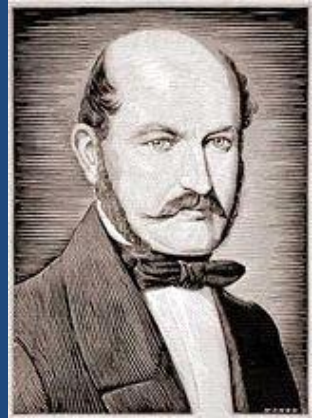


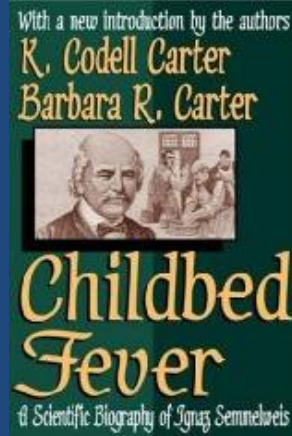
# Semmelweis – Background



- 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 19<sup>th</sup>-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 2<sup>nd</sup> 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!