

Looking at the Past, Learning for the Future

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Medicine in the past records history, in the present a dialogue, and for the future, there are untold advances. A reflection on the pace of such change underlines progress. Just two to three decades have seen new entities, treatments, management, and curricula arise. Medical school applications are as popular as ever for aspiring doctors. What has changed is the gender balance with more females gaining entry in this modern age than ever before, often being a majority in a class [1]. Discussion in the clinical field is robust and inspired. Genomics has arrived and will continue to reform the practice of medicine. To talk about DNA-double helices is almost banal, and yet at the time, the discovery was life changing. Now we have new jargon with phrases like Single Nucleotide Polymorphisms or “SNPs”, and Environmental Shotgun Sequencing (ESS). Rapid development of information technology and bioengineering applied to the medical field too has transformed care, not forgetting progressive modalities of treating cancers.

Healthy controversy persists and discussion of screening with Prostate Specific Antigen (PSA) testing still continues. Nations differ on their concepts of hazards to individuals exposed to new variant Creutzfeldt-Jakob disease (nvCJD). Residents potentially exposed to nvCJD by the consumption of home grown beef, who hail from the United Kingdom, France, and Western Europe are considered too risky to accept as good faith blood donors in North America [2].

The world and the Centers for Disease Control and Prevention (CDC), Atlanta, GA, in the US quietly wait for a predicted outbreak of a pandemic flu infection, anticipating catastrophic rates of death making even the First World War's outbreak seem rather small. Highly pathogenic avian influenza (HPAI) known as H7N9 has evolved to jump from birds to humans, and worse, perpetuated from human to human thereafter. Neuraminidase inhibitors proved a good find against HPAI, but SARS and later MERS caused new scares. Now we have Ebola to consider, with sporadic cases appearing in countries distant to its source of origin. In the background, HIV in the sub-Saharan region, tuberculosis and malaria run rampant [3]. The 2011 tsunami in Japan caused utter devastation, with nearly 16,000 deaths, with a further 3200 untraceable [4]. But

the fallout from Fukushima Daiichi's nuclear power plant will leave vestigial effects locally, if not impact the global environment. Critics blame authorities and companies building the plant too close to the coast, Japan being renowned for violent earthquakes. Viable Smallpox virus was recently discovered discarded but retrieved in time before any accidental contamination occurred. The question asked is “how did that error happen?” The prospect of a smallpox outbreak in an immune weak global population defies description.

No two nations are alike in their approach to health care, but all have the same ideal objectives – to provide good service, economically and effectively. Obamacare has enfranchised tens of millions for access to health care, and it is hard to believe that many still oppose such insured access. The National Health Service (NHS) in the United Kingdom, a great institution, continues to struggle with capacity. So where does the responsibility for health care begin? With the state say some, at home say others, and what about health education at schools? Would that not be a timely place to learn about self-care, and provide education on how a country's health system operates? Will Emergency Departments savor any respite for routine complaints when dealing with major trauma, or do physicians in primary care need to step up, be empowered with triaging capabilities and overhaul initial access to tertiary care? With the global population now at 7.2 billion, an exponential rise to 9.6 billion by 2050 is predicted [5], and what then?

Diabetes mellitus could be argued to be the modern world's biggest scourge. The average delay from onset to diagnosis has fallen slightly from 7.2 to 6.2 years. The clinical effects of nephropathy, retinopathy, peripheral neuropathy, micro- and macro-vasculopathy, and poor oral health with gum disease not always highlighted prominently remain serious debilities. Periodontal disease is now the 6th most prevalent disorder globally, affecting 743 million people [6]. Time to be proactive or accept the risk of becoming toothless. Recall that it was only in 1921 or under a hundred years ago, that insulin was finally discovered. Everyone remembers Banting and Best, MacLeod, but fewer may recall Collip, and even fewer will mention Paulesco who all contributed to insulin's research [7].

Awareness of organ donation by living or cadaveric donors has grown over the years, but the difference between those needing transplants and organ availability is high. While multinational support exists, bioethical matters related to transplantation, with deontological and teleological issues must be considered very seriously as more than social issues. A clear understanding of both “brain death” and “cardiac death” needs to be fully appreciated. The Scientific Registry of Transplant Recipients in 2008 confirms that 11% of all those who had a cardiac death contributed some or all of their organs for transplantation, an increase from 1% in 1995 [8]. However, the Uniform Determination of Death Act in the United States dates back to the 1980s, and defined death as the “irreversible cessation of action of either the brain or the heart and lungs” [9]. With the successful transplantation of a revived “dead” heart from a brain-dead patient in Australia recently, the potential pool of donors’ organs may rise significantly, giving hope to those recipients eking out life until a suitable match is obtained. Approximately 19 people per day die from a lack of an available organ in the United States. Saving even one more per day would have an inestimable beneficial impact.

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