

Health Bits & Pieces (HFN 32:4)
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SIXTY YEARS OF CANCER AWARENESS

Let's review what has changed and not changed in the last 60 years in how we regard cancer.

Sixty Years Ago

In 1950, scientists identified cigarette smoking as an important factor in the development of lung cancer. James Watson and Francis Crick determined that the molecular structure of DNA is a double helix. Carl Nordling proposed that cancer cells contain mutations in multiple genes and that cancer-inducing mutations accumulate as a person ages – explaining, in part, why cancer was primarily a disease of the elderly. Scientists already knew that cancer could be caused by chemicals, radiation, and viruses, and that sometimes cancer seemed to run in families. But, as the understanding of DNA and genes increased, they learned that it was the damage to DNA by chemicals and radiation, or the introduction of new DNA sequences by viruses that often led to the development of cancer. As of 2014, the World Health Organization's International Agency for Research on Cancer (IARC) has identified more than 100 chemical, physical, and biological carcinogens. International Agency for Research on Cancer (IARC), Agents Classified by the IARC Monographs, Volumes 1-110, 2014, accessed at <http://monographs.iarc.fr/ENG/Classification/ClassificationsGroupOrder.pdf> on October 1, 2014. The Food and Drug Administration approved methotrexate, an antimetabolite derived from folic acid, and 6-mercaptopurine as anticancer drugs. In 1958, Roy Hertz and Min Chiu Li achieved the first complete cure of a human solid tumor by chemotherapy when they used methotrexate to treat a patient with choriocarcinoma, a rare cancer of the reproductive tissue that mainly affects women. Since that time, chemotherapy has been a mainstay of cancer treatment. Other powerfully toxic chemotherapy drugs such as Cyclophosphamide and 5-FU were introduced. Oncologists personally profit from the sale of chemotherapy drugs. They are the only drugs that any doctor is allowed to personally profit from dispensing. Chemotherapy has an average 5-year survival success rate of just over two percent for all cancers.

Hertz R, Bergenstal D, Lipsett M, Price E, Hilbish T,
"Chemotherapy of choriocarcinoma and related trophoblastic
tumors in women," Journal of the American
Medical Association 1958; 168(7):845-854;
Morgan G, Ward R, Barton M, "The contribution of
cytotoxic chemotherapy to 5-year survival in adult
malignancies," Clinical Oncology 2004
Dec;16(8):549-60.

What has changed?

In addition to the astronomical growth of scientific data related to health and medicine, there have been important changes in public awareness of medical issues and lifestyle. There are also topics where there has been little significant change. The Quixotic vision that scientific medicine can

cure cancer has been consistent and relentless. Cancer today gets couched in military terms of battles, warriors, miracles, and hope. The declaration of a war on cancer in 1972 by Richard Nixon defined the quest of modern medicine to control nature.

Is there progress?

Isn't the incidence of cancer decreasing? Smoking causes one third of cancers and it is the dramatic fall in smoking – from about 40 percent of the population in the 1960s to just about 20 percent now – that has fueled much of the drop in cancer deaths. Some 1.4 million new cancers are diagnosed annually, while approximately 10.5 million people are living with cancer in the U.S. 12.3 million people worldwide will develop cancer this year. About 7.6 million people will die this year worldwide from various types of cancer. Among women, the three most common cancers are lung, breast, and colorectal in developed countries and breast, cervical, and stomach cancer in developing countries. About 465,000 women will die of breast cancer this year, making it the leading cause of cancer death among women worldwide.

(See WHO Cancer Fact Sheet No. 297 at <http://www.who.int/mediacentre/factsheets/fs297/en/>)

According to French researchers, the incidence of cancer is expected to increase by more than 75% by the year 2030 in developed countries, and over 90% in developing nations. The study is published online first in the *Lancet Oncology*.

Rattue, Grace, "Cancer Rates Expected To Increase 75% By 2030," *Medical News Today*, MediLexicon, Intl., 1 Jun 2012. Web. 21 Dec 2014. <<http://www.medicalnewstoday.com/articles/246061.php>>

Denial

Once cancer starts to spread to other parts of the body – a process called metastasis – it becomes much more difficult to treat. Cancer happens when normal cells start to behave abnormally, grow out of control, and multiply to form lumps called tumors. If untreated, cancer cells can escape their primary tumors, travel to other parts of the body and grow into secondary cancers or metastases. Metastases are the major cause of death from cancer. If we are to significantly improve cancer treatment, we need a better understanding of metastasis. One of the areas researchers are keenly investigating is what helps cancer cells escape primary tumors and set up new sites elsewhere in the body. Only about 0.5% of cancer research is on metastasis. Research is overwhelmingly devoted to tumor reduction, getting rid of the tumor no matter what the cost. Metastasis forces us to see cancer as a whole-body phenomenon, not a local condition affecting a single organ.

