

# Self Care for the 21st Century

With an Introduction to Nutritional Therapy  
Using the Alpha Nutrition Program



Stephen J. Gislason MD

## **Self Care for the 21<sup>st</sup> Century**

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### **Alpha Education Publications**



The books in this series address important medical problems and their solution. Everyone, who is interested in Nutritional Therapy, will need a copy of the Alpha Nutrition Program. The books on specific topics such as skin disorders, digestive disorders, arthritis, asthma, chronic fatigue, celiac disease, are written to an intelligent reader who has an unusual interest and ability to learn and organize self-management. The underlying concept is that the solution for most diseases requires you to become well-informed and to be actively involved in decision-making .

To solve many medical problems, changes to diet, exercise and lifestyle are required. Smart people, given the right information, should be able to self-manage and solve some of their health problems. We include technical sections and abstracts from the medical literature in many publications. The effort required to read the more technical discussions will be rewarded with better understanding and more confidence in self-management. The information in some texts will overlap to some degree, but the reader may want to go further and order texts that are more detailed. You might become interested in food allergy, for example, when you read discussions in the book, Inflammatory Arthritis or the book, Skin in Health and Disease and want to read more in the book, Managing Food Allergy.

eBooks All the books are available in eBook versions (PDF format). We like eBooks because they are easy to update and avoid all the costs and complications of printing and shipping printed books. eBooks are inexpensive, portable and can be sent immediately with no shipping cost. Our books are designed to give you clear and

simple directions and at the same time to provide essential scientific information. The books are written to an intelligent reader who has an unusual interest and ability to learn and organize self-management. To solve a medical problem, important changes to diet, exercise and lifestyle are required. Smart people, given the right information, should be able to self-manage and solve most of their health problems.

We know that physicians and other professional can benefit from reading our books and the same time we believe that everyone with basic reading skills and good motivation can upgrade their knowledge and understanding.

The Alpha Nutrition Program is a rational plan that requires new learning, discipline and self-control. A basic intention is to do a better job of self-regulating. Self-regulation implies control over behavior. I learned by watching a few thousand people attempt to do this program that people with some measure of self-control were uncommon. I learned that self-discipline was in short supply and that rational plans tended to fail without a lot of support. Since eating is a social activity, changes in eating habits require a social method. Some exceptional people live well-organized lives with traditional lifestyle eating habits and operate from an internal locus of control that gives them an enviable ability to self-manage. If you have a well-developed center, you have an easier time developing new patterns, once you accept that it is necessary and desirable to change. You can plan an orderly transition from old to new. People with a strong internal locus of control are more skilled at collecting and evaluating information. They accept professional advice as information, not as parental authority. They tend to feel more confident making their own decisions.

### **Stephen Gislason MD**

Dr Gislason wears several hats. You can find him every morning, reviewing the scientific literature and updating his articles and books. He pursued his interest in brain science since he was a premedical student in his teens. Dr. Gislason graduated from the University of Toronto Medical School in 1967 and practiced medicine in British Columbia from 1971 to 1995. His Allergy Practice in Vancouver from 1984 to 1995 was a center of innovation of collaboration with patients and colleagues and lead to the development of the Alpha Nutrition Program and the Alpha Elemental Nutrient Formulas. He was a member of the American College of Allergy and Immunology from 1984. He has been the President and CEO of Environmed Research Inc since 1984. Since 1995 he managed the company full time. The development of the Core Program, now the Alpha Nutrition Program, was a collective effort. The first "Core Program" book was published in 1986 along with a book of Recipes. A book written for parents followed in 1989, The Core Diet for Kids and an associated book Core Program Cooking. In 1993 Nutritional Therapy Vol. 2 emphasized the practical instructions required to successfully solve health problems with diet revision. In 1998, the Core Program was transformed into the Alpha Nutrition Program. A series of texts acted as interfaces to the program, describing specific health concerns and were published under the banner of Alpha Nutrition Health Education. Dr. Gislason continues to revise these books as informative guides to common health problems.



Stephen J. Gislason MD

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## Introduction

The emerging idea is that each person has the potential to exercise more control over their own risk of injury and disease. Each person also has an ethical obligation to contribute to the wellbeing of his or her community. The community has an obligation to provide better education and resources directed toward healthier lifestyles. The community can expect a higher standard of self-responsibility. Risky human behaviors must eventually decline, or better, disappear.

The obstacle in the path of all idealist solutions is human nature, a nature full of tendencies that interfere with the pursuit of rational solutions to human problems. If you stand back and take a global view of human societies you will appreciate the following description:

While people live longer in North America, the wellness quotient of the average citizen deteriorates and the prospect of chronic degenerative disease haunts the aging population. About 50% of the adult population in the US and Canada report chronic symptoms such as headache, fatigue and joint or muscle pain. It is easy to point to persisting, increasing, debilitating medical problems such as depression, family violence, suicide, obesity, diabetes, disability from degenerative diseases, dementias, cancer and an increasing incidence of ill-defined illnesses. Aging citizens are vulnerable to a variety of debilitating if not tragic illnesses. The rising incidence of two disabling and chronic illnesses Diabetes 2 and Alzheimer's dementia is a major concern especially as a wave of 70 million middle-aged people in North America will express the increasing incidence of these diseases over the next 25 years.

## **Personal Ecology**

Human health depends on the proper supply of food, air and water. Infection, injury and toxicity are environmental problems. There is a consensus that smoking, drinking and accidents are important preventable hazards. The control of environmental pollution has been attempted by a host of smart, well-informed people with limited success. The control of some infectious disease through improved hygiene and immunization is one of the great health achievements of the 20th century. While the concern that new viral infections may emerge as lethal epidemics is well publicized, the reality is that lethal diseases are already well-established in all communities and are disabling or killing increasing numbers of people. Viral epidemics may add to the disease burden, but the real threats are already in the workplace and at home.

Each person has some control over their life course and some ability to prevent injury and disease. Often, diseases emerge because of ignorance or careless disregard for risky behaviors. On the other hand, some people become overly concerned about unseen health risks and focus on small issues, using casually gathered misinformation. Although their intentions are admirable, their methods fail to achieve the right results.

Medical practice overall treats emerging diseases with drugs and is less concerned with self-responsible actions that could prevent disease and mitigate the consequences of diseases. Affluent countries tend to create dependent citizens who may fail to act responsibly and instead, dependent people expect that the government will rescue them from all misadventures.

The biologist sees every living creature connected to and interacting with his/her environment. Anyone who has worked with animals or fish in closed environments knows how critical environmental conditions and diet are in determining both the behavior and the physical status of the residents. When a fish in an aquarium displays psychotic behavior, you do not call a fish psychiatrist; you check the oxygen concentration, temperature, and pH of the water. You have to clean the tank and change the fish diet. We all live in and interact with home and work environments that partly determine our biological fate.

In industrialized countries, the microenvironment of each individual is controlled by human constructions and is generally polluted by toxic substances (the extent of which is seldom measured) that are little understood. We recognize that cause and effect relationships do not go in straight lines, but rather loop within networks of interacting factors. Substance X, entering the body through lungs or gastrointestinal tract, does not have a predetermined course and, like the quanta within its atomic structure, will show only a probabilistic relationship with certain outcomes.



The integrated view of body/mind does not draw artificial boundaries among different events. Psyche does not affect Soma or vice versa. Psyche and Soma are one interacting whole system. Behavioral adaptation to environment is intermeshed with molecular adaptation. This means that mind and body interact with environment as a single integrated unit. Molecular events are as likely to determine mind/body events, as mental or behavioral events are likely to determine molecular events.

## **Medicine and the Environment**

Most of us need little convincing that the air in urban environments is polluted. Climates are changing. The belief that the food chain is contaminated with toxic chemicals is universal and readily validated. But, what branch of the medical sciences will be responsible for the diagnosis and treatment of patients who suffer environmental disease? Who is studying and documenting the new patterns of illness that emerge from our continuously deteriorating circumstances? Where do sick people with ill-defined illness get help? Who is changing the curricula of medical schools and teaching medical students what is really going on out there? Not much progress has been made in bringing knowledge of the environment into community medical offices and hospitals; in this regard medical practice reveals itself to be out-of-date and often irrelevant to the real needs of many patients.

The underlying idea of medical practice is to receive the sick and injured, patch their wounds and alleviate suffering when there is no effective treatment. Whatever the determinants of injury and disease are, the doctor and the hospital are ready to attempt rescue you. It is up to you, dear reader, to investigate the causes of disease and to change your food and environment so that you are less likely to become injured and ill. Physicians who work in occupational medicine develop expertise in the toxicology of work environments. Government agencies such as NIOSH in the USA develop standards for limiting toxic chemical exposures and provide excellent sources of information about work hazards. The US EPA sets standards intended to reduce air and water pollution but its rules are constrained by political interference.

No medical specialty has assumed the responsibility of applying knowledge of environmental principles, ecology, or toxicology to all citizens. It is very difficult for anyone suffering an environmental problem or chemical toxicity to get even a cursory hearing from public health authorities or individual physicians. Lung disease is usually treated as an individual problem with no reference to the environment that people with lung disease share. The only physicians directly involved in toxicology issues work in occupational medicine and supervise working conditions in industries that expose workers to dust, molds, toxic chemicals and other hazards. Here the emphasis is on preventing acute exposures to known toxins in concentrations that are known to be harmful. In industrial settings and the community at large, little is known about

the long-term effects of chemical exposure at low doses and there is a tendency for "authorities" to deny illness caused by chronic exposure.

Allergists intend to deal with some of the medical problems caused by the environment, but often limit their knowledge and practice to a few selected environmental problems, such as hay fever and asthma. Even though asthma receives considerable research attention, the contribution of air pollutants is not understood. By narrowing the definition of allergy to type 1 hypersensitivity responses, allergists leave countless millions of patients without help. Some physicians perceive the shortcoming of the medical system and begin to move toward a new methodology. Many years ago, Dr. William Knicker, a prominent Allergist and Immunologist, stated, in a challenge to his colleagues: "The estimated group of 40 million citizens with classical allergies is possibly the most underserved of all diseases in the U.S; medical marketing surveys suggest that many atopic individuals are not yet diagnosed or are poorly treated. In addition, there are countless millions of other individuals who have unrecognized adverse reactions to various antigens, foods, chemicals, and environmental or occupational triggers."<sup>1</sup>

### **Not Health Care**

While the term "healthcare" is popular, it misrepresents health in every possible way. Health is supposed to refer to being "healthy" – free of disease, physically fit, productive and happy. Healthy people do not need to spend money on doctor visits, drugs, hospitals and surgery.

So what is a more accurate term than healthcare? **Medicalcare** is the proper term. Medicalcare is a heterogeneous collection of products and services provided by MDs, drug suppliers and hospitals that deal with people who are not healthy. Sometimes medical intervention is merciful, humane and lifesaving. Most of the time, medical care is wasteful, inefficient and potentially dangerous. Healthy people do not seek medical care.

Lundberg, Editor of MedGenMed stated that: "The US medicalcare system is immensely complicated, almost inexplicable, costly beyond belief, seriously discriminatory, and often unsafe. The money expended from all sources in American medicalcare is extraordinarily large, some \$1.7 trillion in 2004, one-seventh of the total US economy, and larger than the total economies of most countries of the world." Lundberg suggests that the marketplace determines how much money is spent on what and how many people of what types work in medicalcare but it is not a free market. "

People in the US and Canada are less than healthy because they eat too much of the wrong food and exercise too little. The mechanisms of bad-food diseases are numerous and complex.

Profit can be made by attempting to manage the consequences of eating too much and exercising too little. Canada is the third-highest-per-capita spender on drugs among industrial countries after the United States and France. All affluent countries are spending more on drugs, increasing 32 percent from 1998 and 2003 to more than \$450 billion in 2013. Total U.S. drug spending hit \$374 billion in 2014, up 13% from 2013. Growth in spending on pharmaceuticals outpaced the rise in total health-care expenditures since 1998 in most countries, including Canada. In the U.S. and Australia, spending on drugs grew more than twice as fast as total health expenditures. Drug prices have risen with increased use. The New York Times reported the overnight rise in the price of Daraprim, a drug that treats serious parasitic infections, from \$13.50 a tablet to \$750. Start-up company, Turing Pharmaceuticals, raised the price in August after acquiring the drug. There has been a political response to unreasonable drug company profiteering. Marketing chemicals to reduce the negative effects of eating too much of the wrong food are unbelievably profitable, even though few of the drugs are really required. The real solutions require removing the cause of disease, by, for example, eating less, choosing the right foods and exercising more.

### **Medical Care USA and Canada**

The universal medical care system in Canada has often been compared with medical care in the US. Many years ago, US politicians rejected the Canadian model when they considered strategies to improve medical care in the US. Arguments against the Canadian system focused on costs and bureaucratic control. Powerful lobbies opposed government monopolies. The spirit of free enterprise and the dislike for bureaucracies, were "American values" that Canada lacked. In 2009, a rancorous debate emerged as the Obama administration attempted to "reform healthcare." Competing vested interests engaged in irrational fears, common prejudices and paranoid speculation. The first overwhelming problem is the continuing fallacy of "health care". The second is that absence of self-responsibility. The third is the absence of recognizing the causes of expensive diseases are built into the infrastructures of the society – bad food, toxic chemicals in the air and water, alcohol and drug use, accidents, and systemic belligerence. As it turns out, both systems are increasingly expensive, sometimes for the same reasons; and sometimes for different reasons. The causes of disease are not remedied; trying to fix end stage diseases is inherently futile.

### **Canada**

Since 1967, all citizens in Canada have government provided medical care at little or no cost to each consumer. Funding comes from taxes collected by federal and provincial governments. In my province, BC, you pay an insurance fee for medical services, but hospital costs are covered by tax revenues. In the early days of the

Canadian system, satisfaction was high and many claimed that the Canadian system was superior. Canadian doctors, however, left the country for the US in significant numbers seeking more freedom, better incomes and better funded research opportunities.

Times have changed. Doctors in primary practice have suffered the more bureaucratic control with the lower incomes. The trend to close family medicine (primary care) practices continues and more Canadians do not have a doctor to call their own. While specialized medicine and surgery in academic hospitals provides state of the art care, the overall effect on the health of Canadians is relatively minor. As in the US, endemic diseases in Canada- cancers, diabetes 2, heart attacks, strokes and dementias are on the rise and threaten to bankrupt government coffers. As in the US, absurd slogans such as "Health Care" obscure the real issues and become embedded in endless discussion and debates that lead nowhere.

In Canada, Government control prevails over the cost of medical care. An editorial in the National Post stated that Canada is the only free country in the world that forbids citizens from paying for essential medical services with private insurance and the only nation that has defined a particular mode of medical care delivery as a core element of national identity. Rationing services is the method of controlling escalating costs.

