthma)	j45.900	j45.9	other	4	0.01
ulcus ventriculi (ulc. ventr.)	k25.900	k25.9	other	3	0.0
encephalopathia	g93.900	g93.9	other	15	0.02
cerebralia	g93.900	g93.9	other	29	0.04
catarrhus ventriculi (cat. ventr.)	j98.901	j98.9	other	42	0.06
paralysis cordis	i46.900	i46.9	other	6	0.01
pericarditis	i31.901	i31.9	other	3	0.0
engelsk syge	e55.000	e55.0	other	37	0.05
koldbrand	r02.000	r02	other	10	0.01
morbus cerebri (mb. cerebralis)	g93.900	g93.9	other	4	0.01
angina	i20.900	i20.9	other	12	0.02
anæmia (anaemia, anæmi)	d64.900	d64.9	other	41	0.05
cancer intest. (cancer intestinalis, c. intestin.)	c26.001	c26.0	other	6	0.01
gangræna (gangraena)	r02.000	r02.0	other	22	0.03
emphysema (emphysem, emfysem)	j43.900	j43.9	other	23	0.03
cystopyelonephritis (cysto pyelo nephritis)	n05.901	n05.9	other	3	0.0
ileus	k56.700	k56.7	other	44	0.06
tumor hepatis	c22.905	c22.9	other	7	0.01
nyrebetændelse	n05.901	n05.9	other	9	0.01
phlegmone (flegmone)	l98.901	l98.9	other	45	0.06
hjernesygdom	g93.900	g93.9	other	18	0.02
cirrhosis hepatis	k74.600	k74.6	other	1	0.0
hæmorrhagia cerebri (haemorrhagia cerebri)	i61.900	i61.9	other	12	0.02
abscessus (absces)	l02.900	l02.9	other	36	0.05
tumor	c80.905	c80.9	other	4	0.01
tumor cerebri	c71.905	c71.9	other	4	0.01
bronchitis chron.	j42.000	j42	other	29	0.04
cancer hepatis	c22.901	c22.9	other	1	0.0

marasmus senilis	r54.005	r54	other	3	0.0
leukaemia (leuchæmia, leukæmi)	c95.900	c95.9	other	2	0.0
nephritis (nefritis)	n05.901	n05.9	other	84	0.11
pemphigus neonatorum (pemphigus neonat.)	l10.900	l10.9	other	82	0.11
hjertesygdom	i51.900	i51.9	other	14	0.02
gastrointestinalis (gastro intest.)	k31.902	k31.9	other	71	0.09
furunculosis (furunkulose)	l73.900	l73.9	other	67	0.09
kronisk lungesygdom (chronisk lungesygdom)	j98.400	j98.4	other	3	0.0
nyresygdom	n28.900	n28.9	other	3	0.0
cancer ventriculi (c. ventr.)	c16.901	c16.9	other	3	0.0
hjerneblødhed	g93.803	g93.8	other	3	0.0
gulsot	r17.000	r17	other	58	0.08
febris puerperalis	o85.001	o85	other	3	0.0
kronisk tarmkatar (chronisk tarmcatarrh)	k63.900	k63.9	other	55	0.07
anæmia gravis (anaemia gravis)	d64.900	d64.9	other	3	0.0
hernia incarcerata (hernia incar.)	k46.000	k46.0	other	2	0.0
lungesygdom	j98.400	j98.4	other	13	0.02
spondylitis	m48.900	m48.9	other	2	0.0
albuminuria	r80.001	r80.0	other	2	0.0
embolia pulm. (embolia pulmonum)	i26.900	i26.9	other	2	0.0
katar (catarrh)	j98.901	j98.9	other	113	0.15
morbus cordis congenitus (mb. cordis cong.)	i51.900	i51.9	other	108	0.14
embolia (emboli)	i74.900	i74.9	other	2	0.0
peritonitis	k65.900	k65.9	other	96	0.13
hydrocephalus acutus	g91.900	g91.9	other	98	0.13
coxitis	m25.905	m25.9	other	2	0.0
arteriosclerosis (arteriosclerose)	i70.900	i70.9	other	1	0.0
underlivsbetændelse	n71.900	n71.9	other	84	0.11
morbus cordis (mb. cordis, mb. cord.)	i51.900	i51.9	other	89	0.12
hjerteslag	i64.000	i64	other	2	0.0
brystkatar (brystcatarrh)	j40.000	j40	other	244	0.32
peritonitis universalis (universel peritonitis)	k65.900	k65.9	other	2	0.0
uræmia (uræmi)	n19.002	n19.0	other	2	0.0
