
EFFECT OF SEMMELWEIS 2.

There was Semmelweis in the right place at the right time?

Jókor volt jó helyen Semmelweis?

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Abstract:

By turning around the classic adage (in the wrong place at the wrong time) we can raise a reasonable question whether Ignaz Philip Semmelweis (1818-1865) was really deprived of the situation as indicated by both terms of the title. The proper answer should in turn explain why his discovery waited nearly half century for the well-deserved recognition.

One of Semmelweis's mishaps was – while grinding between the millstones of the applied and theoretic medicine – the expectance of the academic world to provide reliable scientific evidence for his thoroughly practical solution. Independent of this pressure, very simple practical solutions may also have an immediate and resounding success, if they calm down general and near to explosion social problems. However, Semmelweis had a great disadvantage in this regard by the extremely marginal social status of pregnant women to be delivered in the contemporary obstetrical wards. This was a significant backlash for the obstetrics allowing pseudoscientific considerations about the quality of corrupt air and miasmas flying around instead of saving the life of mothers deceased in puerperal fever.

It was a basic mistake when the history of medicine manufactured a straight lineage of events as a justification for Semmelweis's posthumous canonisation starting from microbiological discoveries of Louis Pasteur (1822-1895) and ending up in Joseph Lister's (1827-1912) success in caring for compound fractures. Nevertheless, Pasteur proved inevitably that Semmelweis was right not only in practical, but also scientific terms. On the other hand, Lister's results demonstrated only how Semmelweis's discovery might have succeeded if he had had to meet similar social expectations like those of the English industrial revolution.

However, there was a contemporary and resounding success story in the era of Semmelweis, which answers exactly all positive and negative turns of his endeavours. This comparative story will be demonstrated in this presentation with due respect to Semmelweis while arranging all turns objectively of the past events.

Keywords: Semmelweis, his discovery, mistake of history of medicine

Kulcsavak: Semmelweis, felfedése, orvostörténeti tévedés

Overviewing stories and fate of the greatest scientific discoveries, we meet either prompt triumph and celebrations or misunderstanding extended to hard rejection with forgotten

heroes rediscovered later on and venerated by full-sized marble sculptures as saviour of the human race.

Developing theories is a typical intern issue of the academic circles but applied sciences that depend essentially on the practical needs of the society. Using the classic adage, many things do work in practice, but do not work in theory.

The other feature of discoveries is of temporal and spatial nature. Some of them happen to the right place at the right time others to the wrong place at the wrong time. Concerning medicine, some discoveries were desired eagerly for centuries or even millennia and were celebrated at once when emerged other ones however presented had to wait for the resounding success decades or even centuries. Given the worst scenario, we must raise some reasonable questions. Why Ignaz Philip Semmelweis (1818-1865) did not succeed in his lifetime, and why his simple method of chlorine hand washing was not taken over at once by all obstetrical wards of Europe and throughout the world.

Revising the history of medicine, there are four inseparable conditions for a sudden breakthrough of revolutionary changes. The first one is resolute expectations of the specific profession for any solution of a well-defined but unsolved problem. Secondly, easy and immediate practical implementation is required of any new procedure. Third, the new procedure must provide obviously positive changes in the quality of life of huge populations, and finally the health and welfare policy impact of the procedure must be welcome and supported by the main social stakeholders (recently political lobbies).

Instead of analysing parallel breakthroughs of Semmelweis' contemporaries, the history of medicine justified Semmelweis's posthumous canonisation by later microbiological discoveries of Louis Pasteur (1822-1895) and Joseph Lister's (1827-1912) success while treating infected compound fractures. Pasteur proved indeed that Semmelweis was right not only in practical, but also in theoretical terms. On the other hand, Lister's results demonstrated how Semmelweis's discovery might have succeeded if he had had to meet similar social expectations like those of the English industrial revolution.

Indeed, there is no doubt about the successful implementation of Semmelweis's hygienic procedures but it covered only a single precondition of the four ones mentioned above. It was easy and immediately applicable in all obstetrical wards at a highest level of cost-benefit ratio in terms of our modern health economy calculations. However, it worked only in practice but did not work in theory. Prior the testing of the remaining three unmet requirements, two world famous stories may highlight the significance of the right place and the right time.

The first one is the ether narcosis on October 16, 1846 in the USA. This day in the lecture room and operating theatre of the Massachusetts General Hospital in Boston was given the first demonstration of the general anaesthesia that produced insensibility of the patient during the surgical operation. John Collins Warren (1778-1856) while removing the tumor from under the jaw of a young male patient experienced the first time the ideal situation waited for millennia by all surgeons of the world. According to the bronze-plate on the wall of this historic hall "the patient declared that he had felt no pain during the operation and was discharged well December 2. Knowledge of this discovery spread from this room throughout the civilized world and a new era for surgery began".