## **United States**

A New York Times editorial summarized obvious problems in the USA (2007). Here is an abbreviated version of their summary: "Many Americans suffer the delusion that we have "the best *health* (should be medical) care system in the world," as President Bush sees it, or provide the "best medical care in the world," as Rudolph Giuliani declared last week. That may be true at many top medical centers. But the disturbing truth is that this country lags well behind other advanced nations in delivering timely and effective care. The World Health Organization ranked 191 nations. France and Italy took the top two spots; the United States was a dismal 37th. The Commonwealth Fund compared the United States with other advanced nations, ranking the United States last compared with Australia, Canada, Germany, New Zealand and the United Kingdom. The United States, to its shame, has some 45 million people without health insurance and many more millions who have poor coverage. The United States has the greatest disparity in the quality of medical care given to richer and poorer citizens. The US has a high infant mortality rate, ranking last among 23 nations. We rank near the bottom in healthy life expectancy at age 60, and 15th among 19 countries in deaths from a wide range of illnesses that would not have been fatal if treated with timely and effective care. The good news is that we have done a better job than other industrialized nations in reducing smoking. The bad news is that our obesity epidemic is the worst in the world. US received low scores in coordinating the care of chronically ill patients, in protecting the safety of patients, and in meeting their needs and

preferences, which drove our overall quality rating down to last place. American doctors and hospitals kill patients through surgical and medical mistakes more often than their counterparts in other industrialized nations." <sup>2</sup>

In 2009, rancorous debate in the US emerged as the Obama administration attempted to "reform healthcare." Competing vested interests engaged in irrational fears, common prejudices and paranoid speculation. The first overwhelming problem is the continuing fallacy of "health care". The second is that absence of self-responsibility. The third is the absence of recognizing the causes of expensive diseases are built into the infrastructures of a society that provides generous supplies of bad food, toxic chemicals in the air and water, tobacco smoking, alcohol and drug use and abuse, homicides, accidents, and general belligerence.

A Wall Street report in 2017 stated: " America spent an estimated \$9,451 per person on healthcare in 2015, by far the most of any country. However, among wealthy, industrialized nations, the U.S. has the largest share of residents not getting the medical care they need due to financial costs. Among the 35 member nations of the Organization for Economic Co-operation and Development, America is the only country without universal health coverage. This inconsistent coverage and care can create large disparities in health outcomes between populations. For the first time in decades, life expectancy in the United States fell in 2015. With a life expectancy at birth of 78.8 years, the U.S. ranks 28th among OECD countries. In addition, the U.S. is expected to fall even further behind other countries in the future. By 2030, life expectancy in the U.S. is expected to be on par with the Czech Republic for men and Croatia and Mexico for women. Poor life expectancy in the U.S. is partially caused by differences in quality of and access to care, as well as a number of socioeconomic conditions that can affect health outcomes. As a result, longevity varies significantly from state to state. Hawaiians have the longest life expectancy, of 81.2 years. By contrast, the life expectancy in Mississippi is only 74.8 years, the shortest of any state." <sup>3</sup>

A new President, Trump was elected in the US in November 2016. He promised to repeal Obama's medical insurance legislation. Well-informed observers feared the man who declared his interest in destroying many infrastructures that had developed for many decades. Apparently Trump and his cronies did not have well-developed alternatives to "Obamacare." They should consider the Canadian system with new respect.

## **Public Health or Medical Care**

The medical view is focused on each individual. The assumption is that medical doctors are available to rescue each person from any and all misadventures. The cost of individual rescues is high and increases every year. The solution in Canada to rising costs is to ration services, punishing all medical care workers and many patients who are denied services and have to wait in queues. The medical view is that expensive measurements have to be made on each person and detailed images taken. MDs have an exclusive interest in drug treatments and may see themselves as drug prescribers and not problem solvers. The cost of individual management is extravagant and many have argued that the results of individualized treatment of obesity, high blood pressure, elevated blood sugar and elevated blood fats are poor. If the results were excellent and the dire consequences of these risk factors were avoided, you could argue that high cost of individualized care was justifiable.

A public health view can be quite different from a medical view. To pursue public health you need tools that reduce or remove the causes of disease. You also want strategies that improve an entire population's resistance to disease. For example, you set up elaborate infrastructures to assure that the supply of water and food is relatively free of infectious agents. You try to immunize everyone to resist the most common infectious diseases. You pass legislation that reduces tobacco smoking. When you observe increasing obesity associated with increasing blood pressure, diabetes, heart attacks and strokes, you turn to tools of public education and persuasion hoping to modify the food selection and eating habits of everyone at risk. If you find that your public education efforts are not reducing high risk behaviors you begin to wonder what general measures could be taken to mitigate the consequences. Seat belts mitigate high risk behaviors, reduce injury and reduce fatalities in car crashes, for example. Car insurers reward good drivers with reduced costs and hold bad drivers accountable for the costs they incur. Policing is focused on crash prevention.

Any move toward public health solutions to expensive endemic diseases would be resisted by all who earn their living by offering individualized care and resisted even more vigorously by the pharmaceutical industry who shares a multibillion-dollar market for expensive drugs on the pharmacy shelf. I advocate diet revision using the Alpha Nutrition Program, exercise and nutrient support with a blend of critical nutrients at therapeutic levels of key nutrients. I would refer people of all ages who are at risk of vascular disease to fitness centers with Alpha Nutrition Program food services. A nutrient formula such as Alpha DMX would be distributed at low cost as a public health measure. Noncompliant people who continued high-risk behavior would pay increased premiums for medicalcare insurance.

## **Innovations in Medical Care**

There are opportunities in every direction to improve the health of citizens and to improve their care when they are sick or injured. In a world of increasing online activity and big data there is a need for new information technologies in all aspects of medicine. A Vancouver initiative for example attempts to bring together smart people from many disciplines. They stated: " Health Technology Forum (HTF) is a platform for people worldwide who have a common interest in making healthcare better, more accessible and affordable. Our international network of technology and healthcare entrepreneurs, developers, regulators, and providers are advancing the pace of healthcare innovation by engaging in exciting and productive dialogue between experts in healthcare. Worldwide interconnections are critical as we think global and act local. The advent of PHRs, social network, open platforms, smartphone, personalized medicine, compliance, interoperability, and policies are creating new opportunities for everyone to engage in a dialog to improve care everywhere." <sup>4</sup>

A growing consensus among medical institutions is that improved sharing of information and collaboration among different specialties is needed. Payment for services must shift from procedure fee schedules toward payment for good outcomes. While good outcomes should be the focus of medical interventions, there are great obstacles. If an insurer becomes responsible for measuring outcomes and determines how to pay for the results, medical service providers may disagree with the details of outcome measurements and may need a reliable income to maintain all the costs of providing care. Self-responsibility becomes the key determinant of outcomes. The best judges of outcome are the patients and their families. When a patient is hospitalized, family and close advisors are needed to advocate the best treatment required and must monitor the care actually provided. When a patient is discharged from hospital or moves from one institution to another a patient advocate is required to ensure transfer of information and responsibility.

The move to value-based medicine, which includes measurements of patient outcomes, generates heated debate on the subject of patient adherence. Now that the USA Medicare Access and CHIP Reauthorization Act (MACRA) will tie doctors' reimbursement to quality metrics, including reports on patient outcomes, a growing number of doctors are angry about being held accountable for behavior that is beyond their control. Many respondents used analogies to illustrate the absurdity of holding physicians responsible for their patients' behavior. "Will I be able to hold the grocery store responsible for my bad cooking?" "All doctors should close their offices for the month of December—or rather, since most of us are now wage slaves, not show up to clock in and leave the ER patients to the administrators, and let the OR lights darken. Then, when we come back in January, if the public still doesn't

appreciate what we do, we can take off January too." "The biggest problem with this whole discussion is that it focuses on medication-based treatment and outcomes rather than on the real causes of disease, which are the real determinants of outcome: lifestyle habits, including diet, activity, sleep, and stress resilience," a preventive medicine specialist asserted. <sup>5</sup>

## **World Health**

The world health organization (should be called the world disease organization) has developed a global perspective on human diseases. The following summary was developed from the World Health (Disease) Report (overview) 2002: <sup>6</sup>

"The world is living dangerously – either because it has little choice, which is often the case among the poor, or because it is making the wrong choices in terms of its consumption and its activities. Indeed, there is evidence that these risk factors are part of a "risk transition" showing marked changes in patterns of living in many parts of the world. In many developing countries rapid increases in body weight are being recorded, particularly among children, adolescents and young adults. Obesity rates have risen threefold or even more in some parts of North America, Eastern Europe, the Middle East, the Pacific Islands, Australasia and China since 1980. Changes in food processing and production and in agricultural and trade policies have affected the daily diet of hundreds of millions of people...Eating fruit and vegetables can help prevent cardiovascular diseases and some cancers, low intake of them as part of diet is responsible for almost three million deaths a year from those diseases. At the same time, changes in living and working patterns have led to less physical activity and less physical labor. Physical inactivity causes about 15% of some cancers, diabetes and heart disease."

The report found that there are 170 million children in poor countries who are underweight and over three million of them die each year as a result. There are more than one billion adults worldwide who are overweight and at least 300 million who are clinically obese. Among these, about half a million people in North America and Western Europe die from obesity-related diseases every year. Malnutrition remains the leading cause of disease burden among hundreds of millions of the world's poorest people and a major cause of death, especially among young children. All ages are at risk, but underweight is most prevalent among children under five years of age, and WHO estimates that approximately 27% of children in this age group are underweight. This caused an estimated 3.4 million deaths in 2000, including about 1.8 million in Africa and 1.2 million in countries in Asia. It was a contributing factor in 60% of all child deaths in developing countries.

Iron deficiency is one of the most prevalent nutrient deficiencies in the world, affecting an estimated two billion people, and causing almost a million deaths a year. Young children and their mothers



are the most commonly and severely affected because of the high iron demands of infant growth and pregnancy. Vitamin A deficiency is the leading cause of acquired blindness in children. Iodine deficiency is probably the single most preventable cause of mental retardation and brain damage. Severe zinc deficiency causes short stature, impaired immune function and other disorders and is a significant cause of respiratory infections, malaria and diarrhea.

High blood pressure and high blood cholesterol are closely related to excessive consumption of fatty, sugary and salty foods. They become even more lethal when combined with tobacco and excessive alcohol consumption... tobacco smoking caused an estimated 4.9 million deaths in the year 2000, one million more than 1990, with the increase being most marked in developing countries. Global alcohol consumption has increased mostly in developing countries. Worldwide, alcohol caused 1.8 million deaths, equal to 4% of the global disease burden; the proportion was greatest in the Americas and Europe. Alcohol was estimated to cause, worldwide, 20–30% of esophageal cancer, liver disease, epilepsy, motor vehicle accidents, and homicide and other intentional injuries.

## **Planet Crisis**

The benefits to citizens of modern industrial society may have peaked sometime in the past decade or two, and now, increasingly, we are paying the penalties. Deterioration of air quality is of the major penalties. Climate change is another. Here is the dreary checklist of more problems to come as man-made atmospheric changes accumulate:

1. Heat waves and More Destructive Fires
2. More air pollution
3. More extreme and erratic weather
4. Droughts and Crop Failures
5. Floods
6. Hurricanes
7. Deforestation and urbanization
8. More contact with previously remote disease carriers.
9. Toxic and unsanitary cities are incubators for disease.

Increase rates of death, injury, and infectious diseases due to proliferations of insects such as mosquitoes that carry west Nile virus, malaria, yellow fever, and dengue have moved into some temperate climates and higher altitudes, infecting people who lack immunity to these diseases Other major diseases likely to spread with global warming are cholera, dengue, malaria, filariasis and sleeping sickness.

Depletion of stratospheric ozone lead to greater numbers of skin cancers, especially among fair-skinned people in temperate climates, where the ozone layer is thinner. The ozone layer reached its lowest level around the year 2000. Skin cancers may not appear until decades after increased UV exposure.

A warming planet will continue to bring more extreme weather, with a greater incidence of droughts, sandstorms, floods, fires, tornadoes and hurricanes, which in turn will increase rates of death, injury, and infectious diseases due to proliferations of pests. Deforestation and urbanization in some developing countries contribute to this dangerous mix. As tropical forests are cut down for timber and agriculture, people are more likely to come into contact with previously remote disease carriers. Meanwhile, growing numbers of poor in developing nations are leaving rural areas for overcrowded, unsanitary cities. The emergence of the Ebola virus in Africa is an example of the movement of a rare disease from an animal reservoir in a tropical forest into towns and cities, where it could spread by person to person contact.

### **Food-Related Disease**

When you look beyond obvious diseases caused by malnutrition and obesity, numerous other diseases are food-related. Some of these diseases are well known and others are often not recognized as food-related. Major degenerative and disabling processes in our society are often related to problems in the food supply and abnormal food-body interactions. These problems include diseases generally acknowledged diet related, such as atherosclerosis, alcoholism, obesity, cancer and diabetes. Other common disorders are not generally acknowledged as diet-related and official advice ignores these problems.

The most common food-related problems are the result of eating too much and making the wrong food choices. Obesity and diabetes 2 are two aspects of the same dietary problem and threaten the well-being of most affluent societies in the 21<sup>st</sup> century. Nutrient deficiencies are hidden in food abundance and overeating, because of inferior food selection.

Abnormalities in eating behaviors are now so common that it is difficult to define "normal eating". Food and ingested liquids are selected by socioeconomic and cultural factors more than biological factors. Food selection is part of more complex behavioral patterns, often determined by advertising and availability of junk and fast foods. Common abnormal eating behaviors include cravings, compulsions, binge eating, and excessive food intake with obesity, food addictions, aversions and anorexia. Alcoholism is one pattern of compulsive eating. Chronic ill health is associated with eating the wrong foods and drinking the wrong drinks. Often, food indulgences, rewards, treats, dessert and recreational food cause the most suffering - an intriguing paradox.

One the features of affluent diets is nutrient disproportion. An ideal diet has a balanced intake of all nutrients. Spontaneous diets have little chance of achieving ideal intake and typical diets are often recklessly disproportionate. A large body of evidence points to a high fat, high protein, low fiber diet as causing disease. Other evidence points to high sodium, low potassium diets as the cause of hypertension. High fat, high protein diets with low vitamin intake predispose to coronary artery disease, cancer and delayed patterns of food allergy. While we are concerned about the chemical contamination of the food supply, this problems ranks sixth on our list of food-related problems. If we knew more about the effects of chemicals such as pesticides in the food, we may rank this problem higher. Food-borne infections are also a major concern but rank seventh on our list because the frequency and severity of foodborne infections is still controlled by public health measures. We rank delayed patterns of food allergy as number five in our list of food problems and consider the concept of immune-mediated hypersensitivity disorders related to the food supply is a potential breakthrough in the understanding of modern disease.

## **Nutrition**

The term "nutrition" means mean a lot of different things to different people. Some people adopt the term as a professional label; many companies borrow the term to claim a relationship to professional nutrition. Universities have departments of nutrition. Often the study of nutrition is disconnected from the real world of agricultural practices, food processing and distribution. The intense marketing efforts of food and drug companies flood the media with deliberately biased information that confuses everyone.