Sleeman J. Steeg P, "Cancer metastasis as a therapeutic target," *European Journal of Cancer*, 2010; 46 (7): 1177-1180 DOI: 10.1016/j.ejca.2010.02.039.

Causes of Death

Tumor reduction or removal is the main goal of surgery, radiation, and chemotherapy.

The idea that this is valid treatment is being called into question. Cachexia, also called wasting syndrome, is the name for extreme thinness and weakness due to atrophy. Until recently, cachexia has been interpreted as a kind of “autoconsumption”: the body “consumes” itself while trying to supply the energy needs of the constantly growing tumor. Tumors of any size can actually cause cachexia, even small ones, and even at very early stages of tumor development. The fact that it is the cachexia associated with the tumor, rather than the tumor itself, that causes the death of one third of cancer patients has encouraged the study of this syndrome in recent years.

Petruzzelli M, Schweiger M, Schreiber R, et al., "A Switch from White to Brown Fat Increases Energy Expenditure in Cancer-Associated Cachexia," *Cell Metabolism* (2014) Volume 20, Issue 3, p. 433-447, 2 September 2014.

Untreated cancer and survival

The late Dr. Hardin B. Jones, Professor of Medical Physics and Physiology at the University of California, Berkeley, made a study lasting 25 years of the life span of cancer patients, and had concluded that untreated patients do not die sooner than patients receiving orthodox treatment (surgery, radiation, and chemotherapy), and in many cases they live longer. Dr. Jones delivered his bombshell report at the American Cancer Society's (11th) Science Writers' Seminar (March 28-April 2, 1969), in which he confirmed what he had written as early as 1955, in his classic paper “Demographic Consideration of the Cancer Problem,” published in *Transactions of the New York Academy of Sciences* (Series II, Vol. 18, pp. 298-333). (See http://www.rethinkingcancer.org/resources/magazine-articles/8_11-12/the-untreated-live-longer.php)

Cancer Prevention – The Gold Standard

Research has repeatedly shown that lifestyle can prevent cancer as well as mitigate and support recovery in diagnosed cases. Here is a summary:

(1) Lose weight! Change your diet! Reduce or eliminate your processed food, sugar/fructose, and grain-carbohydrate intake. Consider reducing your protein levels to one gram per kilogram of lean body weight. It would be unusual for most adults to need more than 100 grams of protein and most likely close to half that. Normalize your ratio of omega-3 to omega-6 fats by taking a high-quality fish oil and reducing your intake of most processed vegetable oils, especially soy and canola. Avoid frying or charbroiling your food. Boil, poach, or steam your foods instead. Eat salads and freshlymade juices. Reduce food intake in general. According to Dr. Stephen Freedland, associate professor of Urology and Pathology at the Duke University Medical Center, “undernutrition without malnutrition” consistently improves survival in animals with cancer and extends lifespan by as much as 30 percent. Alternate-day fasting has also been shown to reduce cancer rates by reducing

cell proliferation. Varady K, Hellerstein M, "Alternate-day fasting and chronic disease prevention: a review of human and animal trials 1, 2, 3," *American Journal of Clinical Nutrition* July 2007 Vol. 86, No. 1, at pp. 7-13.

(2) Get regular exercise! One of the primary reasons exercise works is that it drives levels is one of the most powerful ways to reduce your cancer risks. The trick about exercise, though, is understanding how to use it as a precise tool. This ensures you are getting enough to achieve the benefit, not too much to cause injury, and the right variety to balance your entire physical structure and maintain strength and flexibility, and aerobic and anaerobic fitness levels. If you have limited time, then Peak Fitness exercises are your best bet; but ideally you should have a good strength-training program as well. A 2005 study by researchers at Harvard Medical School found that breast-cancer patients who exercised moderately for three to five hours a week cut their odds of dying from cancer by about half, compared to sedentary patients.

Holmes M, Chen W, Feskanich D, et al., "Physical Activity and Survival After Breast Cancer Diagnosis," *Journal of the American Medical Association* 2005;293(20): 2479-2486. doi:10.1001/jama.293.20.2479.

(3) Normalize your Vitamin-D level!

