*nhs*Managers.net | Briefing | 9 November 2026



Medicine for Managers

Dr Paul Lambden BSc MB BS BDS FDSRCS MRCS LRCP DRCOG FIHSCM

A Short History of Surgery

During my professional lifetime, now over half a century, medicine has changed hugely. It seems hard to imagine now that instruments were boiled to sterilise them, bone chisels were sharpened before use, there were no scans on which to rely, flexible endoscopes and hip replacements were just being developed and surgeons were often prima donnas. Well almost everything has changed!

Surgery is now mainly synonymous with hospitals but early attempts at surgery occurred in the community.

There is evidence that early surgical intervention may have occurred 10,000 years ago when operators used stone implements to open the skull (a procedure called trepanning) to reduce intra-cranial pressure following a bleed or a depressed skull fracture.

Hippocrates and his acolytes wrote in the fourth century of the care of wounds and fractures with splints and bandages and he also recognised that gangrenous tissue required excision. Hippocrates identified that the discharge of pus (suppuration) was a necessary part of recovery. His approach influenced wound management for many centuries and gave rise to the term '***laudable pus***'.

He also advocated removal of bladder stones, a treatment that appears in the Hippocratic Oath, though he pointed out that the treatment was not for physicians but for 'others'.

Celsus wrote of the use of cautery to counteract infection and the technique was developed between the seventh and eleventh centuries as a means of controlling bleeding.

There was much attention to trauma and, in the fourteenth century the textbook ***Grande Chirurgie,*** written by the French surgeon ***de Chauliac***, developed the concept of wound management, paying attention to careful debridement, cleansing and closing of wounds.

Of course, removal of limbs was popular as a way of treating significant injury and disease.

> *The use of such surgery increased by the sixteenth century as a result of the development of warfare and in particular of small arms and cannon.*

Surgeons learned that achieving a usable limb stump depended in large measure on removal of bone with retention of as much skin and muscle as possible so that the soft tissues could be closed over the bone. In that way wooden

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

legs or hooks could be attached.

In 1510, the French surgeon ***Amboise Paré*** was born. He wrote extensively on surgical management including the use of vascular ligatures, cautery and anti-inflammatory mixtures for reducing inflammation in wounds.

Paré was initially apprenticed to a barber surgeon and it was by this route that surgery was developing.

> *These surgeons earned their income by haircutting and shaving customers. It was this association of skills which gave rise to the 'blood and bandages' striped barbers' poles.*

Being a sailor in the Tudor and Stuart navy was a hazardous business if injured. Surgical management of injuries was carried out according to Woodall's *'The Surgeon's Mate'* and Wiseman's *'Treatise on Surgery'*.

Like all surgery of the time, treatment depended on having a very swift and slick technique and a very sharp knife because surgery was excruciatingly painful even if undertaken following consumption of large quantities of alcohol.

Most surgery into the seventeenth and eighteenth centuries was confined to such activities as extraction of teeth, blood-letting, treatment of wounds and the ubiquitous syphilitic chancres and other relatively straightforward interventions. The more dramatic treatments such as amputation and trepanning the skull were undertaken generally only exceptionally.

The development of surgery was slow because surgeons were seen as bloody operators, often incompetent and they compared poorly with the more finely dressed, often bewigged, clean, perfumed and immaculately presented physicians. Indeed medicine developed more quickly with the discovery of a variety of medicinal products but, of course, there was a huge amount of quackery as well. As the hospitals grew to meet demand and new hospitals were opened in the poorer areas their role was often as a repository for those people with self-limiting conditions who would recover and for those who were seen as incurables as a place to die.

In essence, before the arrival of anaesthesia, surgery was confined to those problems that were observable whilst physicians were exploring the medicine of symptoms. The surgical instruments of those times were really little different from those of the carpenter and were used in a similar way. Any sort of internal surgery awaited the arrival of ether, chloroform and nitrous oxide.

No account of the development is complete without recording the name of ***John Hunter***. Recognised in surgery and immortalised in the marble statue that stands in the centre of the Royal College of Surgeons of England at



Lincoln's Inn Fields, as well as in the painting by Joshua Reynolds in 1786. He studied at Chelsea Hospital and St Bartholomew's. After a period in the army his fascination of anatomy resulted in his collection of thousands of anatomical specimens which now form the basis of the Hunterian museum at the Royal College of Surgeons.

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

Surgical activity changed dramatically with the advent of anaesthesia. Of course the analgesic properties of drugs such as opium and alcohol had been known for centuries. However the results were unpredictable and holding down a patient and coping with the acute pain was to be preferred to the often difficult to handle drugged or drunk patient.



The 19th Century Scottish Surgeon, ***Robert Liston***, holds the record for the fastest amputation of a leg (allegedly about 28 seconds) and during one infamous incident, actually accidentally cut off his assistant's fingers and slashed a spectator's coat. The patient and the assistant both died of gangrene and the spectator died of fright; a single operation with a 300% mortality!

On another occasion, he accidentally cut off a patient's testicles whilst amputating the leg.



It is hard to imagine how absolutely dreadful pre-anaesthetic amputations must have been before the 19th Century, as the 18th century picture illustrates.