Nutrients are the input to metabolism and you might assume that foods in reasonable combinations will provide the necessary input. When I was a medical student, I was busy learning what is known and lacked the experience to ask good questions about what is not known. I, for example, did not have any questions about problems involved in digesting foods into nutrients. I never imagined that such good things as food proteins could cause disease. I never considered that the immune system would interact with the food supply and produce disease. These questions arose many years later, after I became ill and discovered that some foods made me so.

There are forty simple substances considered as essential nutrients. Thousands of more complex substances are ingested every day to extract 40 or so simple substances. There is confusion about the meaning of the term "nutrient." If the name "nutrient" is reserved for only those molecular species those are essential to metabolic processes, molecules such as proteins should be called "prenutrients." The meaning of a protein molecule is different from the meaning of the amino acids that make it up, just as these words have meaning that their letters alone do not imply. A whole food such as meat, milk, cheese, or carrots is not nourishing until it

has been digested into individual nutrients. Nutrients must then be absorbed, processed in the liver, and passed on to cells, which have the intelligence and metabolic machinery to do something useful with them. There are many potential problems to consider along this path of promised nourishment. The first step in re-examining the nature and structure of food is to begin to appreciate how many different substances are ingested with food and to suggest the range of interactions that must occur in our bodies as we process and utilize the food. Food is complex, raw material from which our bowel attempts to extract nutrients.

The equation, food = nutrients, overlooks important features of food composition. This assumption is as common in medicine and dietetics as it is in "pop" nutrition and food fads. The food = nutrients equation allows everyone to talk about a complex food in terms of only one nutrient of interest. Milk becomes calcium; oranges or bananas become potassium. Nutrient-only advice is often not adequate. For example, you may be advised to consume cows' milk to obtain calcium. If you follow this advice, you may obtain calcium from milk but you may also suffer ill effects such as lactose intolerance and allergic responses to the milk proteins, followed by the long-term consequences of high saturated fat intake: obesity, atherosclerosis and increased risk of bowel and breast cancer. Similar and equally inappropriate generalizations refer to the effect of single non-nutrient substances such as caffeine. The effects of consuming coffee or chocolate are attributed to caffeine. "Sugar" substitutes for a whole complex of foods, from candies to black-forest cake.

## **Diet Ideas**

Books, magazines and TV shows offer dietary advice in great profusion. Some "diets" have become brand-name favorites. Many years ago, in his best-selling book, "The Pritikin Promise", Nathan Pritikin advocated a strict low-fat diet to combat cardiovascular disease. He, like many nutritional theorists, chose one food demon to attack, fat-cholesterol, but he also recommended limiting high protein foods such as poultry, lean meat, and fish to 3.5 ounces per day. Pritikin advocated high vegetable intake but discouraged using vegetable oils.

A popular misconception of a "Mediterranean diet" has become a standard cliché in medical circles. A Mediterranean diet has been advocated to prevent or ameliorate arterial disease. There is no single diet in the diverse countries that border the Mediterranean Sea. The countries are numerous and diverse with a great variety of cuisines. Even if you focus on Italy, you do not find a single diet but great diversity of cuisines. Italian food emerged after the fall of the Roman Empire when different cities began to separate and form their own traditions. Each area has its own specialties, primarily at a regional level, but also at the provincial level. The differences can come from a bordering country (such as France or Austria) whether a region is close to the sea or the mountains, and economics.

Italian cuisine is also seasonal with priority placed on the use of fresh produce. Many types of bread and pasta are made, and there is a variation in cooking techniques and preparation. The country was split. For example, the North of Italy (Milan) are known for their risottos, the central/middle of the country (Bologna) are known for their tortellini and the South (Naples) are famous for their pizzas.

Italian cuisines have a great variety of ingredients which are commonly used, ranging from fruits, vegetables, sauces and meats. In the North of Italy, fish such as cod, potatoes, rice, corn, sausages, pork, and different types of cheeses are the most common ingredients. Pasta dishes with the use of tomato are spread in all Italy. In Northern Italy, though there are many kinds of stuffed pasta, polenta and risotto are equally popular. Liguria ingredients include several types of fish and seafood dishes; basil, nuts and olive oil are very common. In Emilia-Romagna, common ingredients include ham (prosciutto), sausage (cotechino), different sorts of salami, truffles, grana, Parmigiano-Reggiano, and tomatoes (Bolognese sauce or ragù). Traditional Central Italian cuisine uses ingredients such as tomatoes, all kinds of meat, fish, and pecorino cheese.

In Tuscany pasta is served with meat sauce. In Southern Italy, tomatoes – fresh or cooked into tomato sauce – peppers, olives and olive oil, garlic, artichokes, oranges, ricotta cheese, eggplants, zucchini, certain types of fish (anchovies, sardines and tuna), and capers are important components to the local cuisine. Some vegetable oils have important health benefits. Olive oil, for example, is protective.

Wine is an important feature of Italian cuisine. There are 350 official Italian wine varieties grown from a great variety of grape vines that vary by region. Italy's twenty wine regions; reflect their indigenous wines and vice versa. Italians rank fifth in the world wine consumption with a per capita consumption 42 liters per year, Italy was the world's second largest wine producer: 20% of the global total, in 2005, second only to France, which produced 26%.

Dean Ornish treated patients with a very low fat vegan diet, similar to strict versions of the Alpha Nutrition diet but with no meat. He demonstrated improvement in patients with established coronary artery disease. Ornish's patients combined strict diet control with exercise, yoga, and meditation. Fat intake was less than 10%. Ornish concluded that corrective diet and life-style changes will reverse established blood vessel disease and improve the quality of life. Current recommendations for fat intake are shrinking progressively from 35% of total calories to less than 20%. Typical American diets contain as much as 37% fat, a surplus. A total of 15-25 grams of fat per day supplies our needs.

The minimum requirement for fat intake is 1-2% of total calories for adults and 3% for infants. If you have normal cholesterol levels, your level of fat intake should be less than 20% of daily calories with 70% fat as vegetable oil. If you have elevated risk of arterial disease, your total fat intake should drop to less than 15% of total daily calories. Canola and flax oil provide alpha-linolenic acid, the essential omega-3 fatty acid. High Blood Pressure also relates to diet.

For years, excessive sodium salt was associated with hypertension, and low sodium diets were recommended to all sufferers. Most hypertensives benefit from sodium reduction and some require a strict low salt diet. According to the Canadian Coalition for High Blood Pressure Prevention and Control, non-drug strategies should be the priority for hypertension control.

Smoking cessation, low-fat diet, weight loss, exercise, reduced alcoholic beverage consumption, and increased potassium intake with decreased sodium are the important steps to avoid the problem of high blood pressure. A vegetarian diet is favorable for anyone with high blood pressure and other manifestations of cardiovascular disease. Increased intake of calcium and potassium may lower high blood pressure and extra potassium may protect against stroke-associated death. North American diets tend to offer sodium levels much higher than actual need (minimum of 1100 mg/day, adults). The average consumption range of Sodium Chloride is 10-14.5 grams/day.

### **Five Diseases in One Package**

Diseases of blood vessels are a major cause of premature disability and death. Heart attacks and strokes are the most devastating consequences of damaged arteries and increased clotting of blood. No group of diseases has received more attention than diet-related arterial disease. No other diseases have received more public promotion and educational effort both from government agencies and from private fund-raising organizations such as the American and Canadian Heart Associations.

Arterial disease is a whole body disease but tends to be managed by physicians and surgeons as a localized disease. In other words, when the heart arteries are plugged you go to see a cardiologist and then a heart surgeon. When the vessels to the brain are involved, you go to a neurologist and then possibly a neurosurgeon. When the vessels to your leg are obstructed, you go to a peripheral vascular surgeon. When the vessels to your penis are plugged, you go to an urologist and a marital counselor. Arterial disease is part of a package deal of disease manifestations that are caused by eating too much of the wrong foods, exercising too little and otherwise indulging in unhealthy habits such as smoking and overindulging in alcoholic beverages. Environmental factors such as air pollution with chemicals produced by the combustion of petroleum products and other fuels contribute to the body burden

of disease. Each component in this package deal tends to have separate support and lobby groups that champion vested interests. Doctors tend to specialize in one component of the overall package. Thus diabetes is separated from obesity and obesity is separated from hypertension, often treated as a separate issue from coronary artery disease, which is separated from strokes.

You might have assumed that your family doctor is supposed to help you prevent all these diseases, but his or her time is limited and preventive resources are meager at the doctor's office. It turns you that the only person in the whole expensive medical/surgical network that can make sense of whole package deal - arterial disease and all its associated disorders - is the patient. It is up to you, dear reader to solve this collection of health problems by removing the causes! This book is dedicated to the effort of intelligent well-motivated people to become well-informed and to take charge of their own management. A non-smoking, fitness center that serves Alpha Nutrition Program meals can replace hospitals, clinics, MDs offices, rehab programs and nursing homes.

## **Tobacco Smoking**

Inhaling tobacco smoke into the lungs is one of the most perverse habits of humans. Cigarette smoking leads to death from many types of cancer. In the USA 1 in 6 individuals in the United States smokes cigarettes despite years of warnings against the practice. Among high school students, the prevalence of cigarette smoking declined from 27.5% of students in 1991 to 9.2% in 2014. e-cigarette use has increased among youth in the past few years, and the long-term health effects of this different form of nicotine delivery are largely unknown.

Tobacco smoke contains 4800 chemical compounds, including 69 carcinogens. And nicotine, the cause of addiction in smokers. Nitrosamines are the dominant carcinogens. Secondhand smoke comes with suspended particulates and . The carbon particles get inhaled deep into the lungs and are especially harmful to small children whose lungs are just developing. Several chemicals are classified as Class A carcinogens. These include arsenic, asbestos, benzene, radon, and vinyl chloride. Secondhand smoke has also been classified as a Class A carcinogen. It, too, contains arsenic, benzene, and asbestos. It also includes formaldehyde and miscellaneous volatile organic compounds.

## **Normally Abnormal**

Thinking about common diseases is becoming more sophisticated. Life is a continuing series of interactions between a person and his or her environment. Some of the interactions are healthy and promote long lives. Other interactions are unhealthy and lead to disease. There is a continuum of events that progress from a young

healthy body to one with vascular disease, organ dysfunction, organ injury, and finally, death.

Most of us would like to be healthy, productive and live a long life. Most of us have some control over interactions with our environment. We know that the critical dominants of disease are within the range of personal choices. When a person develops overt cardiovascular disease, we can usually conclude that they made poor choices consistently over many years. There are many reasons for wrong choices, beginning with ignorance. Some ignorance is a result of lack of understanding, but most ignorance is active ignoring and denying the harmful consequences of bad choices made. Obviously, the sooner that bad choices are corrected, the better the results in the long term.

Cardiologists realize that medical interventions tend to occur late in the disease continuum if at all. People in their 20s can have fatty plaque in their coronary arteries, but may not show up for medical care until they are older. The evidence does suggest that some interventions are beneficial in terms of preventing heart attacks and strokes and that disease progression can be halted by important changes in diet and increased exercise. The occurrence of a heart attack or stroke confirms that atherosclerosis is advanced, damage has been done and that the rules of intervention have changed. In a discussion of atherosclerosis, Weintraub suggested: "I think it is important that we recognize that this process is not something that we were supposed to have to endure. We eat things that are wrong and our lipid levels are far higher than they were ever designed to be, and as a consequence we are experiencing injuries that were never part of our biologic programming. Think of the renin-angiotensin-aldosterone (RAAS) system, which has direct pathobiological effects on a variety of tissues. It was designed to be part of a repair or temporary compensation system.

"The problem is that we humans end up with the RAAS in the constant "on" position and we are constantly suffering oxidative injury from the oxidized lipids we graze on. We are not born with the ability to successfully handle the overload we place on our system, and this is why we develop heart failure after an MI -- because our normal, healthy, compensatory system is ill-suited for our bad behavior."

There are many risk factor measurements in common use such as cholesterol, LDH and HDL. While risk factors are relevant, they do not reveal what everyone really wants to know – how much arterial damage already exists and how fast is it progressing. Weintraub suggested using two non-invasive tests: 1. measure microalbuminuria in the urine and 2. measure carotid artery intimal-medial thickening (IMT). Increasing carotid artery IMT and microalbuminuria show progression toward tissue damage. Stable or decreasing carotid IMT would be most reassuring. He points out



that microalbuminuria is not an expensive test and carotid artery IMT is not less expensive than echocardiography. While an ECG is not expensive, it reveals only existing heart damage and is not predictive of progression of coronary artery disease.

### **Food Causes of Disease, Ranked by Importance**

Rank	Problem	Examples	Disease Consequence
1	Food Excess	High fat, proteins, low vitamins	Atherosclerosis, cancer
2	Nutrient Disproportion	High sodium, low potassium	Hypertension
3	Nutrient Deficiencies	Low folic acid	Neural tube defects, CAD
4	Delayed Food Allergy	Milk proteins	Diarrhea, eczema, asthma, arthritis, inflammation
5	Food Intolerance	Milk sugar (lactose)	Gas, bloating, diarrhea
6	Food Contaminants	Pesticides	Cancer, ill-defined, chronic illness
7	Food-borne Infections	Salmonella, E Coli.	Diarrhea, ankylosing spondylitis,
8	Food Additives	Sulphites	Asthma
9	Food Toxins	Shellfish Poisoning	Diarrhea, Paralysis, Dementia

### **Symptoms**

A symptom is any unpleasant sensation which suggests that your body is not working properly. People have a great variety of symptoms which range from mild discomforts to incapacitating suffering. If we defined "healthy and normal" to mean that you have no symptoms, then there would be very few normal people.

Loud complaints such as severe pain usually get our attention. Pain should mean: "Stop everything and fix what's wrong." You may have learned to ignore less intense disturbances. When symptoms are moderate to severe you usually seek some help or remedy. People expect to take drugs or drug substitutes such as herbs to relieve symptoms. A better idea is to remove the cause of symptoms. Pain and other discomforts are supposed to inform you and get you to change. If you pay attention to how your body responds on a daily basis, you will be more aware of the causes and

patterns of your symptoms. to change symptoms you have to remove causes and you need to understand more about how symptoms are generated.

You need to learn how to identify symptom triggers. You learn typical symptom sequences from the beginning to the end of each disturbance. You learn how to correct for recurrent symptoms without the use of drugs. Your goal is to stop being a victim of illness and become more successful at self-monitoring and self-regulation

Diagnostic classifications tend to be descriptive. A collection of symptoms is given a pattern and a syndrome name; thereafter, it becomes an entity. The word "depression" was just a description of a collection of symptoms, but has become a proper medical diagnosis by years of usage. The term depression still does not refer to a disease in the usual sense and does not describe the cause of the symptoms.

The term "arthritis" simply describes joint inflammation. As we further categorize arthritis, we develop descriptive criteria for many different types of arthritis. The diagnosis "rheumatoid arthritis" requires a definite collection of symptoms, especially joint swelling and pain. Objective measurements give some diagnoses more credibility.

A general state of hypersensitivity exists in many of the patients we see with symptoms arising from food, air and water sources. We believe that food-triggered hypersensitivity diseases are among the most common health problems in our society. Hypersensitive people may react to food, air, drugs, smell, people, ideas, and feelings in an exaggerated manner.