apoplexia cerebri	i64.001	i64	other	2	0.0
angina pectoris	i20.900	i20.9	other	2	0.0
pemphigus (pemfigus)	l10.900	l10.9	other	246	0.33
ascites	r18.000	r18	other	3	0.0
hydrocephalus (hydrocefalus)	g91.900	g91.9	other	214	0.28
peritonitis diffusa	k65.000	k65.0	other	2	0.0
febris rheumatica (fb. rheumatica)	i00.000	i00	other	2	0.0
alcoholismus chronicus (alch. chr., a.c.)	f10.200	f10.2	other	1	0.0
anæmia perniciosa	d51.001	d51.0	other	1	0.0
cystitis	n30.900	n30.9	other	1	0.0
kræft i underlivet (underlivskræft)	c76.201	c76.2	other	1	0.0
alcoholismus (alkoholisme)	f10.200	f10.2	other	1	0.0
rachitis (rakitis, rhachitis)	e55.000	e55	other	895	1.18
icterus	r17.000	r17	other	171	0.23
leversygdom	k76.900	k76.9	other	1	0.0
hjerneapopleksi (hjerneapoplexi)	i64.001	i64.0	other	1	0.0
eclampsia alcoholica (eclampsia in alcoholismo)	f10.200	f10.2	other	1	0.0

diabetes mellitus	e14.000	e14	other	1	0.0
insufficientia cordis (insuff. cordis)	i51.900	i51.9	other	1	0.0
kronisk hjernesygdom (chronisk hjernesygdom)	g93.900	g93.9	other	1	0.0
morbus cordis? (muligvis morbus cordis)	i51.900	i51.9	other	1	0.0
morbus brightii (mb. brightii, brights nyresygdom)	n05.904	n05.9	other	1	0.0
delirium tremens (delir. tremens, del. tremens. d. t.)	f10.400	f10.4	other	1	0.0
morbus basedowii (basedow´s sygdom)	e05.000	e05.0	other	1	0.0
kronisk bronkitis (chronisk bronchitis)	j42.000	j42	other	1	0.0
encephalopathia chronica (encephalopathia chron.)	g04.900	g04.9	other infectious	1	0.0
rosen	a46.000	a46	other infectious	100	0.13
trismus neonatorum	a33.000	a33	other infectious	120	0.16
erysipelas faciei	a46.000	a46	other infectious	10	0.01
tetanus	a35.000	a35.0	other infectious	122	0.16
lues	a50.900	a50.9	other infectious	49	0.06
myelitis	g04.900	g04.9	other infectious	2	0.0
emollitio cerebri	g04.900	g04.9	other infectious	1	0.0
mundklemme	a35.002	a35.0	other infectious	53	0.07
formentlig trismus	a35.002	a35.0	other infectious	3	0.0
medfødt syfilis (medfødt syphilis)	a50.900	a50.9	other infectious	88	0.12
syphilis congenita	a50.900	a50.9	other infectious	438	0.58
stivkrampe	a35.000	a35.0	other infectious	75	0.1
pyæmia (pyaemia, pyæmi)	a41.902	a41.9	other infectious	161	0.21
encephalitis	g04.900	g04.9	other infectious	9	0.01
hjernebetændelse	g04.900	g04.9	other infectious	579	0.77
trismus	a35.002	a35.0	other infectious	340	0.45
sepsis	a41.900	a41.9	other infectious	10	0.01
syphilis (syfilis)	a53.900	a53.9	other infectious	215	0.28
erysipelas	a46.000	a46	other infectious	215	0.28
tetanus neonatorum (tetanus neonat.)	a33.000	a33	other infectious	153	0.2
septichæmia (septikæmi, septicaemia)	a41.905	a41.9	other infectious	38	0.05
lues congenita (lues venerea congenita)	a50.900	a50.9	other infectious	250	0.33
akut diarré (acut diarrhoe)	a09.002	a09.0	water-food borne	117	0.15
enterocolitis	a09.008	a09.9	water-food borne	36	0.05
catarrhus	a09.001	a09.0	water-food borne	92	0.12
gastro-enterokatar (gastro-enterocatarrh)	a09.001	a09.0	water-food borne	34	0.04