The new world of anaesthesia was heralded at the beginning of the 1840s by American dentists starting to use ***Ether*** to anaesthetise patients for tooth extraction. At about that time the first experiments with ***nitrous oxide*** occurred, again for the extraction of teeth. The word quickly spread throughout Europe although, within five years, ether was being replaced by ***chloroform*** which was safer. Queen Victoria had chloroform for childbirth.

As anaesthetics gained ground, a young ***Joseph Lister*** who had graduated at University College London moved to Edinburgh and later to Glasgow where he discovered that ***carbolic acid*** was an effective antiseptic. He experimented with wounds and found that, using carbolic acid, they did not become infected.

Medical opinion was slow to embrace antisepsis universally but as it gained acceptance and with anaesthesia becoming widely used and increasingly safe, the world of surgery opened up.

By the 1880s, appendicectomies were common and cholecystectomy was first carried out in 1882. From there on, surgeons all round the world developed new and wonderful interventionist techniques for the removal or repair of almost any part of the body.



The oldest surviving operating theatre, originally part of St Thomas's Hospital and dating back to 1703, is in St Thomas's Street, Southwark

By the start of the twentieth century surgery was recognised as a vital component of medicine and health.

The correlation of anatomy with physiology, the success and safety of anaesthesia, the diminishing risks of infection through control of sepsis and the myriad skills which were developing all resulted in more and more care becoming available. The first world war provided a catalyst for surgical development and such great surgeons as Sir Harold Gillies operated relentlessly on casualties at Aldershot in Hampshire.

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

Surgeons turned their attention to cancerous growths and abdominal surgery advanced. Even in the twentieth century there were some over-enthusiastic (some would say cavalier or idiotic) surgeons who recommended wholly inappropriate surgery but the dissemination of information about successes and failures had mainly curbed the problem of unacceptable techniques by the 1930s.

Other key changes in the early decades of the twentieth century were the introduction of surgical gowns, caps and masks to prevent spread of infection. Instruments were boiled to destroy bacteria.

*Blood groups had been discovered by **Landsteiner** in 1900 but it was not until the mid-1930s that stored blood could be given safely to patients who were suffering blood loss and this technique represented another huge advance.*

From the start of the second world war, the speed of development of surgery again increased; Great surgeons such as ***Sir Archibald McIndoe*** operated day and night on war casualties developing new techniques to save life and to restore function at hospitals such as Odstock in Salisbury where many RAF pilots were taken for the treatment of burns.

X-rays, first discovered in the 1870s, had changed from fuzzy and barely discernible images to useful diagnostic tools to assist medical and surgical case planning; The recognition of radio-opaque elements such as barium allowed contrast techniques to be used to outline the stomach, gall bladder and gut.

The technique of tomography added to the available radiographic information. It allowed serial pictures through structures such as the brain and lung by focusing the X-rays sharply in one centimetre slices to effectively provide a 3-D image of structures such as tumours or blood clots.

Artificial heart valves were introduced in the 1950s. The first heart transplant was done by ***Professor Christiaan Barnard*** in 1967 at Groote Schurr Hospital in Cape Town. The understanding of reproduction developed apace and the first 'test-tube baby' was born in 1978 (Louise Brown) at Oldham following the pioneering work of ***Sir Patrick Steptoe*** (obstetrician) and ***Robert Edwards*** (physiologist). Elsewhere ***John Charnley*** carried out the first effective hip replacement in the early 1970s.

Another major advance in the 1970s was the next generation of developments in radiology and scanning. In the twelve years between about 1978 and 1990 wonderful new techniques became commercially available. X-rays themselves had become increasingly better quality but ultrasound, first discovered in the 1950s, was introduced generally in the late 1970s and allowed useful investigation of many soft tissues.

The British Company EMI pioneered a technique where radiographic images could be digitalised and, with computer aided technology, used to produce images projected in any plane. Thus the CAT scanner (***computerised axial tomography***) was invented by ***Sir Godfrey Hounsfield*** and developed. By the early 1980s it had been discovered that high quality images with high resolution could be obtained using similar computer technology when a body was placed in a magnetic field. The MRI (***Magnetic Resonance Imaging***) scanner has therefore provided another tool for diagnosis and localisation. Thus surgeons were able much

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

more accurately to localise and identify structures during surgical procedures.

Surgeons were able to operate on a macroscopic level, once anaesthetics had made it possible to open the body, through incisions which allowed them to visualise structures directly. However, the development of ***fibre-optic endoscopes*** in the 1950s and '60s allowed access to the innermost parts of the body without the need for large and disfiguring incisions.

All this takes no account of the major medical advances which facilitated surgery, including such things as electrocardiography and pathology investigations to enable fitness for surgery to be assessed.

Nor does it cover such advances as lasers and prostheses replacing everything from limbs to parts of blood vessels.

What it does do is recognise how surgery has transformed from the most primitive and excruciating assaults to the most delicate and accurate procedures, from sawbones to barber to the highly skilled and hugely knowledgeable surgeons of today.

Robotic surgery is now changing the face of some surgery. It is minimally invasive, results in fewer complications and swifter recovery. Surgeons operate mechanical robot arms from a console, which enables them to undertake precise and accurate operations using a magnifying viewer. Operation times are reduced and success rates are improved.

Roy Lilley wrote in one of his books, "I*f you can imagine it, it will happen*".

With surgery, it is hard to imagine where we shall be in even fifty years' time.

My guess is that, given the speed of developments, we are in for a real surgical rollercoaster.

paullambden@compuserve.com

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.