

"Searching for a Needle in a Haystack". The Intricacies of Sources on Causes of Death, Their Interpretation, and the Construction of a Database for the City of Poznań, 1830–1900

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"Searching for a Needle in a Haystack"

The Intricacies of Sources on Causes of Death, Their Interpretation, and the Construction of a Database for the City of Poznań, 1830–1900

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ABSTRACT

The administrative regulations introduced by the partitioning powers were enforced in the Polish lands under Prussian, Russian, and Austrian rule. These regulations included the methods of vital statistics registration, the language in which entries were recorded, and the types of data collected. Differences in registration pose significant challenges for contemporary researchers attempting to unify these records. Additionally, questions arise regarding the credibility and reliability of the registrations, which varied across the territories of the three partitions. Prussia had by far the most advanced statistical system. Strict adherence to deadlines for reporting marriages, births, and deaths, by both officials and ordinary citizens, undoubtedly contributed to the high quality of records maintained in Prussian-controlled territories. This paper aims to characterize the sources relating to causes of death in Poznań, then the capital of the Poznań Province in the 19th century, and to examine the diversity and validity of these sources, the quality and reliability of medical statistics, the development of the Poznań Historical Population Database, and, finally, the research opportunities this database enables. The study highlights the importance of a critical methodological approach to historical cause-of-death data. It demonstrates that, although imperfect, such sources can provide valuable insights into past health patterns and administrative practices when interpreted with linguistic, medical, and contextual sensitivity. The resulting database offers a foundation for further interdisciplinary research on historical epidemiology and urban demography.

Keywords: Vital statistics, Causes of death, Population database, Mortality data, 19th Century Poland

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1 HISTORICAL AND NATIONAL CONTEXT OF CAUSE-OF-DEATH STATISTICS

Parish records and, later, civil vital statistics in the historical Polish lands were the primary sources for systematically collecting information on causes of death. The methods of data collection and the differences observed in the 19th century were closely linked to the historical trajectories of the Polish territories affected by the partitions. Therefore, the context of record-keeping in Poland is central to this paper and is addressed both here and throughout the text.

The history of the Polish lands was marked by three partitions in 1772, 1793, and 1795, which resulted in the loss of native Polish territories to the Prussian Empire, Russia, and Austria. The Polish territories annexed by Prussia differed in their levels of economic development from those annexed by Russia and Austria. The Prussian sector had a higher GDP, with income per capita five times greater than in the Kingdom of Poland under Russian rule and three times higher than in the Austrian-occupied territories, commonly known as Galicia. Economic growth in the Prussian sector was particularly dynamic, affecting industry, trade, mechanization of agriculture, agricultural production, and investment in medical care. These economic differences, combined with varied levels of medical services, health status, and sanitary infrastructure, generally favoured the Prussian partition and resulted in observable differences in demographic dynamics and the pace of change over time (Bukowski et al., 2019; Liczbińska et al., 2016). Against this backdrop, this paper seeks to characterise the sources relating to causes of death in the city of Poznań — then the capital of the Poznań Province in the 19th century — and to examine the diversity and reliability of these sources, the quality of medical statistics, the development of the Poznań Historical Population Database, and, ultimately, the research opportunities offered by this database.

2 DEVELOPMENT AND ADMINISTRATION OF VITAL RECORDS IN THE POLISH LANDS

In the territories under Prussian, Russian, and Austrian rule, administrative laws introduced by the partitioning powers regulated the registration of vital statistics, including the methodology, language, and type of data recorded. In the Duchy of Warsaw, civil registry offices were established in 1808 in accordance with the Napoleonic Code, introducing a standardized system for recording births, marriages, and deaths. According to the 1809 decree, officials were clergymen, responsible for entering records in the registers before performing religious ceremonies. These regulations remained in force in the Kingdom of Poland, including Eastern Greater Poland (the lands of the Russian partition), until 1825, when an amendment to the Civil Code authorized Catholic priests to record births, marriages, and deaths after the corresponding religious ceremonies. The timing of registration had a notable impact on data quality: pre-ceremony entries could result in incomplete or inaccurate information, whereas post-ceremony registration allowed for more accurate verification, although sometimes causing delays. These procedural differences significantly influenced the completeness and reliability of parish records and must be considered when analysing historical vital statistics in the 19th-century Polish lands. In the Russian partition, parish registers were originally maintained in Polish. However, following the January Uprising of 1863, political changes in the Kingdom of Poland led to reforms in the administration of vital records. In November 1867, the Organizing Committee in the Kingdom of Poland introduced a new law. From January 1868, parish registers of births, marriages, and deaths for Roman Catholics were required to be kept in Russian. Extracts from these registers, known as civil status certificates, were to be issued either exclusively in Russian or, if necessary, in both Russian and Polish. Registers for other religious denominations were to be maintained and certified solely in Russian (Jemielity, 1995). This system remained in effect until the restoration of Polish independence in 1918 (Moskal, 2005).

