

# The Role of the Poor in the Formation of Germany's Health System

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## Socio-economic conditions

The traces of many hallmarks characterizing the modern German health system go back to innovations made during the time of industrialization in 19th century Germany. Industrialization led to the emancipation of peasants who became factory workers in the cities living under bad conditions. Medical and pharmaceutical treatments were not affordable. To solve this social problem, several laws were implemented. Law books and medical prescriptions are artifacts that bear witness to the changes in the health system of that time, which also can be tracked into today's German health system. In this poster, we want to examine the question "To what extent did the treatment of the poor serve as an incubator of innovative ideas that would eventually become hallmarks of one of the most advanced health systems worldwide?". Our analysis is based on law books and selected prescriptions used for illustrative purposes from this period. We intend to widen our scope to a larger sample of approximately 10,000 prescriptions. Within this poster, we argue for the research direction by studying transformations in terms of 1) efficiency of the medical therapy, 2) administrative efficiency, and 3) mass drug production. Using this rationale is justified by the fact that during industrialization the population grew, which led to increasing numbers of health insurance policy owners whose expenses were required to be covered by existing policies. Thus, physicians were forced to prescribe drugs that were both effective and low-cost. For their prescribing, physicians had to use standardized forms provided by the health insurances over time, which needed to be countersigned by pharmacists. The pharmacists bought the drugs for mass treatments from pharmaceutical companies as production conditions in pharmacies were restrictive. This advanced the development of the German pharmaceutical industry with innovative pharmaceutical products.

### 1 From panaceas to active agents

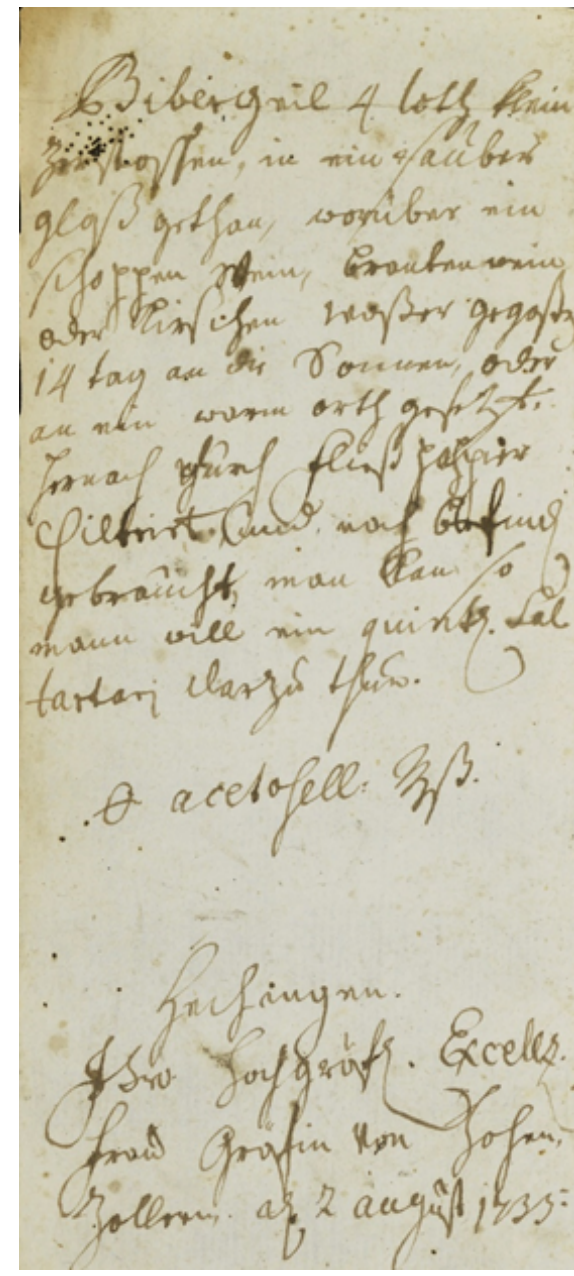


#### Hypothesis 1:

Treating the poor promoted the idea of therapeutic efficiency, a precursor of today's "efficiency principle"

Animalia like castoreum and bezoar or universal antidots like theriac were widely in use until the first half of the 19th century.

The same applied to selected purgatives and bloodletting therapies that were used to purify the body and preserve health. As historic prescriptions reveal, these expensive remedies were especially consumed by the wealthy population, whereas poorer patients received compounds solely to heal or alleviate their symptoms. Looking back in history, doctors treating the poor had to observe economy and greatest simplicity in prescribing due to the regulations of urban organized charity. Likewise, by the end of the 19th century, panel doctors were bound by contract to ensure similar provisions. In 1923, an official regulation came into effect demanding panel physicians to reject all unnecessary therapies and to prescribe only the essential medicine. This regulation has been adopted and slightly modified and is now part of the German Social Act under the designation 'efficiency principle'.



