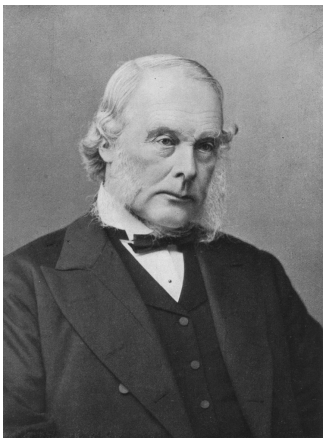
# Medicine for Managers

Dr Paul Lambden BSc MB BS BDS FDSRCSEng MRCS LRCP DRCOG MHSM FRSM

# Joseph Lister (1827-1912)

**I have recently written about Pasteur and Koch, Hunter and Hodgkin, pioneers of healthcare in their fields during the nineteenth century. These men drove forward the knowledge about their particular areas of expertise. Perhaps the other great pioneer in this quintet should be Joseph Lister, ultimately Baron Lister of Lyme Regis who introduced principles of cleanliness**



I always thought of Joseph Lister as a Scotsman but, in fact he was born in West Ham which, at that time, was in Essex. His parents were Quakers. He was well educated in and around London and subsequently went to University College Hospital where he acquired his medical degree.

He already had a keen interest in surgery and he attended the very first surgical procedure carried out under anaesthetic in 1846.

He moved to Scotland and became first assistant to the eminent James Syme, Professor of Clinical Surgery at Edinburgh Royal Infirmary, and subsequently his son-in-law! Indeed his wife, Agnes, became as enthralled with research as Lister and remained his laboratory partner for the rest of her life.

The name of Lister will forever for associated with the recognition of antiseptics as vital in the prevention of infection. It is all said to have happened because Lister noticed that carbolic acid, used as a disinfectant to reduce the terrible smell associated with the fields which were sprayed with sewage, did not harm the animals which subsequently grazed on the same fields.

Before that time, there were a range of theories about the cause of wound infections. ‘Bad air’ was favourite but there was no recognition of lack of cleanliness as a vector.

As surgery started to emerge from the primitive and to develop some sort of protocol for technique, nonetheless hygiene did not feature. Surgeons did not, for example, wash their hands before operating, made no attempt to change blood and pus-stained attire between operations and wallowed in the “good old

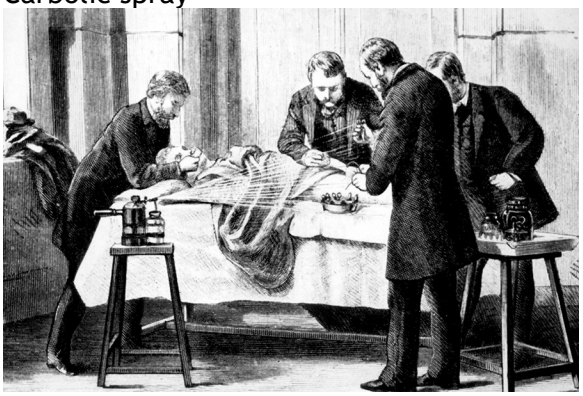
surgical stink" as a badge of honour and success.

Lister read the work of Pasteur who had shown that invisible organisms were responsible for the souring of milk. Pasteur had developed a way of eliminating the organisms by pasteurisation (heating).

He also worked on the microbiology of many endemic infections and developed inoculation procedures. Lister saw the significance of this and extended the concept to surgical technique. He explored the prospect of treating wounds with chemicals. His first subject was a seven-year-old boy at Glasgow Royal Infirmary who had broken his leg when a cartwheel ran over it. He covered the wound with lint soaked in carbolic acid (phenol). The result was that the rate of infection was greatly reduced. He continued the treatment with repeated applications for six weeks and found that the boy's bones became united with no infection. He published his findings in the Lancet in 1867.

Lister undertook a complete review of surgical activity, initially whilst working at Glasgow and subsequently when he returned to Edinburgh to succeed Professor Syme. Lister's achievements included changes in surgeons' hygiene, convincing them to wash their hands before and after surgery in 5% carbolic solution, and requiring the wearing of clean surgical clothing and gloves for each operation.

Carbolic spray



was used in operating theatres. All surgical instruments were washed in the carbolic solution.

His teaching became legendary at Edinburgh and clinicians would travel many miles to hear him lecture.

He achieved what Pasteur had failed to achieve; the understanding of the nature of bacteria and their role in disease, known at the time as the "Germ theory". Lister's theme latterly became, not the treatment of infection, but the prevention of infection getting into wounds at all.

He retired from surgery in 1893 following the death of his wife, but came out of retirement in 1902 to remove King Edward VII's appendix. He died in 1912.

His brilliance and pioneering work in surgery was recognised in the honours of a baronetcy bestowed on him by Queen Victoria and the Order of Merit by King Edward VII, who also made him a Privy Councillor. He came to be known by the epithets ***'The Father of Antiseptic Surgery '*** and the ***'Father of Modern Surgery***'.

There are statues of Lister in London and Glasgow and his name is accorded to hospitals including the Lister Hospitals in Stevenage and Chelsea. His name is also attached to a variety of sepsis and anti-

sepsis related conditions and prooducts ranging from the bacterium ***Listeria monocytogenes*** (found in food) to the proprietary mouthwash, ***Listerine***.

I am sure that Lister would be satisfied to be known as the surgeon, under whose influence, deaths during surgery fell dramatically.

paullambden@compuserve.com