In the Polish lands, the first registers appeared in the 16th century and remained exclusively ecclesiastical until the end of the 18th century. Following the Second Partition of Poland in 1793, regulations introduced by Frederick William established that registers held the status of public legal documents. National law required all citizens to register births, marriages, and deaths in the appropriate parish. Priests and pastors were responsible for recording these events in the official registers and creating duplicates for archival purposes, with one copy submitted annually to the Prussian authorities for centralization (Kuklo, 2009). After the Congress of Vienna in 1815, civil registration in the Polish lands belonging to the Kingdom of Prussia was further regulated by the Landrecht Act of 9 November 1816. Under this law, clergy acted as civil servants and maintained two sets of records: one for the court and one for church archives.

Catholic priests recorded events in Latin, while Protestant pastors kept registers in German (Makowski, 1992). On 1 October 1874, civil registry offices were implemented throughout Prussia and the Prussian partition, applying to all citizens regardless of religion. From that point, civil servants became responsible for registering births, marriages, and deaths, while religious communities maintained registers solely for internal purposes (Miłosz, 1998). Catholic parish books continued to be kept in Polish or Latin, and Protestant parish books in German (Liczbińska, 2009, 2015).

During the Austrian partition, legal regulations for civil records were introduced as early as 1782, when Roman Catholic parish priests were appointed as civil registrars, responsible for recording vital events (births, marriages, and deaths) for all residents of their parish, regardless of faith (Kuklo, 2009). The rules for maintaining these records were further codified in an imperial patent issued by Joseph II on 20 February 1784, which conferred public legal status on parish registers, transforming them from purely denominational church books into official civil documents. Under this patent, priests were required to maintain three separate registers for baptisms (births), marriages, and burials (deaths) in Latin, using a structured rubric form in folio format to facilitate their use as legal records. Polish was used in contacts with secular authorities in Galicia, and German in correspondence with military officers and government offices outside Galicia. These reforms laid the foundation for formal vital registration in the Austrian Empire and were widely applied in the former Austrian partition, including Galicia (Bujak, 2021; Kuklo, 2009; Rachwał, 2014). The imperial patent of 1784 simultaneously reformed the system of record-keeping. From that point on, entries in Latin were to be kept separately for each village belonging to a parish (Kuklo, 2009). But Latin was not the language of all vital records. Protestant and Jewish communities kept registers in German and Polish. The forms used in the Greek Catholic Church were in Latin and Ukrainian (Kośka, 2023).

From the perspective of researchers, historians, and other users, differences in record-keeping practices present substantial challenges for the standardization and unification of data. These difficulties arise not only from the variety of languages used in the registers (Latin, German, Polish, Ukrainian, etc.), but also from the differing formats, levels of detail, and recording conventions adopted by individual confessional groups and administrative authorities. Such inconsistencies complicate efforts to compare entries across regions and periods and hinder the production of coherent datasets. The implications of these issues for contemporary historical-demographic research are discussed further in this article.

3 DESCRIPTION OF CAUSE-OF-DEATH SOURCES

Although systematic record-keeping had existed in the Polish lands since the late 16th century, these records generally lacked statistical value (Gieysztorowa, 1971, 1976; Szczypiorski, 1962). In the territories under the three partitions, the quality and reliability of registration procedures were uneven. Statistics were least reliable in the lands annexed by Russia until the end of the 19th century, and the first and only population census in the Kingdom of Poland did not occur until 1897 (Gawrysiakowa, 1980; Gieysztorowa, 1980). In the Austrian partition, population registration was initially used only for military and tax purposes, and the quality of these documents was considered substandard. Registration improved after the International Statistical Congress began in Brussels in 1853 and the Central Statistical Commission was established in Vienna ten years later (Liczbińska, 2009; Vielrose, 1961). Prussia had by far the most advanced statistical system. A major turning point in accuracy came with the 1840 census (Wojtun, 1976), which, although it did not record vital events, initiated a more systematic and centralised approach to statistical administration. Regular censuses strengthened the institutional framework for data collection, standardised definitions and procedures, and provided a benchmark for assessing the completeness and reliability of parish-based vital statistics. Consequently, improvements in the registration of births and deaths were an indirect result of this broader professionalisation rather than a direct outcome of the census itself.

