Semmelweis – Background

• Semmelweis was a Hungarian doctor
• He worked at Vienna’s General Hospital, an important research hospital, in the 1830s-40s
• In Vienna, 2,000 women/year died from childbed fever
• In 19th-century Europe, childbed fever killed more than a million women
• The mortality rate for women giving birth in his ward, staffed by doctors and students was 15%. In line with other hospitals at the time, but fairly horrific
• The mortality rate in a 2nd ward at the hospital, attended by midwives, was 2%
Controlling All Factors

• Semmelweis tried to control for all factors, including birthing positions, ventilation, diet, and even the way laundry was done.

• Finally, two events happened that yielded a breakthrough:
  - He was away for 4 months and death rate fell significantly when he was away. He concluded that he is related to the problem!
  - His friend died after puncturing his finger with a knife while performing an postmortem. His friend’s autopsy revealed symptoms similar to childbed fever.
The Connection

• Semmelweis proposed the unthinkable: the doctors were responsible!
  – Vienna General was a teaching and research hospital
  – Doctors split their time between research on cadavers and treatment of live patients
  – They performed autopsies each morning on women who had died the previous day

• Particles from cadavers (called germs today) were being transmitted to healthy patients on the hands of the physicians
The Solution

• He experimented with various cleansing agents
• He Instituted a policy requiring physicians to wash their hands in chlorine and lime
• The death rate fell from 18% to 1% in 1848
Disbelief by Medical Community

• Semmelweis was dropped from his post at the clinic
• He went to a hospital in Hungary, and reduced mortality rate in the obstetrics to 0.85%, while in Prague and Vienna the rate was about 10% to 15%
• His student published a paper about the success of chlorine washings. The editor wrote
  We believe that this chlorine-washing theory has long outlived its usefulness... It is time we are no longer to be deceived by this theory
• In 1865, he suffered a nervous breakdown, and was beaten at a mental hospital, where he died
Semmelweis, the Pioneer

• In 1879, Louis Pasteur showed the presence of Streptococcus in the blood of women with child fever
• Semmelweis’s results were accepted over time, especially as more results proved him correct
• Semmelweis is now recognized as a pioneer of antiseptic policy with stamps and coins (new 50 Euro in 2008) commemorating him
Semmelweis Reflex

- **Semmelweis Reflex** is a reflex-like rejection of new knowledge because it contradicts entrenched norms, beliefs or paradigms.

- Is this just bad science in the past?
- A 2005 research article shows that hand-hygiene practices among healthcare workers remain unacceptably low.
- Inadequate hand washing is one of the prime contributors to the 2 million health-care-associated infections and 90,000 related deaths annually in the United States.

- Is your organization suffering from Semmelweis reflex?
- Get the data – run controlled experiments, and learn!