As new illnesses emerge, especially the multi-symptom problems of food-related illnesses, their victims pass through a limbo of ignorance and misunderstanding, often lasting years. Diagnostic categories always oversimplify a complex situation.

A sick patient who does not fit into a standard diagnostic category tends to be ignored or dismissed. When a patient falls into this diagnostic limbo, curious things begin to happen. A number of "diagnostic default" explanations are often offered by physicians instead of proper diagnoses. Stress, tension, colds, flu, viruses, or references to psychosomatic illness are the favored defaults. Psychiatric diagnoses such as "depression" and "somatization disorder" are descriptions which often conceal the real nature of illnesses. We propose a process interpretation of dysfunction over a category definition. In other words, we are more inclined to ask, "What is the source of the problem and how does the problem develop in the body over what period of time?" These are more useful questions to answer than, "What is the problem called?" If we know more about the way of the disease, then we are better equipped to alter its progression, especially by removing its origin.

Most patients we see have a combination of health problems, extending over a long time period. They often complain of disturbances in many parts of their body. Their symptom list is long and perplexing. They have a multisystem, polysymptomatic disorder. In terms of our well-established diagnostic entities, these complex disorders may not be well understood and may be called Ill-Defined-Illness (IDI).

We recognize three basic truths:

1. First: Most of the diseases that lead to premature disability and death are caused by eating too much of the wrong food and exercising too little.
2. The second truth is that normal is not normal: The foods implicated in causing illnesses are common foods that almost everyone eats. To become a healthy person you have to redefine normal food.
3. The third truth is that each person is responsible for their own health. Rather than waiting for the next "miracle cure" for high blood pressure or diabetes 2, for example, responsible people get busy and fix the problem for themselves.

## Selfcare

Selfcare only works if you have adequate knowledge and problem-solving strategies. In the best case, you would know enough about your body functions to interpret symptoms as they arise and you would take corrective action. You would develop a good sense of what problems you can manage yourself and you would know when to seek help. You would use all the preventive strategies available to you and would use screening tests to detect early stages of disease. I have written several books on specific diseases with the idea of presenting adequate knowledge and suggesting problem-solving strategies. In this section, I will quickly review some topics.

### **Self Responsibility**

Self-responsibility is a familiar concept in Canada, but when it comes to medical care, the concept tends to vanish. Each person has some control over their life course and some ability to prevent injury and disease. Some diseases emerge because of ignorance or careless disregard for risky behaviors. Affluent countries tend to create dependent citizens who fail to act responsibly and instead, dependent people expect that the government will rescue them from all misadventures.

There is a compassionate basis for medical practice. The idea is to receive the sick and injured without judgment, patch their wounds, treat their diseases and alleviate suffering when there is no effective treatment. The government of Canada took the compassionate idea and legislated that, whatever the determinants of injury and disease are, the doctor and the hospital are ready to rescue you as a public expense.

In debates about the Canada Health Act, critics pointed to the lack of any personal responsibility. They described the need for responsible use of public resources and also the need for well informed prevention and self-management. They compared a medical care card with a Visa card that you could use to purchase whatever you wanted, but you never had to pay. The critics' prediction of escalating costs has proved to be accurate. In Canada, no self-responsibility has been enshrined in legislation.

For many years MDs were blamed for escalating costs and draconian measures were invented by bureaucrats to intimidate and control MDs. When MD control proved to be unsuccessful, users access to resources were curtailed by limiting resources and using waiting lists. The Canadian system has been examined in detail, repeatedly and its shortcomings revealed in voluminous reports that fill libraries. Numerous studies, government hearings, conferences have looked at the Canadian system. The Canada Health Act needs revision but no government will improve that status quo.

The terms "Health Act and Health Care" misrepresents the difference between health and medical care in every possible way. Health is supposed to refer to being "healthy" – free of disease, physically fit, productive and happy. Canada aspires to have more healthy people and less medical care. Canada has a special ability to study problems at great length and great cost without arriving at any solutions. It is a case of colossal perseveration.

One missing ingredient is self-responsibility. Since everyone is blameless, any and all misadventures and environmental degradations are tolerated. The supply of medical problems increases. Some injuries and some diseases are indeed blameless and any good person will want to help the victims. But some diseases and injury are self-inflicted and are preventable by well-informed self-responsibility.

Even if prevention fails, diseases such as diabetes require well-informed self-management. The American Diabetes Association published revised Standards of Care for diabetes emphasizing that high-quality diabetes care must be individualized to reflect the needs, interests, and abilities of each patient. Patient education and motivation must be a central component of quality diabetes care because the patient must provide daily self-care such as eating properly, monitoring blood sugar levels and fulfilling exercise requirements.

The most obvious failure of self-responsibility are the diseases caused by drinking alcohol and smoking tobacco. Legislation and public health measures to reduce smoking have been somewhat successful. Smoking diseases are being replaced by food diseases. Alcohol diseases remain a major problem and mitigation of cost and consequences remains a responsibility of police who enforce laws that limit access to alcohol and detect and punish drinking drivers. In some trauma centers, drunk drivers are responsible for over half of admissions.

People in the US and Canada are not healthy because they eat too much of the wrong food and exercise too little. The mechanisms of bad-food diseases are numerous and complex. Marketing chemicals to reduce the negative effects of eating too much of the wrong food is profitable for drug companies and a burden on individuals or their insurers, even though few of the drugs are really required.

The real solution is not taking drugs, but eating less, choosing the better foods and exercising more. The caveat, of course, is that most humans are not in charge of their own destiny. They are members of groups that set the stage and write the script that each person must follow. I have learned that humans generally do things that they should stop doing. In addition, I have learned that reasonable, rational solutions to human problems are seldom pursued for very long.

Proposals for universal medical insurance surfaced again in the US campaigns for the 2008 election. Again, the idea that the

government would become a master insurance agency and pay all medical bills is not very appealing. Physician and law professor Gregg Bloche summarized an emerging ethic that requires more self-responsibility: 'The trend is toward an ethic that calls on us to take care of ourselves...this ethic includes high-deductible coverage, financial rewards for regular workouts and weight control, and penalties (such as premium surcharges) for failure to comply with treatment. If the United States is to come close to universal coverage, personal responsibility will need to play a larger role than it did in the mid-20th-century welfare state. The new compact is likely to start with an enhanced sense of individual obligation — to eat sensibly, exercise regularly, avoid smoking, and otherwise care for ourselves. It may include an obligation to buy insurance. Government, in exchange, can offer some protection against the threat of economic and social change that will disrupt people's coverage by destabilizing employment and family relationships. Not only can the state provide subsidies to enable poorer citizens to buy insurance; it can, at low cost, combine people's purchasing power and clear away obstacles to competition, empowering markets to extend coverage to tens of millions who now go without it. Government can also fashion incentives to foster evidence-based practice, health promotion, the elimination of racial disparities in care, and the reduction of medical errors."

Carolyn Clancy, director of the US Agency for Healthcare Research stated: "Patients are becoming more involved in decisions about their care. Even though this is a major change to how we (MDs) practice medicine, it will, over time, create a genuine partnership between doctors and patients...we recognize the importance of clear, ongoing communication, including questioning why a particular treatment decision was made. We need to engage our patients in the same way. My agency has developed a new public awareness campaign with the Ad Council to encourage patients to take a more active role in their healthcare. "

### **Replace Authoritarian Medicine**

NP moves away from the authoritarian model of medicine toward self-responsible therapy. The patient and therapist work together on the practical business of changing life-long food selection habits and setting progressive goals. The therapist supervises self-directed change, teaches the relevant biology, and gives patients insights into their dysfunctional patterns, and tools of self-management. Drug therapy plays a small role in NP. NP challenges common beliefs about what is "normal food." The Alpha Nutrition program rejects the four food group concept (meat, milk, grains, and vegetables-fruit), promoted by the U.S. Department of Agriculture in the 1950's as the proper, official method of achieving a "balanced diet". A remarkably strict nutritional dogma emerged in the USA and Canada. An entire infrastructure of food suppliers and services placed milk, meat, eggs, and wheat in every kitchen and every restaurant. As evidence strengthened that diet was the

culprit in causing endemic myocardial infarctions, low cholesterol food products became popular, distracting consumers from the larger issue that the North American diet was fundamentally flawed.

An advertisement for a blood pressure drug in a medical journal declared, for example: "In Canada the average person will consume approximately 12 cows, 20 hogs, 11 sheep/goats, 1438 chickens, 30 turkeys, 11275 eggs, 398 kg seafood, 530 kg butter or margarine, and 192 kg of salt. As the consequences of a lifetime of cholesterol-rich foods could be of concern to some hypertensive patients..."

The advertisement implies that people will continue to eat the problem foods, and drugs will continue to be necessary and profitable treatments of the consequences. The idea of eating all these animals, their milk, and eggs is less appealing now than ever before, not only for health reasons but also for esthetic, moral, and ecological reasons.

In the 1990's, official dietary recommendations in the USA and Canada have changed to a food pyramid, which gave more value to eating fruits, vegetables and grains. Harvard's Walter Willet reviewed the new recommendations and stated: "The dietary pyramid released by the U.S. Department of Agriculture attempts to translate current nutritional knowledge to a recommended eating pattern in terms of food groups. Inevitably, such a document represents a mix of well-supported findings, educated guesses, and political compromises with powerful economic interests such as the dairy and meat industries." Willet's conclusion is that "...optimal health can be achieved from a diet that emphasizes a generous intake of vegetables and fruit. Such plant-enriched diets, as embodied by other cultures can be not only healthy but interesting and enjoyable as well." This approach has been taken in designing The Alpha Nutrition Program. The following precepts further characterize the nutritional programming approach: Changes in physical and mental function and behavior are interpreted as biological events.

### **Reflections on an Uncommon Illness**

All of us become ill and sooner or later a major life-threatening illness arrives without warning and everything changes. I have been lucky to have illnesses that either resolved on their own or that I managed by careful adjustments to the food I eat. I developed gluten "allergy" expressed as digestive symptoms and arthritis and general debility when I was 38 years old. I discovered a whole new approach to medical therapeutics that few of my colleagues appreciated. Among my self-management strategies is taking a food holiday when something really bad happens. This is an ancient healing method that has worked well for me over the past 25 years. My experience with food related disease became a

new level of truth that I have described in detail in books and on other centers at this website.

In the summer of 2006, I became ill; slowly and progressively. All my self-help strategies failed to rescue me. The illness felt like an infection, but it was unfamiliar and did not resolve on its own. For several weeks, I did not recognize the pattern of illness and was alarmed by its inexorable progression. I want to reflect on some of the important things I learned.

1. Once again, I learned about the limitations of my knowledge. I knew something about allergy to fungal spores, but almost nothing about airborne fungal infections. I was highly motivated to discover and learn but at least two medical colleagues I consulted were not. The first doctor I consulted after I made the diagnosis was helpful and admitted quite correctly that he knew nothing about the infection. I discovered that in my town both medical clinics had no lab facility and no microscopes. All their lab work was sent out and the MDs dealt only with lab reports and prescription pads. None of the doctors had the curiosity and tools that are required by scientists. I have always had the microscope that I carried with me since medical school and used in clinical practice for many years. My lab microscope was more sophisticated and allowed me to take good photomicrographs. For many years I was interested in marine biology and studied plankton samples at every opportunity. I was used to preparing samples so that I could observe living organisms. It was natural for me to collect my own sputum and look for the infecting organism. It took several weeks to correctly identify the yeast form of the fungus that infected me and over time I got to know the little beasts quite well. I now better appreciate that there are a growing list of chronic infections that plague humans and resist cure.

I have described elsewhere the problems of technical medicine. MDs tend to live in a world of abstractions; real people become pieces of paper that show words and numbers as data. It is easy for MDs to ignore the real person and deal only with the data. I was taught to treat the patient and not the lab result.

2. I became alarmed that other people who may develop an unusual infection like mine would not be diagnosed and treated properly. Two women physicians I saw as consultants were remarkably callous and dogmatic...not my idea of good doctors. They knew little or nothing about the infection and denied its existence in my area. They renewed my interest in examining medical methods and the failure of infection surveillance infrastructures to respond quickly and appropriately.

3. I tried arrange definitive identification of the fungus that I observed but encountered remarkable resistance. Two female mycologists (not MDs) I consulted were reluctant to consider new evidence and did not help me confirm the identity of my infecting fungus. I had the incorrect idea that experts in the public employ



would be curious and eager to help. One stated that blastomycosis has never been reported in BC, therefore it does not occur. The other woman participated in studying another fungal infection that appeared for the first time in BC a few years ago (*Cryptococcus gatti*). Perhaps there is an unspoken understanding that you can only discover one new fungal infection in British Columbia. In part, the reluctance to help comes from technical limitations - there are no quick and easy tests that provide definitive results. My research was preliminary and should be pursued by a well-equipped mycology research laboratory.

Eventually, I consulted many MDs who denied that I had the infection. After a consultation with an infectious disease specialist who said he couldn't identify what organism was present in my slide culture or photomicrographs, I wrote to him: I am going to stop calling my fungal infection blastomycosis and refer instead to BC fungus G2X19. I have studied BC fungus G2X19 in detail over the past 2 years and regret that the other MDs I have encountered are not even curious enough to discuss this with me. They have confirmed my view that physicians are technicians and not scientists. BC fungus G2X19 resembles blastomycosis and my history of illness is consistent with many reports in the literature. Most of the features of my illness in the past 2 years can be explained by infection with BC fungus G2X19: this included the initial presentation which was alarming; the favorable response to itraconazole treatment; the recurrences when itraconazole was stopped; the pleural effusion that occurred a year later when granulomas( indicating fungal infection) were seen on CAT scans of my right lung and my liver.

4 The argument that "it has never occurred before" is typical of human assumptions that lead to error. The argument that you cannot have a disease that is uncommon is also spurious. Our attitude toward infection detection and reporting needs an overhaul. See Infection Surveillance.

5. Medical doctors receive a lot of information about anonymous groups of people, but they care for individuals that they know personally. They have difficulty moving from anonymous generalities to individual patients.

6. Another spurious argument that both female physicians pursued is that a physician should not make his own diagnosis and prescribe treatment for himself. I have spent the past 25 years advocating self care for every intelligent person, including myself. Without intelligent self-care most sick people will find themselves in a limbo with inadequate information and little or no supervision. Brief visits to a busy doctor are not adequate to manage the chronic diseases that are now most prevalent. The first physician I saw, an internist, was very strong in her condemnation of self care, but when it came time to make a follow-up appointment with her, she said it wasn't necessary. She advised stopping the anti-fungal agent that had improved my condition, but when I asked her what I should do if I

got sicker, she stated that I should go the emergency room of a hospital. In other words, this physician did not offer continuity of care and would not assume responsibility for the careless advice she was giving me. I would have appreciated a compassionate, knowledgeable physician who would assume my care, but none was available.