Strict adherence to deadlines for reporting births, marriages, and deaths, by officials and citizens alike, contributed to the high quality of records in Prussia and the Prussian partition (Borowski, 1967, 1968; Gieysztorowa, 1962, 1971, 1976, 1980; Kaczmarek, 1967; Klotzke, 1980; Liczbińska, 2009, 2011, 2015; Ładogórski, 1969, 1971, 1972; Szczypiorski, 1962; Wojtun, 1976). Population register was regulated

by the Prussian *Landrecht*¹. From 1874, civil registry offices were responsible for recording vital events. Prussian law specified strict reporting deadlines: births within seven days (§13), stillbirths or deaths during childbirth the following day (§19), marriages on the day of the ceremony (§27), and deaths within two days (§39) (*Königlichen Regierung zu Posen, 1874; Liczbińska, 2009*). Death registration was more challenging than recording baptisms or marriages, mainly due to clergy fees. Deaths of children shortly after baptism or stillbirths were sometimes unrecorded to avoid double fees. In some cases, clergy deliberately omitted deaths to conceal income (*Gawrysiakowa, 1980; Gieysztorowa, 1962, 1971; Klotzke, 1980; Ładogórski, 1969*). Therefore, assessing the value of historical sources is "decisive for the correctness of the results obtained" (*Gieysztorowa, 1971, p. 560; see also: Borowski, 1967; Gieysztorowa, 1962, 1971, 1976; Klotzke, 1980; Liczbińska, 2009, 2015; Ładogórski, 1971; Sułowski, 1962*). In general, 19th-century parish and official registers from Poznań show chronological continuity and careful record-keeping, with high credibility and reliability (*Budnik & Liczbińska, 2006; Liczbińska, 2009, 2015*). With some interpretative caution, they can be used reliably for research (*Liczbińska, 2015*).

In the Prussian partition, individual cause-of-death data came from two main sources: parish registers and official civil registers. Until 1874, parish priests recorded all vital events, including causes of death. After 1874, civil registration offices (*Standesämter*) maintained independent official registers alongside parish books. In Catholic parish registers (Figure 1), the registration forms were arranged in columns labelled in Latin. Death records included specific fields for each piece of information, summarized in Table 1. Age at death was recorded in various units: years, years and months, months, months and days, days, or even hours. The age of neonates was noted very precisely: in minutes, hours, days, or weeks – while infants' ages were recorded in months and days. Adult ages were usually given in years, occasionally with additional months. The next column recorded the status of the deceased, including social standing, occupation, or marital status, or indicated if the individual was a child. This was followed by the status and occupation of the parents, mainly the father, along with the names of both parents. Subsequent columns noted the legitimacy of the child (legitimate or illegitimate) and the cause of death. The penultimate column recorded the basis on which the registering officer confirmed the identity of the deceased, while the last column provided space for additional remarks, such as whether the deceased were twins.

Table 1 *Latin terms from Catholic parish death records in Poznań with English translations and interpretations*

Latin terms	English translation and interpretation
Annus et mensis mortis	Year and month of death
Dies et hora mortis	Day and hour of death
Dies et locus sepulturae	Day and place of burial
Locus domicilii/mortis	Place of residence/death
Nomen et cognomen defuncti	Name and surname of the deceased
Aetas: annus, mensis, dies	Age of the deceased: in years, months, days, or hours
Conditio	Status of the deceased (social, marital, or child status)
Professio	Profession
Conditio et professio patris	Status and occupation of the parents, mainly the father
Nomen et cognomen: patris, matris	Father's and mother's names and surnames
Puer legitimus / puer illegitimus	Legitimacy of a male child: legitimate or illegitimate
Puella legitima / puella illegitima	Legitimacy of a female child: legitimate or illegitimate
Morbus	Cause of death
Unde patet curato personam defunctam esse eandem sicut ipsi relatum	Basis for identification of the deceased
Annotationes	Space for comments by the registering officer (e.g., twins, special remarks).

1 The Prussian *Landrecht* (full name: *Allgemeines Landrecht für die Preussischen Staaten (1794)*, or "General state laws for the Prussian states") was a comprehensive legal code enacted in 1794 under Frederick William II of Prussia. It was designed to systematize and codify civil, criminal, and administrative law for the entire Prussian state.

Figure 1 Excerpt from the death register of St. Mary Magdalene Catholic Parish in Poznań

ANNO et MENSIS.	Obitus Dies Dies. Hora.	Sepulturae dies et locus.	In quo loco.	NOMEN et COGNOMEN.	AETAS.			CONDITIO.	Conditio et professio Patris.	PARENTES		MORBUS	Unde potest Certe personam defunctam esse eandem sicut ipse relatum.	ADNOTATIONES
					An- nos.	Men- ses.	Dies.			Patris.	Materis.			
1859 1. Januarius	1. 10.	Parochialis ad St. Mariam Magdalenam	Parochialis	Marianne Gellner	1	1	infans	materna	Michael Gellner	Theresia Gellner	1	concordes	Johanna Gellner	
2. Januarius	1.	Parochialis ad St. Mariam Magdalenam	Parochialis	Franciscus Gellner	43		viduus				1	gallus	Paul	

Source: <https://www.szukajwarchiwach.gov.pl/de/jednostka/-/jednostka/1485889>, scan 4 (accessed on January 2, 2025).

