Dr. Ignaz Semmelweis  
Saviour of mothers  
1818-1865  

Source: http://en.wikipedia.org/wiki/Ignaz_Semmelweis

Background  
- Vienna General Hospital (1846)  
  - Two maternity clinics  
    - First clinic had a maternal mortality rate due to puerperal fever of about 10%  
    - Second clinic's rate was considerably lower  
- Dr. Semmelweis became the titular of the First Clinic  
  - He described desperate women begging on their knees not to be admitted to the first clinic  
- The clinics used almost the same techniques  
- Dr. Semmelweis started a meticulous work eliminating all possible differences  
  - One major difference  
    - Individuals working in the 2 clinics  
    - First Clinic was the teaching service for medical students  
    - Second Clinic had been selected for the instruction of midwives only.
Breakthrough

- Breakthrough (1847)
  - The death of his friend from an infection contracted after his finger was accidentally punctured with a knife while performing a postmortem examination.
  - Autopsy showed a pathological situation similar to that of the women who were dying from puerperal fever.
- Dr. Semmelweis proposed a connection between cadaveric contamination and puerperal fever.
- He concluded that he and the medical students carried the infecting particles on their hands from the autopsy room to the patients they examined in the First Obstetrical Clinic.
  - Midwife students in the second clinic were not engaged in autopsies and had no contact with corpses which explained the lower mortality rate there.
Germ Theory of Disease

- The germ theory of disease had not yet been developed at the time
  - Germ theory of disease was developed, some decades later, by Louis Pasteur
- He instituted a policy of using a solution of chlorinated lime for washing hands between autopsy work and the examination of patients
  - The mortality rate in April 1847 was 18.3 %
  - Handwashing was instituted in May
  - Rate in June was 2.2 %

Ideas Contrary to Established Medical Knowledge

- Semmelweis' key idea
  - Harmful infectious particles could sit in minuscule amounts on fingers was contrary to all established medical knowledge
- His observations went against all established scientific medical opinion of the time.
  - Diseases spread in the form of bad air, also known as miasms or vaguely as *unfavourable atmospheric-cosmic-terrestrial influences.*
- Some surgeons were offended at the suggestion that they should wash their hands;
  - Surgeons felt that their social status as gentlemen was inconsistent with the idea that their hands could be unclean
Widened the Scope of the Washing Protocol

- Dr. Semmelweis widened the scope of his washing protocol (1848)
  - To include all instruments coming in contact with patients in labor and used mortality rate time series to document his results
  - Virtually eliminating puerperal fever from the hospital ward

Breakdown, death and oblivion

- From 1861 Dr. Semmelweis suffered from nervous complaints.
  - He suffered from severe depression and became excessively absent minded
- In 1865 was committed to a Viennese insane asylum
  - Treatments at the mental institution included dousing with cold water and administering castor oil, a laxative. He died after two weeks.
- Semmelwies' critics considered themselves positivists.
  - But, they could not accept his ideas of miniscule and largely invisible amounts of decaying organic matter as a cause of every case of childbed fever
Semmelweis Reflex

• A metaphor for a certain type of human behaviour characterized by reflex-like rejection of new knowledge because it contradicts entrenched norms, beliefs or paradigms.

€50 Gold Coin commemorates Semmelweis, Austria 2008

‘Your life is in hospital workers' (clean) hands’

• Hand-washing is perhaps the easiest, lowest-technology way to prevent the spread of germs, but even the highest-tech hospitals can't seem to get their doctors and nurses to do it enough.

• Two years ago, the US Centers for Disease Control and Prevention told every hospital in the country that their doctors, nurses and other healthcare workers needed to do a better job of washing their hands to cut down on patient infections.

Peter DeMarco, 13/07/2004
Competing priorities

• Getting doctors and nurses to become obsessive hand washers is proving difficult.
• For most, it’s a question of competing priorities
  – At 30 seconds per hand wash, busy hospital workers who constantly jump from patient to patient could spend 10 minutes per hour washing their hands, leaving them less time to do other important tasks,
  • Like examining patients and double-checking drug doses.

Peter DeMarco, 13/07/2004

Cost and Benefit of Hand-Washing

• As many as 5% to 10% of US patients contract an infection while in the hospital, resulting in about 2 million infections per year -- leading to 90,000 deaths -- at a cost of $4.5 billion.

• A study by infection control experts at the University of Geneva Hospitals that found a 50% drop-off in patient infections after modest increases in hand-washing by staff members.

• Brigham and Women's Hospital, which has one of the most successful hand-hygiene programmes around,
  – Only reached 80% compliance in some intensive care units
  – It was offering free movie passes to the units that kept their rates high

Peter DeMarco, 13/07/2004