

Q) We hear so much about Covid and the various vaccines. Surely there must be something else going on in medicine?

A) Yes, as a matter of fact, there are always new developments occurring throughout medicine even though they get way less fanfare these days since Covid seems to have sucked all the air out of the room. Many of the largest stories have come from the world of cancer, and a lot of it is very good news indeed. In fact, the pace of progress in research, especially in the biomedical area of treatment is probably at a rate that is literally unprecedented. It is so rapidly advancing that the FDA (the U.S. government department that approves drugs and medical devices) has suggested that 30% of all new approvals are cancer related. These new developments appear to be driving results. In the US the death rate from all cancers over the last 3 decades has declined by 30% or so. In 2018, the last year for which we have data, the death rate declined from the year before by 2.4% which is the single biggest year to year decline ever recorded. What makes this 30% figure even more remarkable is that there are more and more seniors being diagnosed with cancer as a result of living longer due to our new found abilities to ward off heart attacks and strokes. We also need to consider that seniors, in general, are of poorer health and less able to fight off tumors which tend to bring these survival numbers down. When you strictly look at younger patients, the survival rates have improved even more dramatically. And this progress is seen in both sexes as well. From 2012 until 2016, death rates for women have declined in 13 of the 20 most common types of cancer including lung, breast and colorectal. For men over that same time frame, death rates declined for 10 of the 19 most common diagnoses in the oncology field. But progress has not been uniform across all cancer types. In females the death rate has actually gone up in types of cancer including cancers of the uterus and liver and males have seen a spike in fatalities in 6 types such as liver cancer and non-melanoma skin cancer. Though that last part is quite negative, keep in mind that this data from 2016 precedes the era of immuno oncology drugs that are the new “golden child” in cancer treatment. Immuno oncology at the very least deserves its own separate article but we’ll give it a brief introduction today. The theory

behind immuno oncology is to essentially harness the body's own immune system to fight the cancer itself. It was first raised as a concept in the 1970's but wound up being an abject failure to such an extent that its scientific supporters were widely considered to be quacks in the following decades. However, with time came breakthroughs to the point that in 2016 the Nobel Prize in physiology and medicine went to a pair of scientists who specialise in this field. These types of therapies have now proven they work and have opened up a field of research that promises to massively alter and improve the cancer treatment landscape in the next few years. The exciting new developments are not limited to treatments either. In England scientists have now developed a simple blood test that can detect more than 50 types of cancers, even long before symptoms appear. The potential for this type of early, non-invasive and relatively inexpensive intervention is both game changing and life-saving. Part of the beauty of this development is that many of the types of these diseases it appears to be able to detect are among the most difficult to diagnose in the early stages such as head and neck, oesophageal, pancreatic, ovarian and some of the blood cancers. The test was developed by the American company Grail and works by making use of genetic sequencing technology. Rather than the traditional blood tests we now use where we look for a single specific marker of a single cancer type, this novel test basically looks at all of the DNA floating along within your bloodstream and tries to detect "signals" that are emitted from DNA that have been shed by a tumour. To be a touch more specific, hopefully without losing you in all of the "sciency" stuff, the test focuses on chemical changes that happens to "cancerous" DNA which are known as methylation patterns. The results are then fed into a computer where a form of artificial intelligence reads the patterns and produces a diagnosis. The results so far have been impressive for a test that is still extremely new. It was trialed in just under 3,000 people who had already been diagnosed with varying stages of cancer and approximately 1,250 people without. The test correctly identified when cancer was present in 51.5% of cases and wrongly detected cancer only 0.5% of the time. While some may be disappointed by the 50% score for detecting cancers, it should be noted that some of the cancers that the test did identify (such as bowel or lung) were very small, at a stage where

many of them could potentially be cured. As well, the low false positive is hugely important in its ability to prevent people from going through the stress of thinking they have cancer and, of course, preventing needless interventions such as chemotherapy, surgery and/ or radiation that can be life-altering in and of themselves. The next step is a pilot of the test to be started as early as this fall in the United Kingdom involving 140,000 participants with the results expected to be available sometime in 2023. So, without a doubt there are still massive breakthroughs happening across medicine even if they have been hard to see due to the long shadow cast by all the Covid coverage. Today was all good news but perhaps as a reality check (not that any of us need one given the last two years, but anyways...) we'll return to cancer shortly and talk about the implications of all the delayed tests and treatments due to our needed shutdowns as well as a focus on the most difficult to treat cancer of them all, pancreatic. For more information about this or any other health related questions, contact the pharmacists at Gordon Pharmasave, Your Health and Wellness Destination.