In Protestant parish death records, the arrangement and types of columns were very similar to those in Catholic registers (Figure 2). Columns typically included the record number, year and month of death, day of death, place of residence or death, and the first name, surname, and sex of the deceased. Age at death was recorded in years, months, and days: for adults and children, usually in years, sometimes in years and months, or occasionally in years, months, and days; for infants, in months or months and days. The next column recorded the marital status and occupation of the deceased, often indicating social status either directly through occupation (e.g., carpenter, tailor) or via the occupation of parents (e.g., daughter of a gardener) or spouse (e.g., widow of a writer). This was followed by the status and occupation of the parents, primarily the father, along with the names of both parents. Subsequent columns indicated whether the deceased was legitimate or illegitimate, and the cause of death was recorded in a dedicated column. The penultimate column recorded the basis for identifying the deceased, while the final column was reserved for remarks by the registering officer.

Table 2 German terms from Catholic parish death records in Poznań with English translations and interpretations

German terms	English translation and interpretation
Todesjahr und -monat	Year and month of death
Todetag	Day of death
In welchem Orte	Day and place of burial
Vorname, Surname und Geschlecht des Verstorbenen	Name, surname, and sex of the deceased
Alter: Jahr, Monat, Tag	Age of the deceased: in years, months, days, or hours
Stand	Status of the deceased (social, marital, or child status)
Beruf des Verstorbenen	Profession of deceased
Stand und Gewerbe des Vaters	Status and occupation of the parents, mainly the father
Name des Vaters	Father's name and surname
Name der Mutter	Mother's name and surname
Männliche/weibliche: eheliche, uneheliche	Legitimacy of the deceased (male/female: legitimate, illegitimate)
Krankheit	Cause of death (literally "illness")
Auf welchen Ort der Pfarrer die Überzeugung erlangt, dass der Verstorbene wirklich die nämliche Person gewesen ist	Basis on which the parish priest established the identity of the deceased
Remarks column	Space for registering the officer's comments

Excerpt from the death records of the Poznań registry office

[illegible]

Remarks: The cause of death shows in the lower right-hand corner (Schwindsucht/phthisis/tuberculosis). Kasimir Głowacki, resident of 52 Grosse Gerberstrasse, born in Poznań, son of Józef Głowacki, shoemaker, and Józefa Czarnecka, both residing at the same address, died of phthisis on 28 July 1890 at the age of five.

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The official death registers introduced in 1874 (Figure 3) used a form in which the clerk entered information in designated fields, rather than in a tabular arrangement as in parish registers. Each record was assigned an event number, followed by the date and place of the event (e.g., Poznań). The register included a certificate template, in which the official completed the required information in the blank spaces.

The German-language form of the death certificate typically began:

Before the undersigned civil registry officer appeared, whose identity was verified by (type of identity document, e.g. police registration card) [Name of surname of the person reporting event], residing in Poznań, and declared that:

"... [name and surname of the deceased] ..."

Then it provided information about the deceased, including:

full name (with maiden name for married women), age, religion, residential address, place of birth (geboren zu), family relationships (e.g., son of..., wife of...), and the date and time of death, recorded as year (des Jahres tausend acht...), day and month, and hour (verstorben sei).

The record concluded with the signatures of the declarant (*Vorgelesen, genehmigt und unterschrieben*) and the civil registrar (*Der Standesbeamte*).

Unlike parish registers, official civil registers did not have a designated space for the cause of death; however, in Poznań, many registrars noted this information in the page margins (see Figure 3).

Deaths in historical records were typically documented based on observable symptoms (e.g., headache, fever, cough, spots, rashes) or by noting the affected body parts (e.g., stomach, chest, throat, head, brain, nerves). Such symptom-based classification was characteristic of pre-bacteriological medical practice, when diagnoses relied primarily on bedside observation and humoral or anatomical-pathological reasoning ([Ackerknecht, 1967](#); [Porter, 1997](#); [Rosen, 2015](#)).

With the development of medical science in the 19th century, particularly advances in pathological anatomy, epidemiology, and later bacteriology, etiological classification gradually gained prominence over purely symptomatic or anatomical descriptors ([Grmek, 1990](#); [Liczbińska, 2009](#)).

In 19th-century Poznań, the distribution of recorded causes of death varied notably between city quarters. For instance, deaths attributed to "cough" were particularly frequent in poorer districts, such as the parishes of St. Margaret and St. Adalbert, reflecting both diagnostic uncertainty and the higher prevalence of respiratory diseases in these areas ([Liczbińska, 2009](#)). The term "cough" could encompass a range of respiratory conditions, including tuberculosis, bronchitis, and pneumonia, all recorded symptomatically rather than as specific pathological causes. Similar ambiguity applied to entries such as "inflammation" or "fever," which often served as general descriptors rather than precise diagnoses ([Liczbińska, 2009, 2015](#)). Convulsions and spasms were also recorded as symptoms rather than definitive diseases, potentially indicating epilepsy, encephalitis, meningitis, stroke, cerebral haemorrhage, or the terminal stage of tetanus ([Nowaczyk, 2005](#)). Deaths recorded as "frailty" (Polish: *ślabość*; German: *Schwäche*; Latin: *debilitas*) often referred to neonatal weakness, low birth weight (frequently linked to maternal heavy labour), inadequate early-life care, or cases in which infants were born without vital signs but were not classified as stillbirths ([Liczbińska, 2009](#)). Such entries also reflected socio-economic conditions and maternal workload.