7. I have learned that disappointment is inevitable when you interact with others. Human performance always leaves a lot of room for improvement. My goal is to learn from disappointments. The first challenge is to improve your own performance so that you can realistically expect better from others. This is not easy. The second goal is to study failures and to learn from them

## **Digestive Disorders**

The function of the digestive tract is to process food. People's food supply must be matched to the capacity of their digestive tract to process food. Dysfunction and disease arise when there is a mismatch. The digestive tract actively manages and responds to food. When all is well, the digestive tract is quiet. Your awareness is limited to full or empty sensations. When there is trouble, our attention is directed to our abdomen by a variety of discomforts, pain, noise, distention and abnormal bowel movements. Food allergy and other forms of food intolerance such as lactose (milk sugar) intolerance are capable of causing all the common digestive symptoms.

Immune sensors trigger immune responses; local food allergy symptoms in the digestive tract are often the result. Sensors in your lips, tongue, and mouth trigger symptoms such as tingling, itching, burning, pain, and swelling. In a similar way, sensors along the entire length of the digestive tract can trigger symptoms, including burning, nausea, pain and swelling. The digestive tract knows when the wrong stuff has entered its space, and reacts defensively to get rid of it. Vomiting, abdominal pain and diarrhea interrupt normal living in a distressing display of the digestive tract's reactivity. Often, the onset of symptoms is delayed many hours and the role of food is not recognized as a source of dysfunction or disease. The basic strategy to solve digestive tract problems is correct faulty food intake.

The Irritable Bowel Syndrome is the most common gastrointestinal tract problem and involves episodes of abdominal pain, extra gas, bloating, and alternating constipation and diarrhea. The symptoms are often life long and often do not get better with standard medical management. Sometimes IBS will present as recurring or persisting abdominal pain. A food holiday on Alpha ENF will often resolve IBS and demonstrate that the problem is food-related.

The Alpha Nutrition method of food re-introduction then creates a new diet, free of the old symptoms. Crohn's Disease is a more serious inflammatory bowel disease that may respond well to the

program. Immune responses to gluten, the proteins found in cereal grains are a common cause of disease. The gastrointestinal tract is the primary target organ; however, systemic disease is an important consequence of cereal grain ingestion in many patients. The classic presentation of Celiac Disease is chronic diarrhea, with abdominal bloating, sometimes pain, weight loss, iron deficiency and other evidence of nutrient malabsorption.

We think that the people diagnosed with celiac disease are a sub-population of a larger group with gluten allergy. Often, an assortment of related whole-body problems accompanies celiac disease. We think the related problems are typical of delayed pattern food allergy and use celiac disease research information to create a model of food allergy. Latent disease may manifest as irritable bowel syndrome, sometimes with iron deficiency anemia, but little or no diarrhea.

Celiac patients have increased gastrointestinal permeability and demonstrate the whole-body effects of food allergy, including brain dysfunction, arthritis, and inflammatory lung disease. Celiac disease is associated with a variety of autoimmune disorders, carcinomas of the gastrointestinal tract and lymphomas. Diabetes, thyroid disease, purpura, anemia, rheumatoid arthritis, sacroiliitis, sarcoidosis, vasculitis, lung disease, myositis, eye inflammation, and schizophrenia are all linked to gluten intolerance. These associations suggest a tendency to immune hypersensitivity diseases and a role for food antigens in causing systemic autoimmune disease.

### **Arterial Disease, Heart and Brain**

Diseases of blood vessels are a major cause of premature disability and death in our society. Heart attacks and strokes are the most obvious consequence of damaged arteries and increased clotting of blood. People with coronary artery disease have a higher risk of developing Alzheimer's disease. The main event of a heart attack is the occlusion by a sudden blood clot of one or more blood vessels supplying the heart muscle. When blood flow is critically short, muscle cells die. This is called a myocardial infarct and the clotting event, a thrombosis. A similar occlusion of blood vessels supplying the brain will result in the death of brain tissue or cerebral infarction.

These problems with different and complex origins link to the diets popular in Europe and North America and occur less often among vegetable-eating populations who seldom eat dairy products, meat, and other high protein, high-fat foods. The design of proper diets for disease prevention must consider multiple factors. A "low cholesterol diet", for example, may remain a problem for people who are allergic to skim milk, egg whites, and cereal grains. A "high fiber diet" may be a problem for people allergic to cereal grains. Alpha Nutrition achieves high fiber intake by increasing the intake of vegetables and fruit.

Other well-known risk factors are diabetes, high blood pressure, smoking, excess body fat, and physical inactivity. The risk of heart attacks positively correlates with higher blood levels of cholesterol; the risk of strokes does not. Recently studies have confirmed that high blood levels of the amino acid, homocysteine, increase the risk of heart attacks. Homocysteine (HCY) is derived from the intracellular metabolism of the amino acid, methionine and is exported into the blood where it circulates mostly in oxidized forms, bound to proteins. Concentrations of HCY are increased in 15-40% of patients with coronary, cerebral and peripheral arterial diseases. The increased concentrations of HCY are corrected by supplementation of the diet with folic acid, pyridoxine, vitamin B<sub>12</sub> and choline. The evidence suggests that increased intake folic acid and pyridoxine is protective. Increased homocysteine is more likely with typical high-protein American diets and can be lowered with the Alpha Nutrition Program. The mechanisms in diabetic patients appear to be multiple but increased levels of glucose and fructose play havoc with blood vessel walls. A cascading series of adverse events follows the onset of high blood sugars and can only be controlled by reducing free sugar along with comprehensive diet revision and increased exercise. The problems of diabetics can be generalized somewhat to all people with atherosclerosis and a prudent policy would be reduce the sugars, sucrose and fructose, in the diet of all people at risk.

### **High Blood Pressure**

High Blood Pressure also relates to bad diets. For years, excessive sodium salt was associated with hypertension, and low sodium diets were recommended to all sufferers. According to the Canadian Coalition for High Blood Pressure Prevention and Control, non-drug strategies should be the priority for hypertension control. Smoking cessation, low-fat diet, weight loss, exercise, reduced alcoholic beverage consumption, and increased calcium, magnesium and potassium intake with decreased sodium are the important steps to avoid the problem of high blood pressure. The Alpha Nutrition Program is designed to reduce cholesterol, total fat, saturated fats, and food allergy while increasing vegetable fiber—all desirable measures in the effort to prevent blood vessel diseases, heart attacks and strokes. Cholesterol has received the most attention as a factor in cardiovascular disease, but cholesterol intake is not the deciding factor. Total fat intake and the kind of fat you eat are important. Some fats promote disease; other fats are protective. If you stop eating animal fats, stop frying foods, and use only the best vegetable oils in preparing your food, you have the best chance of avoiding and correcting cardiovascular disease. Alpha Nutrition oils increase your intake of omega-3 fatty acids and oleic acid, which are protective.

Increased intake of potassium, magnesium and calcium is advocated with a reduction in sodium salt intake. Increased intake of six vitamins is recommended; folic acid, pyridoxine, Vitamin B<sub>12</sub>,

beta-carotene, ascorbic acid and vitamin E. Alpha Nutrition foods naturally increase the intake of fiber, potassium, magnesium, folic acid and beta-carotene while reducing sodium salt intake. Supplements of calcium and magnesium are recommended, along with zinc, copper and manganese. Vegetable oils such as Canola and Flax oil are recommended as sources of alpha-linolenic acid the primary omega-3 fatty acid. Fish oil supplements containing EPA and DHA are recommended. DHA intake should be 600 mg per day or more. The Alpha Nutrition Program can be recommended, along with exercise and relaxation as a rational strategy of preventing and managing cardiovascular disease.

### **Seniors Nutritional Needs**

Aging people have special nutritional requirements, lose tolerance to foods, and may become disorganized in food selection and eating habits. Poor nutrition accompanies social isolation, ignorance, poverty, and physical disability. Seniors suffer from an excess of prescribed drugs, often in combinations that defy any pharmacological sense. They suffer from drug side effects, toxic effects, and allergenic effects. Drugs may suppress appetite and interfere with nutrient absorption and utilization. Depression and dementia are two major threats to the well being of senior citizens and the two major causes are poor diet and adverse effects from prescription drugs.

Diet-related diseases become manifest in later life as the cumulative effects multiply. Cardiovascular and cerebrovascular diseases are major concerns. Adult-onset diabetes is diet-related, accelerates vascular disease and causes other disabling processes. Digestive problems are common. Arthritis of different types increasingly limits or disables growing numbers of senior citizens and may often be diet-related. Alcohol abuse is common and drinks may replace proper food.

Declining cognitive function is related to food problems- food toxicity and food allergy. Nutrient deficiencies may manifest as dementia. Research evidence points to improper nutrition and lack of exercise as the cause of declining function with age. Tufts University in Boston's Center for Nutritional Research in aging advocates a low-fat, high fiber diet (similar to the Alpha Nutrition Program), exercise (including muscle-building resistance workouts) and vitamin-mineral supplementation. Systematic diet revision should be a primary prevention and treatment strategy in seniors. Drug use should be avoided or minimized. Alpha Nutrition has helped seniors resolve these common health problems and can be useful to re-educate seniors in proper nutrition and self-care methods.

## Cancer Prevention

Cancer remains one of the most ominous threats to our well being. The incidence of cancer has been increasing slowly and food choices, body weight and exercise are obviously important variables.

Cigarette smoking leads to death from many types of cancer. Among the 4800 chemicals in the tobacco smoke 69 carcinogens are very important causes of cancer. Several chemicals are classified as Class A carcinogens. These include arsenic, asbestos, benzene, radon, and vinyl chloride. Secondhand smoke has also been classified as a Class A carcinogen. It, too, contains arsenic, benzene, and asbestos. It also includes formaldehyde and miscellaneous volatile organic compounds.

Cancer prevention involves modifying your food supply. The Alpha Nutrition Program includes all the cancer-prevention features recommended in the US Surgeon General's Report and in many subsequent studies. There are hidden and surprising features of cancer causation in the "normal food supply". A striking association, for example, is that celiac disease predisposes patients to lymphoma and other cancers. If this relationship is re-stated as "whole wheat and other cereal grains can cause cancer" the implication is more easily understood. There is evidence that strict adherence to a gluten-free diet long term will reduce the incidence of lymphoma and gastrointestinal cancers.

Alcoholic beverages cause cancer. Alcohol enters cells very easily, and is then converted into acetaldehyde, which can damage DNA and is a known carcinogen. Alcohol consumption and cancers of the oropharynx, larynx, esophagus, liver, colon, rectum, pancreas, prostate and female breast.<sup>8</sup>

Several common dietary themes emerge from the results of studies. Consumption of red meat and processed meat is associated with a higher risk for colorectal and pancreatic cancer and heavy consumption of red meat during premenopausal years increases the risk for breast cancer. Current dietary guidelines recommend limiting consumption of red and processed meat and increasing intake of plant-based foods .<sup>9</sup>

Many studies empathized the role of saturated fats in meats. For example, the risk of breast, prostate and colon cancer correlates with total fat consumption. There is an observed increase of breast and colon cancer in animals fed on a high meat-fat diet. Saturated, solid and over-cooked animal fats are the worst offenders. Some polyunsaturated fats, especially inferior vegetable oils, cooked oils may promote animal breast cancer while omega-3 fatty acids (Flax, Canola, and fish oils) tend to protect. Fried, BBQ and otherwise overcooked, charred meats are risky. Deep fried foods, including "French Fries" are risky.

Increased vegetable and fruit fiber consumption tends to protect against cancer. Non-nutrient substances, "phytochemicals" in food play a beneficial role in cancer prevention. Broccoli and cabbage have phenethyl isothiocyanate. Lycopene, the red pigment in tomatoes, may be protective against prostate cancer. Bioflavonoids in grape skins and other fruits have protective effects. Vitamin A is protective against some cancer and this effect is linked to a high intake of carotenoid vegetables and fruit (dark yellow, orange and green) than intake of the oil form of vitamin A (fish liver oils). Eating vegetables and fruit, especially broccoli, carrots, spinach and leafy green vegetables confers more protection than taking beta-carotene and vitamin C alone. Vitamin C is protective against nitrosamine-induced cancers, especially esophagus, stomach and lung. Vitamin E may enhance this protection.

Garland and associates at the University of Southern California suggested that sunlight and vitamin D reduced the risk of colon cancer. The risk of colon cancer is highest in populations that are exposed to the least amount of sunlight. Other evidence also suggested a protective role of vitamin D in breast cancer. High oral intake of vitamin D in fish-eating Japanese populations also correlates with low incidence of colon and breast cancer. American and Canadian diets are low in vitamin D and require supplements.

The benefits for eating fruits and vegetables are well supported by epidemiological evidence of a very general kind. Some caveats are required. For example, claims that phytoestrogens in legumes, especially soybeans and chickpeas, may protect against breast and prostate cancer are doubtful. Phytoestrogens can be more of a health hazard than a benefit, so that we recommend caution eating these foods, rather than promote them a "health foods." The whole enterprises of "health food" is so dominated by product promotion based on dubious or erroneous claims that a smart buyer will avoid most packaged products sold in health food stores or the "health food" sections of supermarkets.

## Nutritional Programming

I developed the idea of nutritional programming (NP) in the early 1980's when I was grappling with the problems of designing new diets for patients. At the same time, I started to use the first IBM personal computer and spreadsheets that offered rudimentary modeling capabilities. I quickly recognized the limitations of computation applied to diet design but thought that a programming model should be developed for designing diets. I considered that NP might appeal to scientists and hoped that this new approach would inspire researchers to take more interest in nutrition. Many years later, I remain an uncommon physician who is still talking about nutritional programming. I will persevere, knowing that NP remains a good idea and that you the reader, may benefit from taking this approach. This is a scientific model for the 21<sup>st</sup> century.

NP is interested in the preventive and therapeutic potential of a scientifically controlled diet, along with cellular, molecular, and hormonal engineering. An ambitious approach to Nutritional Programming would address the complicated issues of assembling improved diets that resolve all the health problems related to diet, a new form of molecular engineering or programming.

Good, Fernandes, and West stated in their review of Nutrition and Immunity: "We look forward to the time when the prophylactic and therapeutic potential of scientifically controlled diet, along with cellular, molecular, and hormonal engineering, may be realized and applied. Freedom of many disorders which have historically deprived us of our genetic legacy of a long and healthy life is certainly a worthwhile objective."

The term "nutrition" means mean a lot of different things to different people. Some people adopt the term as a professional label; many companies borrow the term to claim a relationship to professional nutrition. Universities may have departments of nutrition. Often the study of nutrition is disconnected from the real world of agricultural practices, food processing and distribution. The intense marketing efforts of food and drug companies flood the media with deliberately biased and misleading information that confuses everyone. The medical literature in the USA is at best confusing and contradictory – MDs there have an anti-nutrition bias with notable exceptions. In the US, drug companies view nutritional ideas as hostile and competitive so that they spend money attempting to discredit claims that nutritional therapies work as well as or better than drug therapies.



