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As a nurse, there are some patients whose names I will never forget, as they have taught me something about the human body: Jane, whose now-healed, once-fungating wounds showed me the marvel of human skin; Rita, whose rare brain tumour showed me the complexity of disease, and James, the head-injury patient left for dead on the road, who is now running marathons for charity.But what about those who suffered some terrible disease or accident, and, as a consequence, changed the face of medicine, helping us better understand the nature of human health and disease and develop treatments that have saved millions of lives? Let's consider the gritty details behind some of the greatest medical advances in history, and remember the names of the patients whose beneficiaries we are.Lest we forget, here are the names of a few people, who in death or disaster left a legacy of learning.

Henrietta Lacks – immortal cells that have driven all areas of medical research

1920-1951 – A poor black woman from a tobacco farming family in Virginia, USA. She died of cervical cancer, but the tumour cells didn't die. To date they have been used in more than 60,000 medical research experiments, helping us understand everything from aging to the polio vaccine.

Albert Alexander – the use of penicillin as an antibiotic

1897-1941 – A police constable from Oxford, England. He sustained an infected scratch from a rose thorn and was one of the first patients to receive penicillin from Dr Florey and his team. His treatment proved that penicillin could fight infection as his symptoms began to improve, but the penicillin ran out and he died. Penicillin has now saved over 80 million lives.

Survivors of Hiroshima – the link between radiation and cancer

1945, Japan – One of the most deadly long-term effects suffered by atomic bomb survivors was leukaemia; an increase in leukaemia appeared about two years after the attacks and peaked around six years later. Children were most severely affected; their legacy has been to increase understanding of the effects of radiation on the blood, to help prevent and treat blood cancers.

Phineas Gage – the role of the frontal brain in personality

1823-1860 – A railroad construction supervisor, Vermont USA. During railroad construction using gunpowder, a pointed iron rod pierced the front of his brain. He recovered but showed profound personality changes. Even today, scientists are studying Mr Gage's brain in an attempt to understand the neural basis of character and personality.

Henry Molaison – the role of the hippocampus in memory formation

1926-2008 – A car factory worker, Connecticut USA. He underwent removal of the hippocampus for epilepsy and became unable to form new memories, living in the "permanent present tense". By retaining certain parts of memory and losing others, he helped in the understanding of the neural basis of memory.

Louis Victor Leborgne – language formation in the brain

1809-1861 – A shoemaker in Paris, France. Epileptic seizures rendered him unable to speak, apart from producing the sound "tan" (this became his nickname). After he died, the famous French surgeon Dr Broca studied his brain and found damage to a particular part of the left side of the brain. This area became known as Broca's area and is now known to be critical in speech formation. 'Broca's aphasia' is the condition in which people have great trouble producing spoken words, often producing only one sound, as Monsieur Leborgne did.

Louis Washkansky – preventing rejection of a heart transplant

1913-1967 – A grocer, soldier and sportsman, South Africa. He received the world's first human heart transplant but died 18 days later due to pneumonia caused by immunosuppressant drugs. His legacy was to show that the human heart transplant could work, but that immunosuppression needed to be refined.

Wounded soldiers in WW1 and WW2– the role of the autonomic nervous system in health and disease

Spinal cord-injured soldiers often displayed a life-threatening condition in which their skin flushed and sweated profusely above the level at which their spinal cord was severed, whilst their skin was cold and pale below the lesion. A pounding headache would also develop.

The very different skin reactions observed above and below the severing of the spinal cord led scientists to further understand the two arms of the autonomic nervous system (important in digestion and temperature control): the sympathetic and parasympathetic nervous systems. These systems work in perfect balance until the spinal cord is severed; paralysis offered a precious insight into the two separate systems.

What lasting legacies lie now in our hospital wards? Could today's tragedies bequeath tomorrow's hope?

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