Some causes, however, were more reliably diagnosed. Epidemic diseases such as cholera, smallpox, and typhus were usually recorded as distinct causes due to their characteristic clinical manifestations and social impact. Cholera, for example, was explicitly noted as "cholera" ([Liczbińska, 2021](#); [Liczbińska & Vögele, 2023](#)). Its clinical features, profuse diarrhoea, vomiting, rapid dehydration, and collapse, were distinctive and well described in medical literature from the 1830s onward. Physicians and officials in Poznań were familiar with cholera's presentation during major epidemics in 1852, 1855, 1866, and 1873, allowing them to differentiate it from other gastrointestinal disorders recorded symptomatically as "diarrhoea," "vomiting," or "abdominal pain" ([Liczbińska & Vögele, 2023](#)).

Language also played a crucial role in historical mortality records. In Poznań, Catholic parish registers were primarily maintained in Latin, Protestant registers in German. Under Prussian administration, civil registry books were maintained in the official language, German. After Poland regained independence in 1918, they were recorded in Polish. Translating these terms is essential in historical demography and epidemiology, as the same disease could appear in different linguistic forms — for example, *Schwindsucht* (German) and *phthisis* (Latin), both corresponding to modern tuberculosis ([Liczbińska, 2009, 2015](#)).

4 DEVELOPMENT OF THE DATABASE: CONSTRUCTION AND DESCRIPTION

The historical Polish lands thus provide an excellent setting for demographic research. Despite numerous studies on the socio-demographic structure of these territories (e.g., Borowski, 1976; Kędelski, 1992; Kukło, 2015; Liczbińska, 2009, 2011, 2015, 2021; Liedke, 2016; Makowski, 1992; Piasecki, 1990; Rachwał, 2019; Rejman, 2006; Siennicka, 1998; Waszak, 1954; Zielińska, 2012), a publicly accessible database covering all components of vital statistics has never been completed. The COVID-19 pandemic further highlighted the challenges posed by limited access to archives and underscored the urgent need for a publicly available historical population database — one that would support scientific research as well as genealogical and enthusiast inquiries. It should be noted that countries in Central and Eastern Europe continue to face difficulties in preserving primary sources, complicating the reconstruction of continuous historical datasets. Until recently, Poland lacked comprehensive databases containing information on past populations, limiting scholars from various disciplines — historians, sociologists, historical demographers, biologists, and economists — in addressing a wide range of demographic and social questions.

Between 2021 and 2024, under projects funded by the National Science Centre, Poland (Preludium Bis 2, Opus 21) and the Minister of Education and Science (under the "Science for Society" call), a database of Poznań inhabitants was created. This resource, the Poznań Historical Population Database (Baza Danych Historycznej Ludności Poznania; <https://poznandatabase.pl/>), contains individual records of births, marriages, and deaths of Catholics and Protestants living in the city from the 1830s to the early 20th century. It is the first database in Poland to document an urban population with such detail. The database covers records from 1830 to 1900 and includes a total of 157,671 births, 17,832 marriages, and 87,261 deaths, resulting in 262,764 individual entries for Poznań residents.

Mortality data were among the elements of demographic dynamics collected from the parish registers of six Poznań parishes: five Catholic parishes (St. John/St. Rochus, St. Margaret, St. Martin, St. Mary Magdalene, and St. Adalbert) and one Protestant parish (Holy Cross). These Catholic parishes represented all those operating in Poznań from the 1830s to the end of the 19th century. The Protestant Holy Cross Parish (*Kreutzkirche*) was the largest Protestant congregation in the city, with over 11,000 members in the 19th century (Liczbińska, 2015). Its size continued to grow in the second half of the century due to German migration to Poznań. By the late 19th century, the parish was divided, and several new Protestant parishes were established (Kiec, 2001).

The civil registry books, maintained in Poznań since 1874, include records of all deceased inhabitants, irrespective of religious affiliation. The following information was collected from these records: name and surname; sex; age at death (recorded in years, months, days, or hours); date of death; place of residence; occupation (or, in the case of children, the occupation of their parents; for unmarried women, either their own or their father's occupation; and for widows, the occupation of their deceased husband); and religious denomination. Causes of death were recorded either descriptively, based on symptoms or affected body parts, or professionally, according to an aetiological classification (Liczbińska, 2009).