## Biochemistry

Biochemistry is the indispensable science of nutrition. Food is the biochemical input to bodies and metabolism is the process by which nutrients are utilized. There are three major aspects of metabolism:

- 1 extraction of energy from food
- 2 biosynthesis and cell construction
- 3 detoxification and excretion of unwanted materials

Most nutritional literature presents information about individual nutrients, usually considered in isolation. You are familiar with nutritional advice: "...nutrient X is really good for bones, be sure to get lots of X." This simplistic nutritional advice dominates popular nutrition. A more sophisticated approach is required. Nutrition can be thought of as an idealized, abstract look at the possible (but not real) outcomes of eating food.

Cellular metabolism involves the interconversion of thousands of metabolic substrates through enzyme-catalysed biochemical reactions. Food is the raw material input to this complex of chemical activity. Although the organization of individual pathways into metabolic networks is understood, the principles that govern their regulation and integration with different diets and under different growth and living conditions are not well understood.

The role of foods themselves, as objects of behavior and regulators of internal body dynamics, are relatively ignored. The possibility of things going wrong with digestion, absorption, and metabolism and with immune surveillance of these processes, while considered in medical science, is seldom a concern in medical practice. The dietitian often assumes that nothing will go wrong with food-body interactions; nutrients that are in the food are available to the body without complications. The physician generally assumes that nothing will go wrong or will consider a small number of adverse effects ignoring a number of pathological possibilities that may be the key to enigmatic disease.

A better idea is that a molecular stream flows through the body, interacts with DNA-determined metabolic machinery and decides the biological fate of the individual. If there is a mismatch between the incoming molecular stream and the ability of the metabolic processes to derive sustained, coherent meaning from it, then dysfunction and disease results. Ultimately, we may have the technology to monitor body chemistry in real-time, allowing us to design specific, optimal nutrient intake for an individual metabolism. For now, lacking this technology, we can utilize the patient's own self-monitoring and self-diagnostic abilities to better advantage. NP concepts require patients to learn intelligent self-monitoring and self-control.

## **Basic Biology**

Eating, drinking and breathing are three essential behaviors of all humans and all other animals. The gratification and reward of eating and drinking is unmistakable. Our basic drives for food, comfort, love, warmth, and security merge as we try to establish and maintain relationships and a comforting home environment. Human relationships are built around shared pleasurable experiences. Eating together is the principal bond among people. Food pleasures are the easiest, most available form of self-gratification. Eating and drinking together indicates social acceptance and tends to cement social relationships. Intimate relationships often begin with dinner invitations. Lovers feed each other the way doting mothers feed babies.

Hunger and thirst are the oldest and deepest motivations to venture into the world to find good things to eat and drink. Drinking water and other beverages is a special kind of eating. Hunger is an inside feeling; appetite is the drive, hunting for food is the seeking behavior, eating is the behavior that leads to satiety, a feeling of satisfaction that follows. Eating food involves pleasurable sensations, mostly in the mouth and internal chemical signals that regulate brain states. The right signals from food produce gratification and a temporary suspension of need.

Food is the most intimate part of the environment because we ingest it. Food causes dysfunction and disease in many ways. Every cell in our body needs nutrients delivered every day and food is the origin of these nutrients. Wrong materials are also distributed to every cell in the body. We can expect a confusing array of adverse effects from any modern food supply. Since there are multiple effects following ingestion of food, no explanation of food-related problems based on one mechanism alone will ever account for the multiplicity of effects reported and observed. Our best theories assume complex interactions; simultaneous immunology, physiological and biochemical mechanisms.

Affluent countries have collectively conducted an experiment in new food selection practices. The negative consequences are becoming more apparent. There are many adverse environmental factors. The food itself is changing as the atmosphere and soils deteriorate. The food supply is contaminated with unknown agents "X" that promote illness through a variety of mechanisms. For example, cow's milk is a sample of the local environment that cows inhabit. Milk contains many contaminants from pastures exposed to air pollution, fertilizers, and pesticides. Dairy cattle are often fed artificially with manufactured feeds, sometimes carrying alarming problems. It may be that meat, dairy products, eggs and cereal grains, especially when processed into composite, semi-synthetic foods in large quantities, are improper food for many modern people.

In any population, the adverse effects from food will range from mild disturbances to disabling or lethal diseases.

When something goes wrong, it makes good sense to look at the flow of substances through the mouth for the source of the problem. We need to look at the composition of the food, and more importantly, at the interaction of the ingested materials with an individual body. Adverse reactions to food are common and produce disturbances by a variety of mechanisms.

Many people have been conscientious in following "good dietary advice", eating whole grains, dairy products, supplementing bran and fiber, taking supplements, and reducing intake of negative influences such as alcohol, animal fat, salt, and sugar. When this strategy fails and they grow sicker, they are confused. They feel wronged when they discover the cause of their suffering is their compliance with "good dietary advice". The highly praised whole grains, for example, may be the cause of serious digestive diseases, skin disease, lung disease, arthritis, and brain disorders.

Biologists think in terms of populations, food supply, seasons, weather, and social behaviors, and do field studies that reveal patterns of adaptation to specific environments. The biologist sees every living creature connected to and interacting with his/her environment. Anyone who has worked with animals or fish in closed environments knows how critical environmental conditions and diet are in determining both the behavior and the physical status of the residents. When a fish in an aquarium displays psychotic behavior, you do not call a fish psychiatrist; you check the oxygen concentration, temperature, and pH of the water. You have to clean the tank and change the fish diet.

### **Hunger, Pleasure & Eating**

The gratification and reward of eating and drinking is unmistakable. Our basic drives for food, comfort, love, warmth, and security merge as we try to establish and maintain relationships and a home environment. Eating patterns are important social determinants. Human relationships are built around shared pleasurable experiences. Eating together is the principal bond among people. Food pleasures are the easiest, most available form of self-gratification. Eating and drinking together indicates social acceptance and tends to cement social relationships. Intimate relationships often begin with dinner invitations; "the way to a man's heart is through his stomach." Wine and romance are linked in the minds of many.

Complex food-related transactions emerge in family groups. Implicit food contracts often reflect reward and punishment strategies. Shared food preferences and eating rituals are important to the pleasure bond that keeps couples and families together. The eating patterns of couples and families are defended. Underlying the social level of eating practice are the organismic determinants and constraints. The model of all want and desire is hunger. Pleasure is derived from satisfying hunger. Hunger is the monitor image of appetite, the drive to get food.

Appetites create ready-for-action states or "drives". Drives produce seeking behaviors, which get results. If the drive for food produces wrong results, further drives emerge to renew the opportunity to get what is needed. The control of appetite is not consciously determined. An automatic brain system regulates food-seeking behavior and food intake. The same system is may run amok, demanding more and more of the "food" chemical, caffeine or ethanol. If we move into the appetite system, toward the molecular level of function, our description will have to account for the effect of incoming food chemicals in the brain. We would recognize that the brain systems, which determine appetite and eating behavior, monitor chemicals in the blood and receive information from diverse body systems about their chemical environments. The same system projects an image of body states into consciousness. Eating and sexuality are closely linked. Licking, biting, and chewing are as familiar in sexual metaphor as they are at the dinner table. Odors influence the selection of food as much as the selection of a mate. A person deprived of physical intimacy and affection will often turn to food and drink as a source of gratification. The hunger for sensual experience is readily displaced from one appetitive goal to another. Compulsive drinking may be a displacement behavior, manifesting the lack of affection and sexual gratification. The lonely man or women goes to the bar and drinks until he or she is drunk. The first problem in recognizing and addressing food-related diseases is that "normal" eating behaviors, "normal foods" and "normal" pleasures are the sources of diseases. Prevention and treatment of common diseases depend of discovering that "normal" is not normal.

### **Redefine "Normal"**

Some people who recovered normal function by following the Alpha Nutrition Program would return months later and ask; "When can I go off this diet?" or "When can I go back to a normal diet?" These are important questions because they reveal a preconception about "normal" that needs to be re-examined. One meaning of "normal" is that many people do it, that it is common. Most people eat bread and cheese. Most people drink coffee. Most people order pizzas and eat in restaurants. Most people eat junk food. One-half of all people are overweight. One-third of most people get cancer. One-quarter die of heart attacks and strokes. Is that normal?

Common eating practices are not healthy. Common food choices actually produce disease. It is common to get obese, to develop cancer, to have heart attacks and strokes, and all of these diseases involve the "normal" food supply. A better meaning for "normal" eating is that the results are positive and healthy; you do not have symptoms on a regular basis. You do not get sicker as the years go by. You do not develop serious disease from the foods you are eating. Healthy normal is unusual, not common. You have to accept that your body learns new reactivity all the time and may, without advanced warning, decide that a food you are eating is no longer

acceptable. You know that the decision is made when you experience a headache or abdominal pain, bloating, and diarrhea after eating the food. You also have to accept that your body's "no way" decision may come hours after eating the food and may not occur each time you eat the offending food. These are the peculiarities of the human body.

You have to accept that normal for you might be and indeed, probably is, uncommon. We all develop our own special needs, allergies, intolerances and sensitivities. To be normal, you will need special foods and special care in the preparation of those foods. If you go to the neighborhood restaurant, you might discover that conditions there are highly abnormal. You look around, many people are eating their food, and you feel like an outcast. There is nothing on the menu you can eat. We acknowledge that the truly normal person may be a stranger in our society. Few features of modern life are "normal" if you apply strict biological criteria. Be prepared to discover your own definition of normal.

The responsible person decides to get well and changes life-long food selection habits. If a professional therapist is involved, the ideal therapist supervises self-directed change, teaches the relevant biology, and gives patients insights into their dysfunctional patterns, and tools of self-management. Drug therapy plays a small role in NP. Herbal therapy and "alternative medicines" play no role.

## **Obesity**

Obesity describes seriously overweight people. Obesity may be defined as body weight greater than 20% of an average body weight. The amount of fat stored can be compared to lean body weight, a measure of structural and functional tissues. If the fat proportion exceeds 30% in women and 25% in men, then obesity exists. Some women feel too fat if their fat proportion exceeds 25% and would seek dietary and exercise remedies. Lean body mass includes muscle tissue which tends to use up food energy. To give you a reference point, a lean, male, marathon runner or competitive cyclist may have less than 5% body fat.

Obesity is also defined as a body-mass index (the weight in kilograms divided by the square of the height in meters) of 30.0 or more. The range of normal body-mass index is 18.5 to 24.9; overweight, 25.0 to 29.9; and obese, 30.0 or more.

More than 50 percent of adults in the United States, Canada have a body-mass index over 25.0. During the past 150 years, the body mass of men, adjusted for height, in the United States increased by about 10 kg. Even more alarming is that childhood obesity is also on the rise. Obesity can result from the deficiency of a gene involved in the regulation of energy production and storage or a gene that is involved in the productions of signals that turn off appetite.

However, regardless of the genetic component, the epidemic of obesity is driven by bad diets and sedentary lifestyles. Obesity means that food selection and the amount of food eaten is discordant with energy needs. This does not mean, however, that weight gain is always "abnormal." There are important biological reasons for eating an excess of food that results in weight gain. There are old and powerful weight gaining programs built-in to humans and other animals. Body fat is energy storage which acts like a savings account. Food surplus tends to be saved with interest and stored as fat. People who remain fat have a frugal metabolism and it is difficult to withdraw and spend the savings. One pound of fat is worth at least one day's hard physical labor. Reduced food energy intake tends to induce energy conservation, and body weight is maintained until prolonged food shortage results in weight loss.

### **Fast Foods**

There is little doubt that eating too much of the wrong food and exercising too little is responsible for the epidemic of obesity and the rise of the most debilitating diseases. Fast food corporations own more than half the restaurants in the U.S. and sell more than one hundred billion dollars of food each year. Fast food meals comprise a disproportionate amount of both meat and calories within the U.S. diet. Eating one hamburger, one chicken sandwich, and 1 small order of fries, you have consumed 50% of daily intake of recommended calories, 80% of carbohydrates, 75% of protein and 100% of dietary fat at a cost of about \$4.<sup>10</sup> The origins, quality and safety of fast foods have become unknown variables in the new epidemics of food-related disease. Jahren and Kraft stated: "Fastfood corporations do not raise livestock, but instead buy it from other companies. These suppliers organize and broker the production and transport of meat to the site of food fabrication and sale. In this way, distributors act as a barrier to consumer information; suppliers relevant to this study provide little information beyond their use of "local farms" that feed "mixed grains." The distributor for McDonald's is Martin-Brower, L.L.C.; Burger King and Wendy's employ the same distributor, Maines Paper and Food Service, Inc. All chicken is distributed to each chain by the same company, Tyson Foods, Inc. Most of the tissue of meat animals is constructed during the final weeks before slaughter. Our work also identified corn feed as the overwhelming source of food for tissue growth, hence for beef and chicken meat, at fast food restaurants."<sup>11</sup>

## **Food & Medicine**

The most general arguments we can make for dietary assessment and treatment in medical practice are as follows:

1. Food is the most intimate part of the environment because it is ingested.
2. When something goes wrong, it is prudent to look at the composition of the food first and then at the interaction of the ingested molecules with the body.
3. Adverse reactions to food are common and produce many disturbances by a variety of mechanisms.
4. Reducing food problems, molecular stressors, toxins and maladaptive responses is the cornerstone of preventive medicine.
5. For the majority of patients, the most important recovery occurs when ingested problems are eliminated and proper nutrition is established.

## **The Goals of Nutritional Programming**

The optimizing, health-seeking, preventive powers of nutritional programming (NP) are best appreciated by considering the numerous dietary causes of common diseases

The eight goals of nutritional programming are:

1. To obtain optimal nutrient supply every day.
2. To balance energy needs dynamically so that body weight is stable and vigorous physical exertion is permitted.
3. To recognize adverse reactions to food, by all mechanisms, and to eliminate these diverse and profound problems by diet revision therapy (DRT).
4. To detect and eliminate addictive effects of ingested molecules, thereby resolving compulsive disordered destructive eating behaviors.
5. To reduce the destructive effect of molecular stressors - additives, toxins, and contaminants
6. To increase the protective effects of beneficial molecules.
7. To resolve metabolic deficiencies or idiosyncrasies by compensatory programming.
8. To translate molecular programs into food selection that is economical, practical, palatable, and socially and esthetically acceptable.

Of the eight goals, the procedures for detecting and correcting adverse food effects are the least understood and the most important to explore theoretically and practically. The elimination

of negative data and self-destructive programs is a more effective strategy than supplementation of nutrients. The two strategies should be complementary.

## **Nutritional Therapy**

To pursue a strategy of nutritional therapy, the assumption is that things routinely go wrong with food-body interactions. The non-nutrient structure of food is relevant to the consideration of the total interaction of food with body systems. Since food ingestion creates dysfunction and disease by a variety of mechanisms, nutritional therapy is based on removing the causes of illness by correcting a faulty food supply. The supreme technique of nutritional therapy is, therefore, Diet Revision Therapy (DRT). DRT refers to specific strategies of correcting disease by modifying food choices, and eating behaviors. Proper diet revision must restore control over a confusing, chaotic set of circumstances and symptoms. Careful application diet revision therapy will reveal the fundamental significance of the food supply in the production of disorder.