Bibergeil 4 loth klein zerstossen, in ein sauber glaß gethan, worüber ein schoppen Wein, Brantenwein oder Kirschen waßer gegoben, 14 tag an die Sonne, oder an ein warm orth gesetzt. Hernach durch Fließ papier filtrirt und nach Befind[en] gebraucht, man kan[n] so mann will ein quint[en] Sal tartari darzu thun.[1]

℞ [Salis] acetosell[ae] ʒβ [unciam semis] [2]

Hechingen.

Ihro Hochgräfl[iche] Excell[en]z Frau Gräfin von Hohenzollern d[er] 7[.] august 1735[3]

Translation and remarks:

[1] "Castoreum 4 lot small crushed, put it into a clean glass, pour a pint glass wine, brandy or kirschwasser over it, put it 14 days into the sun or in a warm place. Afterward, filter it through blotting paper and use it as needed; you can if you will add a quint of tartaric salt."  
 [Prescription for a castoreum essence; Castoreum is an exudate from the castor sacs of beavers, it had been in use for different medical purposes until the 19th century. It also was an important ingredient of universal antidots like theriac.]  
 [2] Potassium hydrogen oxalate, half of an ounce [Formerly applied as cooling and opening remedy or for technical use.]  
 [3] "Hechingen" [Town in central Baden-Württemberg, Germany] "Your Majesty, Excellency Mrs. Countess von Hohenzollern, August 7th, 1735" [The House of Hohenzollern was a royal dynasty in Germany.]



### 2 From personal letters to machine-readable columns of figures



#### Hypothesis 2:

Treating the poor promoted the need for administrative efficiency which transformed into today's insurance system for all.

Pre-industrial prescriptions were anonymous, but this changed with the industrial revolution. It created new social actors, like factory workers, as well as new institutions (e.g., health insurances) to address the problems created by the new social actors. To fulfill their role, health insurances relied on information about their policy owners. Consequently, they collected huge amounts of information. To process this information, standards were developed, which led to patients', physicians', pharmacists', and health insurances' data becoming visible over time. Like the prescribed drugs, this information was assigned to certain places on the prescription. The function of prescriptions widened as well, as it also served as a bill that pharmacists submitted to the health insurance providers. These innovations remain foundational to the German health system. They are also the basis for more recent innovations like the foundation of clearinghouses for prescriptions in the German federal states.

### 3 From hand-made pills to mass-produced tablets



#### Hypothesis 3:

Treating the poor promoted the need for the industrialization of pharmaceutical research and production

The manufacturing of pharmaceutical formulations was complicated and time-consuming in former centuries. But, although the pharmacists needed manual skills and a lot of experience, manufacturing was a source of major revenue for them. However, increasing medicalization during

the late 18th and 19th centuries generated the need for more cost-effective manufacturing methods. This applied, in particular, to the care of the poor, who required cheap and effective medicines in large quantities. Back then, many remedies consisted of several ingredients that were compounded in complex and time-consuming manufacturing processes. Take, for example, the historic dosage form 'pill': Its manufacturing afforded craftsmanship, and had been made by hand and even special devices like 'pill boards' could accelerate the process only a little. Within the 20th century, an invention of William Brockedon (1787-1854), which is known today as 'tablet', slowly replaced the long-serving pill. Besides galenic advantages, tablets appeared to be mass-produced much easier. Likewise, several other new dosage forms were invented so that the manufacturing of medicines shifted more and more towards large-scale producers.



Image sources (from top left to bottom right):

- Bezoars ©Deutsches Apotheken-Museum Heidelberg
- Prescription, Inv.-No. VII A 0457\_0001r ©Deutsches Apotheken-Museum Heidelberg
- Theriaca ©Deutsches Apotheken-Museum Heidelberg
- Prescriptions ©Deutsches Apotheken-Museum Heidelberg (adapted)
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## Conclusion

In this poster, we have analyzed the hitherto hardly examined influence of the poor in the development of the German health system during the industrialization of 19th century Germany. Therefore, we have chosen to research three trajectories – efficiency in medical therapy, administration, and drug production – and analyzed the changes in these areas during the mentioned time. These trajectories reveal that efficiency in all three areas increased. This was necessary due to the mass of people needing treatments to achieve a decent standard of living. These changes were the basis for future innovations, and traces are still found in today's German health system.



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