Table 3 *Total number of deaths, number of deaths with reported causes of death, and percentage of deaths with reported causes*

Source of data	Period	No. deaths	No. causes of death	%
Parish of St. John/Rochus (CP)	1850–1874	2,065	1,946	94.2
Parish of the Holy Cross (PP)	1840–1900	21,595	15,506	71.8
Parish of St. Margaret (CP)	1830–1874	11,713	11,344	96.8
Parish of St. Martin (CP)	1830–1874	10,588	10,127	95.6
Parish of St. Mary Magdalene (CP)	1831–1874	12,446	12,295	98.8
Parish of St. Adalbert (CP)	1834–1874	9,293	9,219	99.2
Civil Registry Office	1874–1900	11,515	9,864	85.7

Note: CP = Catholic Parish, PP = Protestant Parish.

Causes of death were recorded for 88.7% of all individual deaths. As shown in Table 3, the share of deaths with a reported cause in Catholic parish registers ranged from over 94% in St. John/St. Rochus Parish to more than 99% in St. Adalbert Parish. In contrast, the registers of the Protestant Holy Cross Parish were less systematic in terms of recording causes of death: such information was documented for nearly 72% of deaths. This difference arises because, in the Holy Cross registers, causes of death were recorded only until the end of 1881; thereafter, the practice was largely abandoned, and only stillbirths were entered in the cause-of-death column (Liczbińska, 2015).

Civil registry books did not provide a dedicated space for causes of death. Nevertheless, officials in Poznań often added this information in the margin of the records (see Figure 3). In these civil registers, causes were recorded for 86% of all deaths. Differences between the total number of deaths and the number of reported causes in both parish and civil registers are illustrated in Figure 4. Until 1874, cause-of-death registration remained very high, exceeding 99% of all entries each year. This accuracy likely reflects increasingly reliable medical diagnoses and strong administrative emphasis on comprehensive registration. A major limitation, however, is that all Catholic parish registers held in the State Archive in Poznań end in 1874. Consequently, from 1875 onward, the database relies solely on the Protestant Holy Cross registers and civil registry books. The Holy Cross parish ceased recording causes of death in 1881, and civil registers never implemented a standardized method for documenting causes. These factors explain the marked decline in the number of deaths with reported causes in the database after 1875 (Figure 5), with causes of death accounting for an average of only 63% of all recorded deaths.

All mortality data were collected through the collaboration of specialists from various disciplines, including archivists, historians, historical demographers, and biologists. The data are deposited in the Adam Mickiewicz University Research Data Repository (AMURd) and, in accordance with the principles of open science, are made publicly accessible (<https://poznandatabase.pl/index.php/repozytorium-bazy-danych/>). To facilitate use, links to scans of the original sources are also provided. Through the digital repository, users can browse birth, marriage, and death records and access detailed information about 19th-century inhabitants of Poznań. The application integrates individual records with scans of the original book pages. For additional convenience, dictionaries with translations of Latin and German terms, including causes of death, are provided alongside the scanned pages (<https://zdzecia.poznandatabase.pl/>).

Figure 4 *Total number of deaths, number of deaths with reported causes, and the percentage of deaths with reported causes (1830–1900)*