Get appropriate sun exposure, and consider careful supplementation when this is not possible. However, if you are taking oral Vitamin D, you also need to make sure you are taking Vitamin K2 as well, as K2 deficiency is actually what produces the symptoms of Vitamin- D toxicity, which includes inappropriate calcification that can lead to hardening of your arteries. To learn more, please see my previous article: "What You Need to Know About Vitamin K2, D, and Calcium." If you take oral Vitamin D and have cancer, it would be very prudent to monitor your Vitamin-D blood levels regularly. Sharif B. Mohr S, Gorham E, Kim J, et al., "Meta-analysis of Vitamin D Sufficiency for Improving Survival of Patients with Breast Cancer," *Anticancer Research* March 2014; Vol. 34, No. 3, at pp. 1163-1166.

(4) Get regular, good sleep. A disrupted sleep rhythm may influence cancer progression through shifts in hormones like serotonin and melatonin. Sephton S, Spiegel D, "Circadian disruption in cancer: a neuroendocrine-immune pathway from stress to disease?" *Brain, Behavior and Immunity* 2003 Oct;17(5):321-8.

(5) Reduce your exposure to environmental toxins like pesticides, household chemical cleaners, synthetic air fresheners, and air pollution. Limit your exposure and provide protection for yourself from radiation produced by cell phones, towers, base stations, and WiFi stations. Cardis E, Richardson L, Deltour I, et al., "The INTERPHONE study: design, epidemiological methods, and description of the study population," *European Journal of Epidemiology* 2007;22:647-664; Sadezki S, Chetrit A, Jarus-Hakak A, et al., "Cellular phone use and risk of benign and malignant parotid gland tumors— a nationwide case-control study," *American Journal of Epidemiology* 2008;167:457-467; and Lennart Hardell L, Carlberg M, Mild K, "Re-analysis of risk for glioma in relation to mobile telephone use: comparison with the results of the Interphone international casecontrol study," *International Journal of Epidemiology* (2010) doi: 10.1093/ije/dyq246.

(6) Heal Stress and Trauma Stress as a cause of cancer is controversial, but there is abundant evidence that stress compromises immune function and can even promote the development of existing tumors. Ohio State University: "Stress Hormones May Play New Role In Speeding Up Cancer Growth." *Science*

Daily, 3 November 2006, at www.sciencedaily.com/releases/2006/11/061101151408.htm.

(7) Supplement! Some of the supplements with the strongest case for a cancer-prevention effect and possible therapeutic properties include iodine, green tea, Vitamin D, lentinan and alpha-glucans from shiitake mushrooms (AHCC, MGN-3 arabinosylin), curcumin from turmeric (contraindicated for some chemotherapy, e.g. not to be used with Adriamycin, beneficial with 5-FU), Coenzyme Q-10, and proteolytic enzymes. Proteolytic enzymes have been proven to be highly effective in supporting a normal inflammation response in the human body. Leading researchers, doctors, and scientists now believe that maintaining a healthy, normal inflammation response is the key to maintaining good health. When there is irritation, injury, or toxins in the body, the normal inflammation response sends white blood cells to the area, resulting in cellular debris. Because the enzymes support the normal post-inflammatory break-up and elimination of cellular debris, they are also extremely useful for recovery from surgery and even preventing metastasis caused by surgery. Shrivastava A, Tiwari M, Sinha R, et al., "Molecular iodine induces caspase-independent apoptosis in human breast carcinoma cells involving the mitochondria-mediated pathway," *Journal of Biological Chemistry* 2006; Jul 14;281(28):19762-71. Epub 2006 May 5; Trudel D, Labbé D, Bairati I, et al., "Green tea for ovarian cancer prevention and treatment: a systematic review of the in vitro, in vivo and epidemiological studies," *Gynecologic Oncology* 2012 Sep;126(3):491-8. doi: 10.1016/j.ygyno.2012.04.048. Epub 2012 May 4; Ghoneum M, Wimbley M, Salem F, et al., "Immunomodulatory and anticancer effects of Active Hemicellulose Compound (AHCC)," *International Journal of Immunotherapy* XI(1) 23-28 (1995); Reuter S, Gupta S, Park B, Goel A, Aggarwal B, "Epigenetic changes induced by curcumin and other natural compounds," *Genes and Nutrition*, 2011 May;6(2):93-108. doi: 10.1007/s12263-011-0222-1. Epub 2011 Apr 24; Lockwood K, Moesgaard S, Hanioka T, Folkers K, "Apparent partial remission of breast cancer in "high risk" patients supplemented with nutritional antioxidants, essential fatty acids and coenzyme Q10," *Molecular Aspects of Medicine* 15 Suppl: S231-S240, 1994; and Van der Bij G, Oosterling, Beelen R, et al., "The perioperative period is an underutilized window of therapeutic opportunity in patients with colorectal cancer," *Annals of Surgery* 2009; May;249(5):727-34.