A systematic method of diet revision with full participation of the patient in evaluating and selecting foods has never before been introduced into medical practice nor dietetics. There are important difficulties in attempting diet revision. Any attempt to fundamentally alter a patient's lifestyle encounters resistance from many directions. More time and effort is required to educate, motivate, and support any patient who wants to change. The use of an elemental formula and a hypoallergenic diet requires the full participation of patient and attention to nutritional details that are not usually monitored in medical practice. The incremental reintroduction of foods to establish a nourishing, well-tolerated diet calls for knowledge and skills that go beyond routine dietetics. The effort to change a patient's food supply also encounters all the irrational elements of eating behavior. A routine case of food allergy often turns into a struggle with food addictions, emotional issues, family and societal issues.

The Alpha Nutrition Program evolved as a standard algorithm of diet revision. The program should be viewed as a prototype that encourages the development of nutritional therapy as a systematic study. Since resolving the problems of food allergy in common disorders such as eczema, migraine, asthma, and irritable bowel were priorities, this method of diet revision was influenced by allergy practice. The basic idea is to reduce or eliminate problem foods first. Patients start by taking a food holiday or retreat to phase 1 foods until symptoms clear. Many patients begin with poor eating habits have emotional issues around food and often experience cravings and compulsive eating. They need to learn a whole new system of food selection, meal preparation and planning. Staple foods such as milk, wheat, and eggs were often involved in causing the delayed patterns of food allergy and long-term success would depend on creating an alternate diet that



featured other staple foods. The goal in creating the Alpha Nutrition Program was to design a standard algorithm of diet revision that would:

1. Help patients go through a series of changes that would minimize their exposure to recurrent problems
2. Maximize their opportunity to create a new, healthy, nutritionally adequate diet.
3. Practice new food selection and eating behaviors with supervision and support

### **Nutrient Supplementation**

When I was a medical student learning therapeutics, our assignments were to write the admission orders on patients coming into hospital with a variety of diseases. There was a standard routine: activity level, nursing orders, diet, investigations, and medications. Since I was in a downtown teaching hospital in a big city, a disproportionate number of patients were alcoholics, poor or elderly and infirm - malnutrition was common, if not assumed. It was permissible to include an order for B-vitamins - added to the intravenous, if you had one, or taken orally. Big drug companies had established the hospital market for B- complex vitamins both injected and oral. One popular oral B-complex included Vitamin C in a bright capsule. No one complained if you routinely ordered this supplement. On the other hand, no one complained if you failed to order the B complex. Thiamin was given to alcoholics and B<sub>12</sub> only to patients with laboratory-proved deficiency. Vitamin C was not prescribed alone but was permissible in a B-complex tablet. We rarely saw scurvy or did not recognize it if we did. Other vitamins, were ignored or some, such as Vitamin E, were taboo because only 'fringe' practitioners used such things.

Oral mineral supplements were rare except for iron and potassium. Iron deficiency was well recognized as an anemia and iron supplements were popular. Potassium supplementation was commonplace because we were taught to prescribe potassium-wasting diuretics and replace potassium by prescribing tablets or powders added to juice. Admitting MDs wrote diet instructions to be carried out by hospital dietitians. These were rudimentary diet prescriptions - food was often omitted completely with the order NPO (nothing by mouth) or "clear fluids only "and a prescription for intravenous solutions replaced oral nutrition with salt water, and glucose. It was perfectly permissible to starve patients for many days if their disease or our investigations made eating difficult or inconvenient. Often a patient progressed directly from NPO to DAT (diet as tolerated) and the physician had no idea what the hospital was feeding his or her patients.

I found out later that there were hidden benefits to NPO - the benefits of fasting; many patients got better NPO because they stopped eating their usual diet that had been making them ill. It is

surprising how little has changed in hospital medicine the intervening years, although there a whole technology of intravenous feeding has emerged and some institutions have improved the nutritional care of patients in critical care situations. The literature which supports this effort has expanded rapidly with the result that it is an esoteric field only understood by a small number of physicians.

The commercial development of infant feeding formulas and hospital nutritional products added to nutritional knowledge. Meanwhile in the community at large, a revolution in thinking has occurred over the past 30 years and nutritional approaches to disease prevention and treatment have become increasingly popular. In the community, there is an overabundance of products and claims for products that exceed the evidence at hand. It is estimated that about 80 million North Americans take routine vitamin and or mineral supplements; while this is still less than 30% of the population, the vitamin-takers are better educated, more affluent, and tend to be healthier.

In the scientific literature there have been literally thousands of new studies that reveal indications for nutrient supplementation and/or nutrient therapeutics in a wide variety of disease states. Among all the claims of benefit, the strongest evidence suggests the need for more folic acid in the diet of mothers-to-be and the elderly. Increased vegetable and fruit antioxidants are beneficial. Alcoholics need extra thiamin. Vegetarians need Vitamin B12. Vitamin D supplements are required by northerly and indoor-living populations. Extra calcium and other bone minerals are needed by osteoporosis- prone women. Trace mineral deficiencies especially selenium and chromium can be avoided with supplements.

There are roles for each of the B vitamins in therapeutic applications and since they are cheap and safe to take at 2 or 3 times the RDA doses, there are reasonable arguments to include the B-complex in routine supplementation. There is little evidence to support the use of "megadoses" of the B-complex vitamins, with the exception of niacin in fat transport disorders, although this is no longer the treatment of choice. There is little evidence that routine doses of vitamin C above 1 gram per day are beneficial, although brief intakes of higher doses to treat tissue inflammation and injury may prove to be a good idea.

Some Vitamins are toxic in high dose; Vitamins A, D and B6 are the leading offenders. Vitamin C is remarkably safe in extreme doses up to 150 grams intravenously per day (the RDA is .060 grams).

In spite of the persisting popularity of supplements and evidence of benefits, some dietitians and MDs still declare that vitamin-mineral supplements are unnecessary if you have a "well-balanced diet". Real evidence reveals that the "well-balanced" diet may be an idealized and uncommon version of life anywhere in the world and total fiction when talking about poor people both in affluent

countries and in the third world. There is evidence that many groups of people have nutrient deficiencies. In the USA, for example, an ambitious one-day survey of 12,000 people (Second National Health and Nutrition examination) showed that 41% ate no fruit and only 25% reported eating a fruit of vegetable that contained vitamin C or A. Another US study showed that: "adolescents consumed diets that were low in several essential vitamins and minerals and high in some nutrients related to increased incidence of chronic disease. There were groups of teens who had dietary patterns that placed them at especially high risk, in particular black and southern females. A US report concluded: that 5% of Americans over age 65, or 1.5 million individuals, currently reside in the nation's 20,000 nursing homes; that nutritional deficiencies are common, frequently not recognized. Opportunities for preventing or correcting malnutrition exist. Another study concluded: despite eating supervision and assistance, the majority of eating-dependent nursing home residents (EDR) have inadequate intakes of numerous essential macro- and micronutrients. The deficient micronutrient intakes could be normalized by administration of a multivitamin/mineral supplement daily. Nevertheless, a minority of patients in nursing homes currently receive such a supplement.

In the care of critically injured or ill patients improved nutrition through the use of supplements and enteral nutrient formulas is seen to be important. "Micronutrients play a key role in many of the metabolic processes that promote survival from critical illness. For vitamins, these processes include oxidative phosphorylation, which is altered in the patient with systemic inflammation, and protection against mediators, in particular oxidants. Trace elements are essential for direct antioxidant activity as well as functioning as cofactors for a variety of antioxidant enzymes. Wound healing and immune function also depend on adequate levels of vitamins and trace elements. Of extreme importance is the ease with which a deficiency state can develop in the critically ill because of decreased nutrient intakes and increased requirements. Daily intakes up to or exceeding many times the RDA usually are required. Attention to micronutrients is paramount both in optimizing the nutritional management of the critically ill and in the overall management of these patients. "

A paradox emerged: many health professionals take vitamin-mineral supplements themselves but do not recommend them to their patients. Their better-informed and more affluent patients take the supplements anyway and the patients who miss out are the most likely to be malnourished.

## Problems and Improvements

Medical diagnosis is a difficult task that combines intellectual and intuitive skills. Well-defined diseases with structural changes in tissues are the easiest to diagnose. Because MDs rely a lot on

pictures, mass lesions such as tumors and tissue distortions from infection and injury are the easiest to visualize and diagnose. However, the most common illnesses that physicians see every day cannot be visualized and remain in a curious limbo. More and more people are entering this limbo every day and there is increasing disenchantment with a medical system that has a hard time recognizing illnesses that you cannot see or measure by simple tests.

Pragmatic, primary medicine is especially difficult because of the wide-range of disorders that present in all stages of manifestation. The primary physician must deal with patients with common syndromes, lacking objective specification, with early illness that may eventually become well defined, with in-between illnesses mingled with injuries, infections, addictions and psychosocial problems. Patients are often demanding and often have unrealistic expectations. There are ample reasons for physicians and patients alike to become dissatisfied with their traditional relationship and as the 20th century closed, a critical re-evaluation of medicine is taking place. Old assumptions are often revealed to be inadequate or wrong, with a few exceptions, the value of drug therapy is often limited and the results of clinical trials are contradictory and confusing. Medical practice is now under scrutiny from many directions. The idea of practice guidelines and problem-solving algorithms have been around for many years, but now are the subject of many advisory panels, complete with persistent debates and revisions.

With the proliferation of information, there is less formal direction in the selection and application of knowledge. Astute observers will notice that medical practice goes with fads and fashions and is controlled effectively by drug promotion. The most important problems such as the effect of food and the environment on human health are usually ignored in medical practice. Medical knowledge is imperfect at best, clinical practices vary, outcomes are seldom measured, physicians are refractory to change and patients have ideas of their own which do not coincide with existing practices or academic guidelines. Some patients conclude that the existing medical system is so far off the mark that they walk away vowing never to go back unless they are in a car accident and have no choice.

Many medical doctors are discouraged and face an increasingly difficult if not impossible task of following numerous guidelines, and trying to satisfy too many stakeholders, often with conflicting interests - patients, insurers, employers, government agencies, and professional peers and overseers.

### **Illness as Complexity and Chaos**

I have abandoned the idea of neatly packaged diseases. Health problems tend to cluster in groups and evolve over time. Many factors contribute to the final end-stage disease, listed as diagnoses

in medical records. Non-specific illnesses may be misunderstood by physicians who have been taught to make diagnoses of specific disorders. Often patients with mild symptoms are proceeding toward a major illness, but they may suffer in an ill-defined state for months or years.

As illnesses progress, more specific features tend to emerge—dysfunction and tissue changes become more obvious, and medical diagnoses become more useful. A heart attack or stroke, both calamitous events with obvious features, fit the medical model well and tend to be diagnosed reliably and treated in a standard fashion. These are end-point events - the underlying pathology takes years to develop and increasing dysfunction is often ignored as the pathology progresses toward a dramatic conclusion. Other processes may remain ill defined; chronic fatigue, muscle pains, headaches and cognitive dysfunction may make life miserable for many years before a more definable disease such as arthritis becomes apparent.

I propose a process interpretation of dysfunction over a category definition. In other words, we should be more inclined to ask, "What is the source of the problem and how does the problem develop in the body over what period of time?" These are more useful questions to answer than, "What is the problem called?" If we know more about the way of the disease, then we are better equipped to alter its progression, especially by removing its origin. Since the food supply of an individual is an important biological determinant, diet revision should be an early diagnostic and treatment strategy in medicine, especially when the precise nature of the disease is unclear.

Modern ideas in science describe the complexity of the natural world in terms of networks, systems, information and control, turbulence, chaos, fractals, strange attractors, and self-organizing systems. The first insight is that the human body is not a simple, linear machine. We are unstable, rhythmic, pulsing creatures with many different body-mind states, strongly influenced by our sense organs and exquisitely touch sensitive. We seldom respond the same way to any repeated stimulus. As the astronomer, John Barrow in his *Theories of Everything* describes the difference between linear and nonlinear:

"...If a situation is linear or dominated by influences that are linear, it will be possible to piece together a picture of its whole behavior by examining it in small pieces. The whole will be composed of the sum of its parts...the output of a linear operation varies steadily and smoothly with any change in its input...Non-linear problems are none of those things. They amplify errors so rapidly that an infinitesimal uncertainty in the present state of the system can render any future prediction of the state worthless after a short period. Their outputs respond in discontinuous and unpredictable way to very small changes in their inputs."

Stuart Kaufmann, writing about evolution, describes the complexity and chaos of living systems: "Because of chaos, dynamic nonlinear systems that are orderly at first may become completely disorganized over time. Initial conditions that are very much alike may have markedly different outcomes...Biology is filled with complex systems; the thousands of genes regulating one another within the cell; the network of cells and molecules mediating the immune response; the billions of neurons in the neural networks underlying behavior and learning; the ecosystem webs, replete with co-evolving species..."

Kaufmann goes on to describe how order and disorder interact in living systems to produce the prolific array of ever-changing living forms on the planet. The life course of an individual human being can be viewed as a courageous effort to order chaos, to derive meaning and to understand something of this prodigious universe. If our path is irregular, difficult, and challenged by dysfunction and disorder we should not be surprised. Our problem-solving strategy when disorder threatens is to go back to the input to renew order

### **A Body Divided**

A fundamental problem in human cognition is the limited ability of each person to understand more than a small local group of people and to develop specialized knowledge and skills that fit with the group's needs. As knowledge expands the need for specialization increases. In medicine, the specialists are experts in very specific aspects of body function. Hospitals are organized around "systems" such as the circulatory, respiratory, digestive, nervous systems.

But, each person is a whole system of interacting parts. A whole person entering a medical institution when something goes wrong will discover that they are not a whole any longer. They may discover that even a team of specialists examining their various parts will not understand the whole experience they are having.

For example, atherosclerotic arterial disease is a whole body disease, but tends to be managed by physicians and surgeons as a localized disease. In other words, when the heart arteries are plugged you go to see a cardiologist and then a heart surgeon. When the vessels to the brain are involved, you go to a neurologist and then possibly a neurosurgeon. When the vessels to your leg are obstructed, you go to a peripheral vascular surgeon. When the vessels to your penis are plugged, you go to a urologist and a marital counselor.

Even single organs such as the heart are divided into parts, procedures and pathologies, each with its own specialists. In the good old days you had internists who understood something about how the internal organs interacted. But rather than praising and preserving generalists who still had whole patients in view, generalists were forced into subspecialist or pushed out of the big hospitals.

Veith suggested that a single specialty devoted to noncardiac vascular disease should be developed. He praised a Swedish team who created such an integrated vascular service. According to Veith: "Instead of many specialties competing for the rewards of treating noncardiac vascular lesions, vascular disease would be managed by those with appropriate judgment, skills, and -- most importantly -- commitment to the field. Specialists with skills derived from many different disciplines would work together within a single department or service without allegiance or obligations to a large department of medicine, surgery, or radiology -- as is currently the case in most institutions and most countries."