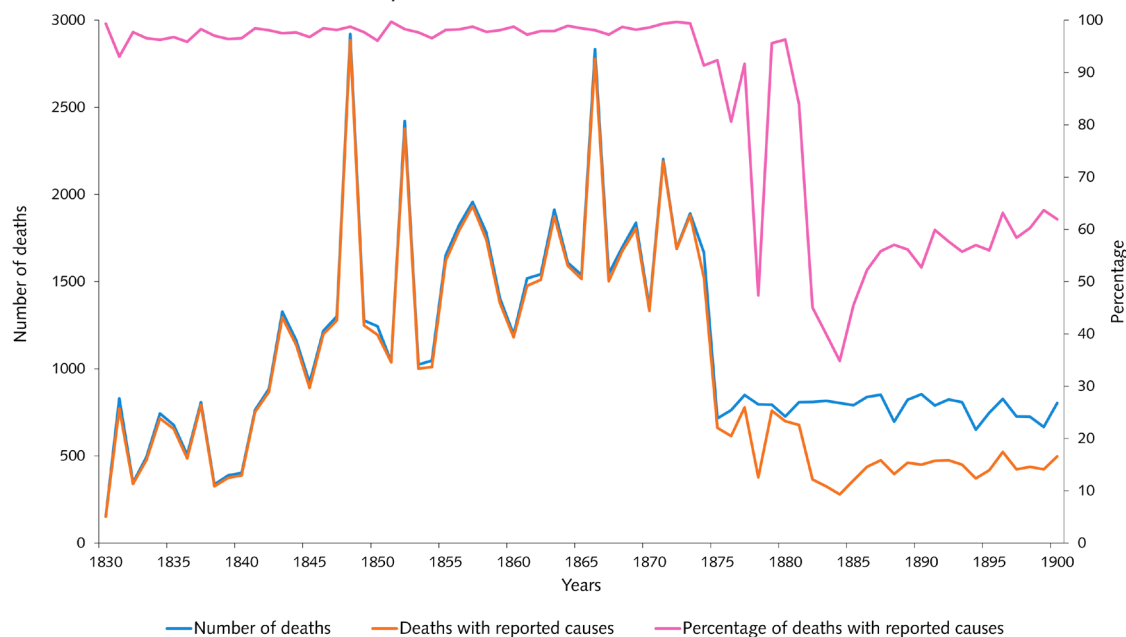
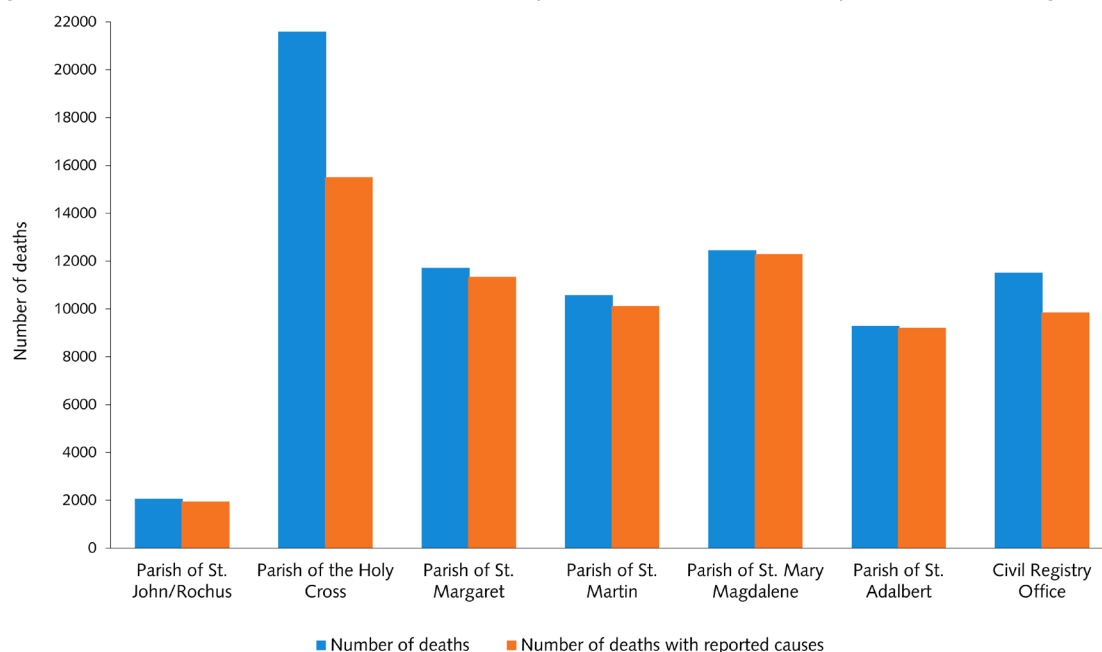


Figure 5 *Total deaths and deaths with reported causes recorded in parish and civil registers*

5 RECENT RESEARCH USING HISTORICAL SOURCES AND POPULATION DATABASES FOR POZNAŃ

The Poznań Historical Population Database, created between 2021 and 2024, represents a very recent and comprehensive resource for studying 19th-century urban populations. Despite its recent development, the database has already facilitated several significant studies, particularly regarding mortality patterns by cause. One of the first investigations focused on the cholera epidemic of 1866 in Poznań, which lasted from 18 June to 22 October and was the largest cholera outbreak in the city during the 19th century. Using individual-level mortality data from the database, the study examined whether the epidemic exhibited gender selectivity. The results indicated that significantly more women than men died from cholera, a difference closely linked to the gendered division of labor. Since cholera is a waterborne disease, it disproportionately affected people whose daily work involved contact with water. Women employed as housemaids, servants, cooks, nurses, and babysitters were particularly exposed, as their tasks included cooking, cleaning, washing, and caring for the sick (Liczbińska & Vögele, 2023). The study also explored how the 1866 epidemic reflected social and economic inequalities, using occupation and quarter of residence as proxies for socio-economic status. Domestic servants were found to be at the highest risk of death, highlighting the intersection of occupation, social class, and exposure to infectious disease. Mortality patterns mirrored ecological and urban conditions, which were particularly unfavorable in a city constrained by fortress walls, leading to overcrowding and poor sanitation in specific quarters (Liczbińska & Vögele, 2025a, 2025b). Beyond cholera, the database has enabled analyses linking environmental conditions to mortality. Using individual-level mortality data, researchers demonstrated clear relationships between temperature and precipitation and the probability of death from waterborne and airborne diseases in 19th-century Poznań (Liczbińska et al., 2024). These findings show that climatic and ecological factors interacted with social and economic conditions to shape mortality risks in urban populations. Moreover, the impact of cholera epidemics extended beyond mortality to social and demographic behaviors, particularly marriage patterns. Post-epidemic shifts were observed in age differences between spouses, disparities in marital status, and the frequency of interfaith unions. These patterns reveal socially stratified responses to mortality crises, illustrating how high-mortality events reshaped partner selection, marriage timing, and broader social dynamics in the city (Liczbińska et al., 2026).