Let us have a closer look at this story keeping in mind all the four criteria of the immediate revolutionary changes. First, terrible pain during the operation stigmatized the

surgery since ages nevertheless the ancient dream of painless procedure became a spectacular reality at once October 16, 1846. Unbelievable expectations since the prehistoric times were fulfilled at once and nobody hindered the widespread practical implementation. Nobody required evidence based studies on laboratory animals or cited classic authors about the patients' unavoidable suffering. Nobody demanded sophisticated explanations of biochemical mechanisms induced by ether inhalation in the peripheral and central nervous system. Huge populations realized positive changes in their quality of life when they were gotten ill by surgical conditions and the whole society celebrated the health and welfare policy impact of the new procedure. It is astonishing but a historic fact that Hungarian surgeons János Balassa (1814-1868) and Ferenc Flór (1809-1871) performed less than three months after the Boston demonstration the first operations using ether in the Saint Roc Hospital in Pest January 11 and 12, 1847.

The second story happened during the same time when Semmelweis was the head of the obstetrical and gynaecological ward in the same hospital. The Crimean War (1853-1856) was the first modern military conflict of the European warfare challenging the traditional field surgery and hospitals alike. The fate of battlefield casualties revealed that the British expedition army was unprepared too in terms of military health services. Hospital mortality of the central field facility in Scutari near Constantinople mounted to 42%. In other words, among ten wounded soldiers died four after the successful minor or major surgical operation. The British admiralty knew exactly the substandard hygienic circumstances of its central hospital, and Florence Nightingale (1820-1910) was requested by the Secretary of War to recruit trained nurses to hospital service in Scutari and to set up proper hygienic regime of the military service. She was born into a rich, upper class, well-connected British family on diplomatic mission in Florence and was named by her parents after the city of her birth. Nightingale was a trained nurse because she spent 3 months at a hospital and orphanage of the protestant community of deaconesses in Germany. Together with her 38 colleagues, she reduced the mortality rate from 42% to 2.2%. Certainly, the media at the time might have exaggerated Nightingale's achievements in the Crimean War, it happened only to satisfy the public's need for a hero in this desperate conflict of the European big powers. Otherwise, it is a matter of fact that after the War she established 1860 the Nightingale Training School for Nurses at St Thomas's Hospital in London, which made nursing a respectable female profession. Her success went literally around the globe as at the request of Australia's governor six Nightingale-trained nurses travelled to Sydney in 1866 to implement her infection control measures in the Sydney Infirmary.

Recalling the four preconditions, both stories, albeit weighted differently, met exactly the key requirements for a sweeping victory. General anesthesia was waited for since ages by the surgeons' subsequent generations. The procedure seemed to be harmless and very simple (at least at the dawn of the new era), patients got rid of terrible pain and by successful operations did not burdened any more the charity services. Hospital hygiene by its simple methods changed the way of thinking of the whole society. It revolutionized field health services and the powerful military lobby celebrated it because it strengthened the battlefield moral of the armies. Civil facilities with well-trained nurses provided ideal back up for the more and more invasive surgical operations.

The underlying cause of Semmelweis's misfortune was that he met only one requirement of the four criteria. There is no question his method was simple maybe too simple

to be true in the eyes of the academic community. However, it solved the problem of fatal puerperal fever epidemics among delivered mothers in the contemporary hospital centres. Despite of success, there was no celebration, health and social policy remained interested instead. The academic world rejected Semmelweis's poison theory and the mediating role of physicians' naked hand from autopsies to deliveries. Europe's leading obstetricians started endless theoretical disputes about corrupt air and miasmas as causative agents flying around in the obstetrical wards let alone the harmful sound effect of the ringing bell used by the hospital church service.

Semmelweis' greatest disadvantage was the extreme marginal social status of his patients stigmatized as fallen women by their extramarital pregnancy and shunned therefore to the bottom of the social structure. Data collection by overiewing the admission records of the St Roc Hospital, indicate clearly this fact e.g. September 1854 when Semmelweis was the head of the Obstetrics and Gynaecology Department. There were 40 pregnant women admitted, who broke the strict contemporary social code of conduct. Among them were 31 dismissed housemaids, 5 day labourers, 1 kitchen maid, 1 laundry maid, and 1 tobacco factory employee. The English term "Victorian morality" is the best definition for the hypocritically applied general behaviour of the so-called normal society. All women living in legal marriage even under poorest conditions were delivered at their own homes thus established social classes were saved from hospital based puerperal fever epidemics. No doubt, this situation remained the same when Semmelweis became celebrated as saviour of mothers. By celebrations, rather the academic community repented its scientific sins committed in the middle of the 19th century.

Concluding the whole story with its entire historic circumstances, Semmelweis made the greatest theoretical discovery paradoxically by the simplest practical measures. Prior to Florence Nightingale, he was the founder of the modern hospital hygiene while overcoming the nosocomial infections. Finally, he revolutionized obstetrics by opening the way for mass hospitalization of deliveries, which was essential for reducing drastically the maternal mortality and saving the life of preterm and low birth weight babies. Without any doubt, Ignaz Philip Semmelweis was one of the greatest medical scientists since the ancient times to the 21st century.