

**Thème 3 – Corps humain et santé**  
**3 - A - Le maintien de l'intégrité de l'organisme**

**Semmelweis and the antiseptia.**

Birth could be a very complicated moment in a woman's life. It could also be very dangerous. Explain why, using the documents, and try to follow Semmelweis' scientific method.

**Document 1: Ignaz Semmelweis.**

Ignaz Semmelweis was born on July 1<sup>st</sup>, 1818 near Budapest. In 1844, Semmelweis was awarded a doctorate in Medicine. At the end of his training Semmelweis decided to specialize in obstetrics. His first medical position came in 1846 when he was appointed as an assistant in a maternity ward at Vienna General Hospital.



**Document 2: the 'Miasma' theory: a possible cause to the puerperal (= childbed) fever.**

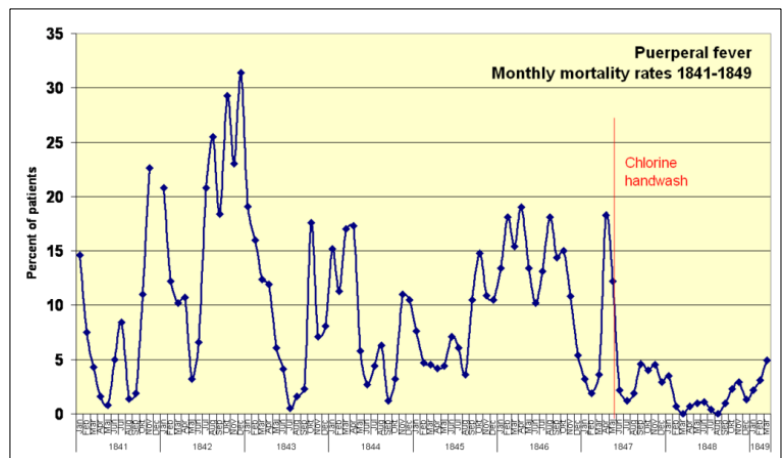
The number of young mothers who died in the ward after giving birth immediately struck Semmelweis. In the first month that he worked in Maternity Ward No 1, 36 women out of 208 died – a 17% fatality rate. He learnt that Maternity Ward N° 1 had a poor reputation outside the hospital as the one in which you, as a young mother, had the greatest chance of death when compared to Maternity Ward N° 2. Services at the hospital's maternity wards were free and they served the city's less well-off women. However, Semmelweis learnt that women would rather give birth in the streets around the hospital rather than be admitted to Ward No 1 and that they had a better chance of survival.

[...] The explanation he was given by experienced workers in the ward was that the women were victims of a 'poisonous gas' that had got into the ward. This was a very commonly held belief and one that had been around for many years. This 'miasma' was invisible and for some fatal.

**Document 3: Experiment and results.**

Semmelweis believed that the cause of so many deaths in Ward N° 1 was the nearby post-mortem room. Ward N° 1 was the preserve<sup>1</sup> of doctors and trainee doctors while Ward N°2 was where only midwives learned their profession. At the Vienna General Hospital it was very common for obstetricians to carry out autopsies in the morning and then carry on with their other work in Ward N° 1 after that. Midwives did not do autopsies.

Semmelweis ordered that all medical staff in Ward N° 1 had to wash their hands in chlorinated lime before visiting a patient and that the ward itself had to be cleaned with calcium chloride. The mortality rate in Ward N° 1 is shown by the graph.



Sources: [https://en.wikipedia.org/wiki/Ignaz\\_Semmelweis](https://en.wikipedia.org/wiki/Ignaz_Semmelweis)  
<http://www.historylearningsite.co.uk/a-history-of-medicine/ignaz-semmelweis/>

<sup>1</sup> a preserve (ici) = domaine réservé, chasse gardée

## **Teacher's corner :**

You've got the opportunity to test if the student is aware about the scientific method.

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Document 1: Semelweiss was a Hungarian doctor specialized in obstetrics. At that time you feared the childbed fever which can kill you.

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Document 2: 1<sup>st</sup>: Ward 1 versus Ward 2. Very different mortality rates. What's the cause?

Could it be miasma? Something in the air, a poisonous gas...?

Could be but the two wards were close to each other so you have to reject this idea.

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Document 3: Idea and then test it. Beautiful experiment ; test group versus control group.

→ The use of chlorine is very efficient. You immediately can note that the mortality rate plummeted.

So, hand washing was the answer. Something (call it germ but they will be discovered later by Louis Pasteur) was brought by the trainee doctors when they came from the post-mortem room to examine women in labour.

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Document 4: Yes, he was right but he miscommunicated and they were very few to trust him. He died alone and ignored.

Document 4: Semelweiss, an ignored hero.

In 1861, Semmelweis published 'Die Aetiologie, der Begriff und die Prophylaxis des Kindbettfiebers' (Etiology, Concept and Prophylaxis of Childbed Fever) – "which stands as one of the epoch-making books of medical history." The work was filled with a mass of statistics and proved difficult to read. It was met with hostility by the medical profession and many simply mocked its findings. Beginning in 1861, Semmelweis suffered from various nervous complaints. He suffered from severe depression and became absentminded. Paintings from 1857 to 1864 show a progression of aging. He turned every conversation to the topic of childbed fever. He finally died in an asylum.

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It took another twenty years before his findings were universally accepted. For years many of Europe's leading medical practitioners believed that childbed fever was a disease of the bowel and that purging was the best medicine for it.

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Some decades later, microbes are discovered and the miasma theory completely rejected by Louis Pasteur.

### **Other possible questions:**

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How often do you wash your hands? When (before each meal?)

What difference do you know between antisepsia and asepsia?

If you have been contaminated by some germ, what kind of treatment could you have? A: antibiotics.

Are you aware of antibiotic resistance?...

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About Europe:

Is Hungary member of the UE?

Of Schengen area?

Do they have euro? What's the currency? Florint

What's the capital city? Budapest on the Danube (the longest river in Europe)...