Overall, these studies demonstrate the value of the Poznań Historical Population Database not only for historical demography but also for interdisciplinary research connecting epidemiology, social history,

and environmental studies. The availability of detailed, individual-level records allows scholars to examine how mortality, social structures, and environmental factors interacted in a rapidly changing urban context, providing insights that would have been impossible using aggregated or incomplete historical sources.

6 FUTURE RESEARCH AND POTENTIAL USES OF THE SOURCES AND DATABASES

Further research opportunities using the Poznań Historical Population Database are extensive. Key avenues include studies of causes of death in relation to climatic and socio-economic factors, spatial variation in mortality from specific causes, the dynamics of infectious disease spread during epidemics, sex differences in disease patterns, and sex-selective mortality, along with their biological and cultural determinants. Recent investigations into child mortality among children aged 1–4 in Poznań ([Liczbińska & Holom, in press](#)) utilized the ICD10h classification system to code causes of death ([Reid et al., 2024](#)). These coded entries account for 56% of all recorded deaths, providing a foundation for comparative analyses with other historical populations and modern epidemiological data. Ongoing research explores the long-term biological, demographic, and health consequences of the 1866 cholera epidemic (PhD thesis by Patryk Sebastian Pankowski; in preparation), as well as the lasting social effects of adverse early-life conditions, including fetal development, infancy, and early childhood, exacerbated by environmental stressors such as infectious disease epidemics (PhD thesis by Szymon Antosik; defended in April 2026; see also [Antosik et al., 2026](#)). Other studies focus on the state and dynamics of the biological population of Poznań, examining how mortality and health outcomes varied across life stages and social strata (PhD thesis by Karolina Kowalska; ongoing research). Particular attention is being paid to vulnerable populations, such as infants, young children, and the elderly, to better understand the determinants of mortality and health disparities in historical urban contexts. In addition to demographic and biological research, the database has been employed to study social and cultural patterns. For example, Linda Koníková analysed marriages contracted in Poznań between 1830 and 1900 in her PhD thesis ([2026](#); see also [Koníková et al., 2026](#)). Her study revealed strong homogamy in terms of origin, religious denomination, and social status, highlighting the influence of cultural norms and economic conditions on partner selection and family formation (see also [Koníková, 2026](#)).

Collectively, these studies illustrate the versatility of the Poznań Historical Population Database for interdisciplinary research. By linking individual-level demographic, social, and health data with environmental, occupational, and spatial information, researchers can investigate a broad array of questions in historical demography, social history, epidemiology, and bioanthropology. The database's integration of digitized sources with detailed metadata further allows researchers to verify and contextualize findings, making it an invaluable tool for both quantitative analyses and qualitative historical research.

7 SUMMARY

The historical Polish lands, particularly 19th-century Poznań, offer a rich field for demographic research due to the availability of extensive parish and civil vital records. These sources document births, marriages, and deaths and reflect variations in record-keeping practices, administrative regulations, and socio-economic conditions across the Prussian, Russian, and Austrian partitions. Catholic parish registers were primarily maintained in Latin, Protestant registers in German, and civil records in the official Prussian language. Causes of death were initially recorded based on symptoms or affected body parts, but advances in medical science gradually shifted classification toward aetiology. While some entries, such as "cough" or "frailty", were ambiguous, epidemic diseases like cholera, smallpox, and typhus were generally recorded reliably. Between 2021 and 2024, the Poznań Historical Population Database was created. It contains 262,764 individual entries, including 157,671 births, 17,832

marriages, and 87,261 deaths, covering six parishes and civil registry records from the 1830s to the early 20th century. Mortality data were collected with high completeness before 1874, particularly in Catholic parishes, while civil and Protestant registers became less systematic after that date. The database integrates individual records with scans of sources and provides dictionaries of Latin and German terms, facilitating historical-demographic research and open access to primary data. The database has already supported studies on mortality, epidemics, and social dynamics. Analyses of the 1866 cholera epidemic revealed gender- and occupation-specific mortality patterns, reflecting the division of labor and socio-economic inequalities. Environmental factors, such as temperature and precipitation, were shown to influence mortality risks from waterborne and airborne diseases. Post-epidemic shifts in marriage patterns illustrate how mortality crises reshaped social behavior, partner selection, and family formation. Ongoing research explores long-term biological, demographic, and social effects of epidemics, child mortality, vulnerable populations, and urban population dynamics. The resource also supports studies of cultural and economic influences on marriages, including patterns of homogeneity by origin, denomination, and social status.

Overall, the Poznań Historical Population Database is a unique, interdisciplinary tool that enables researchers to link demographic, social, and health data with environmental and spatial factors, offering unprecedented opportunities for the study of historical populations, epidemiology, social structures, and cultural behavior.

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