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Remarkable advances in clinical medicine that have occurred since I was an intern

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A considerable amount of water has passed under the bridge since I was an intern in 1969-70. There have been remarkable advances and significant improvements in mortality and morbidity for a variety of diseases. Listed below are, in my opinion, the ten most noteworthy developments in clinical medicine that have occurred since I was in training.

1. Myocardial infarction (MI): When I was in training the 30-day mortality rate for patients with an acute myocardial infarction approached 30%, and many of these individuals were middle-aged. Today, the 30-day mortality rate is approximately 6-7% and patients are 20 years older with their first myocardial infarction. Post myocardial infarction complications have also been strikingly reduced. Reperfusion therapy, statins, management of heart failure, and lifestyle changes in the US population are major contributors to this remarkable improvement in myocardial infarction mortality.¹
2. HIV: In the early 1990's, HIV/AIDS was a horrible and universally fatal scourge affecting many young and productive individuals. The recognition of its causation and the subsequent development of effective therapy is truly one of the most important milestones in 20th century medicine. A disease that was always universally fatal and associated with cachexia, severe pain, and suffering has now become a chronic and tolerable illness if patients are compliant with their medical regimen.²

3. ICU care: When I was in training, the coronary care unit and the medical/surgical intensive care units were both in an early stage of development. Intervention in acute myocardial infarction was not even dreamed of, and sustained support and therapy for patients with acute respiratory failure was in its infancy. Many ICU patients today survive who would not have stayed alive for more than a day or two when I was a resident in internal medicine. This important advance is the result of many years of investigation into the pathophysiology and management of acute and chronic pulmonary failure.
4. Understanding and managing patients with inflammatory bowel disease: When I was a medical student, we were taught that ulcerative colitis resulted from severe psychological distress often related to a poor relationship with one's mother. Today, we understand the genetic and molecular underpinnings of ulcerative colitis and Crohn's disease, and modern pharmacological therapy is usually successful in controlling this entity.³ Total colectomy, common in the past, is infrequent today.
5. Leukemia: When I was an intern, most patients with an acute leukemia died rapidly from their disease or because of severe adverse events from early attempts at chemotherapy. Childhood leukemia was invariably fatal. Today many, if not most, children with childhood leukemia survive and may even be "cured" although the long-term results are not yet known. Adult leukemias are still challenging but chemotherapy and bone marrow transplantation have both led to prolonged survival.⁴
6. A rapidly expanding geriatric population: Individuals living into their 90's was a rarity in my younger days. Today, however, 90-year-old patients are common and often live vigorous and active lives, the result of widespread understanding of healthy lifestyle approaches alongside modern medical preventive and therapeutic interventions.
7. Kidney failure: When I was an intern, the first in-hospital and community dialysis centers were being established. However, capacity at that time was minimal and most patients with chronic renal failure required recurrent admissions to the hospital for peritoneal dialysis. Today, community dialysis centers are common, and excellent results with renal transplantation lead to prolonged, high-quality survival for these individuals many of whom lead active and productive lives.
8. Tuberculosis (TB): I saw many patients with active TB when I was a resident in Boston. Massachusetts had several TB sanatoria at that time. Our job as residents was to make the diagnosis, start effective antibiotic therapy, and arrange for these patients to be transferred to one of the local TB sanatoria. Some TB hospitals became famous, for example, Davos in Switzerland and Saranac Lake in upper New York state, and were even used as a background for novels and plays. TB is still with us, of course, but it is predominantly seen in prison and homeless populations. The greatly feared "white plague" of yesteryear is no longer the scourge it was when I was a medical student and

in post-graduate training. Today, there are multiple effective antibiotics for TB and the sanatoria have closed.⁵

9. Sudden death in the community: Survival of out of hospital sudden death was rare in the past and is still a high mortality event today. However, a substantial percentage of these patients do survive with excellent functional capacity because of effective community resuscitation training (CPR), emergency medical technician (EMT) presence, availability of portable defibrillators (AEDs), and advanced hospital life support systems.⁶
10. Public health programs and primary care preventive medicine protocols: A variety of public health services such as vaccinations, educational health and wellbeing programs, blood pressure screening, and sexually transmitted disease services have assisted in prolonging life for many individuals who live to an advanced age with good to excellent functional capacity. Public health efforts combined with primary care emphasis on preventive measures such as smoking cessation, blood pressure and lipid control, and a variety of other lifestyle recommendations, for example, regular exercise, have led to long life for many in our society.⁷ It is of interest that today in any 24-hour period in the USA, more people become age 85 than are born!

As usual, I am happy to hear from readers about this or any other commentary that I have written. Next month, I will comment upon ongoing challenges to health and healthcare in 21st century USA.

References

1. Rich MW. Epidemiology, clinical features, and prognosis of acute myocardial infarction in the elderly. *Am J Geriatr Cardiol*. 2006 Jan-Feb;15(1):7-11; quiz 12. doi: 10.1111/j.1076-7460.2006.05273.x. PMID: 16415640.
2. Fauci AS, Lane HC. Four Decades of HIV/AIDS - Much Accomplished, Much to Do. *N Engl J Med*. 2020 Jul 2;383(1):1-4. doi: 10.1056/NEJMp1916753. PMID: 32609976.
3. Mahadevan U, Silverberg MS. Inflammatory Bowel Disease-Gastroenterology Diamond Jubilee Review. *Gastroenterology*. 2018 May;154(6):1555-1558. doi: 10.1053/j.gastro.2017.12.025. Epub 2018 Mar 15. PMID: 29550591.
4. Kantarjian HM, Keating MJ, Freireich EJ. Toward the potential cure of leukemias in the next decade. *Cancer*. 2018 Nov 15;124(22):4301-4313. doi: 10.1002/cncr.31669. Epub 2018 Oct 6. Erratum in: *Cancer*. 2019 May 15;125(10):1756. PMID: 30291792.
5. Furin J, Cox H, Pai M. Tuberculosis. *Lancet*. 2019 Apr 20;393(10181):1642-1656. doi: 10.1016/S0140-6736(19)30308-3. Epub 2019 Mar 20. PMID: 30904262.
6. Kumar A, Avishay DM, Jones CR, Shaikh JD, Kaur R, Aljadah M, Kichloo A, Shiwalkar N, Keshavamurthy S. Sudden cardiac death: epidemiology, pathogenesis and management. *Rev Cardiovasc Med*. 2021 Mar 30;22(1):147-158. doi: 10.31083/j.rcm.2021.01.207. PMID: 33792256.
7. Cashman SB, Anderson RJ, Weisbuch JB, Schwarz MR, Fulmer HS. Carrying out the Medicine/Public Health Initiative: the roles of preventive medicine and community-responsive care. *Acad Med*. 1999 May;74(5):473-83. doi: 10.1097/00001888-199905000-00010. PMID: 10353276.