formentlig kolerine (cholerine)	a09.001	a09.0	water-food borne	4	0.01
diarrhoea acuta (diarrhea acuta)	a09.002	a09.0	water-food borne	99	0.13
cholerine infantum	a09.001	a09.0	water-food borne	18	0.02
catarrhus gastrointestinalis acutus in chron. (cath. gastr. int. acut. in chron.)	a09.001	a09.0	water-food borne	32	0.04
typhus (tyfus)	a01.000	a01.0	water-food borne	2	0.0
febris typhoidea (fb. typhoidea, febr. typh.)	a01.000	a01.0	water-food borne	5	0.01
dyspepsia (dyspepsi)	k30.000	k30	water-food borne	145	0.19
catarrhus intestinalis chronicus (cat. intest. chron.)	a09.004	a09.0	water-food borne	200	0.26
catarrhus gastrointestinalis chronicus (cat. gastrointestin. chron.)	a09.008	a09.9	water-food borne	215	0.28
gastroenteritis chron.	a09.008	a09.0	water-food borne	81	0.11
tabes mesaraica	a18.303	a18.3	water-food borne	27	0.04
colitis	k52.300	k52.3	water-food borne	23	0.03
tarmkatar (tarmcatarrh)	a09.004	a09	water-food borne	329	0.44

enterocatarrhus (enterocatarrh, enterokatar)	a09.004	a09.0	water-food borne	369	0.49
cholera infantum (cholera infantilis)	a09.001	a09.0	water-food borne	388	0.51
enteritis chron.	a09.009	a09.9	water-food borne	144	0.19
diarrhoea chronica (diarrhea chron.)	a09.002	a09.9	water-food borne	40	0.05
mavekatar (mavecatarrh)	k31.905	k31.9	water-food borne	52	0.07
tyfoid feber (typhoid feber)	a01.000	a01.0	water-food borne	3	0.0
børnekolerine (børne- cholerine)	a09.001	a09.0	water-food borne	1	0.0
cholerine (kolerine)	a09.001	a09.0	water-food borne	2516	3.33
tuberculosis intestinalis	a18.300	a18.3	water-food borne	12	0.02
diarré (diarrhoea, diarrhé)	a09.002	a09.0	water-food borne	2772	3.67
gastrisk feber	a01.003	a01.0	water-food borne	15	0.02
dysenteri (dysenteria)	a09.003	a09.0	water-food borne	11	0.01
catarrhus gastrointestinalis (cat. gastro.)	a09.008	a09.0	water-food borne	1787	2.36
akut tarmkatar (acut tarmcatarrh)	a09.004	a09.0	water-food borne	62	0.08
catarrhus intestinalis (cat. intest.)	a09.004	a09.0	water-food borne	1460	1.93
catarrhus intestinalis acutus (cat. intest. acut.)	a09.004	a09.0	water-food borne	1508	2.0
gastroenteritis	a09.008	a09.9	water-food borne	834	1.1
catarrhus gastrointestinalis acutus (catarrh. gastro intest. acut.)	a09.008	a09.0	water-food borne	1125	1.49
gastroenteritis acuta	a09.008	a09.9	water-food borne	598	0.79
enteritis	a09.009	a09.9	water-food borne	1352	1.79
tarmbetændelse	a09.009	a09.9	water-food borne	47	0.06
enteritis acuta	a09.009	a09.9	water-food borne	432	0.57
intestinal katar (intestinal catarrh)	a09.001	a09.0	water-food borne	49	0.06
cholera nostras	a09.001	a09.0	water-food borne	45	0.06
akut mave-tarm katar (acut mave-tarmcatarrh)	a09.001	a09.0	water-food borne	58	0.08
peritonitis tuberculosa	a18.300	a18.3	water-food borne	1	0.0
cachexia (kakexia, kakeksi)	r64.000	r64	weakness	32	0.04
debilitas	r53.003	r53	weakness	259	0.34
exhaustio virium	r53.007	r53	weakness	2	0.0
atrophia (atrofi)	r64.003	r64	weakness	8850	11.71

Source: Københavns Begravelsesprotokoller (Københavns Stadsarkiv, 2020, October).