## **Medical Thinking**

Medicine has become an eclectic assortment of activities, loosely connected to a variety of scientific disciplines. While MDs study science, they are not usually scientists. They are technicians with a special mandate to care for other humans who are sick and injured. A short time ago, physicians were conspicuous members of communities with well-defined social status and social responsibilities that were often more important than their technical abilities. The community recognized the limitations of its physician and accepted caring and concern in place of therapeutic efficacy. Physicians continued the traditions of shamans, performing in front of audiences who needed their reassurance or who shared their grief.

As human populations grew, societies became multilayered complexes of interacting groups and technologies. Universities and medical societies clung to the old ideas of the community physician while teaching medical students an odd assortment of technologies, hoping that somehow these bright people would figure out how to retain their humanity while they practiced increasingly abstract and impersonal techniques. Hospitals collected machines for diagnosis and treatment and hospital communities involved increasingly diverse groups of people who interacted in increasingly complex ways. Specialized physicians stayed in the hospital where high technology equipment and teams of technicians were available.

Many complications have arisen in recent years in the application of increasingly expensive technologies. Both physicians and patients complain that they have become disenfranchised and alienated. The media feature medical news every day, creating a feeding frenzy for good news --- everyone wants to believe claims that a common disease is about to be cured. Although progress in basic science is marvelous, progress in medical treatments is slow and often disappointing. Media claims tend to mislead, creating inflated expectations and stampedes towards cures that are more fantasy than reality or are frankly fraudulent.

Medical practice is now under scrutiny from many directions. The idea of practice guidelines and problem-solving algorithms have been around for many years, but now are the subject of heated

debate. Many scholars have realized that research findings do not get incorporated into medical practice - indeed with the proliferation of information, there is less formal direction in the selection and application of knowledge. Practice guidelines are now so numerous that front-line physicians could not possibly follow them. Astute observers notice that medical practice goes with fads and fashions. The most important source of modern illness such as the negative effects eating too much of the wrong food and the toxicity of polluted environments are too complicated and are usually ignored in medical practice.

There are different approaches to the study of medical practices. One approach is to examine how physicians think and react. In the best case, physicians are objective, rational problem solvers who follow standard algorithms to arrive at correct diagnoses and who prescribe the safest, least expensive, most efficacious treatments. In the worst case, physicians are prejudiced, irrational technicians who are unreliable problem solvers and often fail to make correct diagnoses and often prescribe treatments that are expensive, unsafe and fail to solve the problem at hand.

You can argue that physicians are just like everyone else. They have likes and dislikes and limited ability to understand complex issues. Physicians can be as irrational as anyone else. For example, physicians often divide illness into two broad categories, the organic and the non-organic. The distinction is used universally by physicians when they talk to one another but there is no biology to support the irrational belief in "non-organic illness." In dismissing a patient's symptoms, a physician will remark to a colleague, for example, that the origin of the abdominal pain is "supratentorial." This is a neuroanatomical remark without much understanding. The tentorium is a membrane that forms a floor for the cerebral hemispheres inside the skull. A supratentorial event would involve any part of the brain above the midbrain and for many physicians, brain function at this level is indeed a mystery.

Physicians continue to rely on patient's stories and medical students are still taught to take a history as an essential part of their examination of the patient. However, all story telling is imperfect; patients lie, both deliberately and inadvertently. Physicians tend to be impatient and biased listeners who want to hear a simplified story that fits their preconceptions of diagnostic categories. They often ignore the patient's report and invent their own story. Medicine is afflicted with descriptions, categories and generalizations that are confusing or misleading. The popular notions of cancer, for example, are misleading.

Slogans such as "Cure for Cancer" are nonsensical. There is no disease called cancer, rather there are diverse expressions of cell growth gone wrong. Aberrant cells are created in everyone. Abnormal cells can occur in any tissue of the body - one at a time or in groups. The first tumor discovered is described as a local disease, but malignant cells enter the blood and are carried through



the body. "Cancer" is a whole body, chronic disease. The incidence of mutated cells increases with age and increases as more carcinogens are introduced to the environment. Fortunately, most abnormal cells fail to grow. Some growth abnormalities are pre-programmed, but most are induced by carcinogens that are optional features of environments. Most often, carcinogens are man-made radiation or chemicals, distributed in the air, water and food. MDs add carcinogens to their patients' burden with X-rays, radiation therapies and chemotherapeutic drugs; attempts to kill one population of mutated cells, creates other populations of mutated cells and, at the same time, suppresses immune activity that might destroy the new mutations.

Recently, stories about individuals and their unique experiences have been replaced by reports from studies of large anonymous groups whose fate is interpreted with statistics, as if these studies were better than understanding the experience of individuals. The results of studies are analyzed statistically which creates an abstract, virtual reality of doubtful value. I believe that medicine based on large "clinical studies" is flawed at fundamental level of wrong assumption, but evidence-based medicine is the new dogma of medical practice. Drug companies use studies as part of their marketing strategy; good results are released to the media and bad results are forgotten. The ideals of science and medical ethics are also forgotten. See Confusing Study Results

You can argue that the education of physicians is flawed; modest attempts have been made to improve medical school teaching, but the same old stuff usually gets repeated with little or no review. Medical school tends to be a hectic tour through a variety of disciplines that contribute to the medical view of the world. Medical students are challenged to learn too much too quickly and have little time to reflect. Medical education has a friendly surface, that invites you to study anatomy, biochemistry, physiology, pharmacology and pathology, all noble disciplines that reveal life processes in health and disease. There is also a somewhat hidden curriculum that transforms smart and free individuals into obedient servants of the system. Conformity is the highest value in medicine and some students have trouble adjusting to their new status as obedient robots. The system includes many wealthy and powerful players who have little or no tolerance for idealist students who want to innovate and change the way the system works. Wealth means vested interest which translates into a desire to control medical school curricula, post-grad medical education and government policies.

New insights into human interactions, the environment and better understanding of the actual and real causes of disease might in the future transform medical education. Universities will have to re-examine their assumptions and methods. Strategies that involve disease prevention and interventions at early stages of disease should take precedence over futile attempts to fix end-stage

disease. In a New Times editorial, physician Zuger described a number of books written by other physicians. She identified Dr. Jerome Groopman and Dr. Atul Gawande, both clinicians at Harvard and writers for The New Yorker as articulate commentators on the state of medical practice. Zuger stated: "Instead of speeding along in double time, Groopman and Gawande, like the frustrated coaches of a losing team, are slowing the motion of medicine down to half-speed, examining each play, then each frame and image, trying to figure out where the glitches lie." <sup>12</sup> Groopman describes errors and uncertainty in medical care. Groopman said he wrote his book from dissatisfaction that is common among physicians. He analyses errors in assumptions and reasoning. MDs, like all humans, jump to conclusions quickly and then seek evidence that supports their first impressions. They tend to be dogmatic and resist change. Physicians are encouraged to think in terms of categories and link diagnoses with prescriptions. MDs should understand pathophysiology and think in terms of disease-causing processes that act over time. They should always want to know what causes the process and how to intervene in the early stages of disease to prevent progression.

Groopman describes some of his own experiences with other Doctors: "One of my first experiences with the problem came in 1983, during the first week in July as it happens, when my wife, Pam, also a doctor, and I were traveling to Boston from California with our son Steven, then 9 months old. Steve had developed a low-grade fever, had dark and loose stools and was irritable, refusing to nurse. Stopping in Connecticut to visit my in-laws, we consulted the town pediatrician. The doctor quickly dismissed Pam's concerns. "You're overanxious," he told her. "Doctor-parents are like this." By the time we arrived in Boston, the baby was ashen and he was jerking his knees to his chest and wailing in pain. We rushed to the emergency room at Children's Hospital, where a new surgical resident examined him, ordered X-rays and blood tests and made the correct diagnosis: an intussusception, an intestinal obstruction. It was a hectic night, and the novice doctor was being pulled in many directions. He told us there was no urgency to operate and left us alone with our flailing child. I had worked one year in a research lab at this hospital and phoned the senior hematologist who had been my mentor. He contacted an attending surgeon, who came to the emergency room and whisked Steve to the operating room. "It was fortunate that we operated when we did," the surgeon told us later. The intestine was at the point of bursting, spilling its contents into the abdomen, precipitating peritonitis and possibly shock." <sup>13</sup>

### **Students, Physicians, Bullying and Stress**

The difficulties facing medical students and physicians are diverse and persistent. There is no escape from basic human tendencies. The competitive, critical disputatious nature of humans is amplified in medical institutions, despite a superficial appeal to collegiality.

Physicians often face moral dilemmas and must cope with the least pleasant aspects of the human experience, often with little or no support from colleagues. As most medical care becomes concentrated in large, impersonal institutions, a sense of alienation prevails.

A pamphlet from the Canadian Medical Association for physicians talks about the "impact of stress on physician health and well being." Canadian physicians are generally unhappy about the increasing demands on their time and energy while resources and rewards are shrinking. In Canada, physicians work in a government under-funded system that survives on budget cuts and rationing services. The CMA pamphlet begins with a fuzzy statement that could win a prize in the annals of obfuscation: "Stress is part of everyone's life. A certain level of stress contributes to optimal performance. However, when it is not managed properly, stress can become overwhelming, leading to physical, mental and spiritual difficulties." I acknowledge that some readers would be more receptive to this kind of talk than I am. However, I would want them to ask what is really going on here? Physicians get tired, discouraged, frustrated and become angry like all other humans.

Physicians tend to be more tolerant and giving than most other humans, but each person has limited understanding and limited resources. When demand exceeds supply, physicians, like other people, get discouraged, tired and angry. They may feel and act badly in a variety of ways. If we really want to understand the plight of physicians, the first step would be to pledge never to use the word "stress" just as we have pledged never to use the word "psychological" or the word "spiritual." These are nonsense words that obscure what is really going on.

Dr. Pamela L. Wible wrote about physicians' bullying medical students and each other. Increasing concerns about physician burnout and suicide have surfaced in the US. Medical students suffer bullying and some end their lives. Wiebe stated: "The truth is, doctors are suffering. Surrounded by sickness and death, we watch families wail, shriek, cry while we stand silently—sacred witness to their sorrow—until we're called to the next room for a heart attack, a gunshot wound, a stillborn. Week by week. Year by year. And when do we grieve? Never. Doctors are not allowed to grieve. Today a physician tells me she's been cited for unprofessional conduct. Why? She was seen crying. Her boss told her, "Unless you are dying, crying is unprofessional behavior and not to be tolerated." Doctors are not allowed to cry. So, what do we do with our sadness? We injure ourselves—and each other.

When I speak to victims of physician bullying, I explain, "Your instructors are suffering from unprocessed grief—probably victims of bullying themselves. Medicine is an apprenticeship profession. Trained by wounded doctors, they're now wounding you. Your bright eyes, your enthusiasm, your idealism remind them of their loss. Rather than feel their own grief, they lash out at you."<sup>14</sup>

There are few physicians who would not respond well to expressions of gratitude, respect and tender loving care. Each one needs more time off and an assistant or two to do all the extra chores demanded of them. Physicians spend much of their time caring for others but seldom receive care themselves.

The increasing tendency for hospital and government administrators is to treat physicians with disrespect and to blame them for the high cost of medical care. Physicians confront injury, disease, cruelty, ignorance and anger most days and often miss opportunities to celebrate the joyful, creative aspects of life. A basic imbalance for any human is receiving less than he or she is giving. Physicians become overtired, do not eat well or regularly and often fail to enjoy friendly and affectionate leisure time with family and friends.... our description can go on and on. The more we observe specific details of physicians lives (never using the term "stress") the more we understand how these humans suffer, make mistakes, become dysfunctional and ill or, if they are smart, take a long vacation or quit medicine before they collapse from frustration, disillusionment and fatigue.

### **Interface with MDs**

For many years, I have proposed a collaborative relationship between patient and physician. Medical information in books and on the internet gives every intelligent person access to a variety of options. Often a smart patient with a specific disease is better informed than the physician he or she consults. A well-informed patient has more time, higher motivation and greater vested interest than even the most concerned of physicians. The physician, however is the gatekeeper to medical resources and must be consulted, respected and encouraged to give the patient access to whatever help he or she requires. When a patient is too ill to negotiate, then a family member, friend or trusted professional advisor must act on his or her behalf. Every patient in hospital would in the best case have a trusted advocate close by.

Carolyn Clancy, director of the US Agency for Healthcare Research and Quality stated: Patients are becoming more involved in decisions about their care. Even though this is a major change to how we (MDs) practice medicine, it will, over time, create a genuine partnership between doctors and patients...we recognize the importance of clear, ongoing communication, including questioning why a particular treatment decision was made. We need to engage our patients in the same way. My agency has developed a new public awareness campaign with the Ad Council to encourage patients to take a more active role in their healthcare."

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### **Drug Bias**

A bias toward drug prescription is endemic in medicine. In Canada, there are 5,000 prescription drugs for sale. In the year 2000 in the

United States, 173 million people filled 2.2 billion outpatient prescriptions, accounting for \$103 billion in expenditures. Each year in Canada and the USA the money spent on prescription drugs increases. Researchers in the USA collected data on about 100 drugs used for skin conditions. The drugs fit into five categories, including drugs to treat skin cancer, infections, acne and rosacea, psoriasis or other skin conditions like itching and eczema. The prices of seven drugs more than quadrupled during the study period, the researchers found. Most increases occurred after 2011. Prices for topical antineoplastic drugs increased by about \$11,000 per year or 1,240%, which was the biggest rise for a single class of drugs. The smallest price jump occurred among drugs that treat infections, which increased about \$334 per year, or about 180%. Even some generic drugs, which are known to be less expensive than brand-name medications, rose in price between 2011 and 2014, the researchers report.

There are deep and fundamental problems with drug prescriptions. The problems are located in five groups; the producers, the prescribers, the dispensers, the users and the payers. Drug users are essentially naive and gullible and assume that the other groups have their interests first and foremost in mind. The producers have profit as the main motive. The prescribers are dependent on the drug producers and are remarkably obedient to the producers marketing commands. Some have argued the drug producers now own medicine and simply compete with each other for their market share.

The word, "Medicine" of course refers to drugs that alleviate illness and pain. Medicine men in all places at all times prescribed potions to treat illness. Modern pharmacology is an expression of organic chemistry and biochemistry. Chemists are the new magicians who can identify and often synthesize molecules of interest. Medical doctors became more effective as chemists produced more medicines. There is little doubt that some medicines alleviate suffering, some are life-saving and some can prevent the progression of disease. As the number of drugs proliferate, however, the task of selecting the right medications and supervising their use becomes increasingly complex and expensive. I would argue that the benefits obtained from medicines are often offset or negated by their cost, their hazards and by mesmerizing both doctors and patients with the false hope of curing all diseases with pharmaceutical chemicals.

The World Health Organization's Model List of Essential Drugs has 350 entries. The WHO defines essential medicines as those drugs that "satisfy the priority health care needs of the population. They are selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness." Even if you agree with the WHO drug list, most of the drugs are special purpose agents that have limited applicability. I have long thought that a physician could serve his or her patients best with a list of

about 20 well chosen, and well-understood drugs. As it now stands, primary care physicians prescribe 80% of the 5000 drugs available. Many patients take 6 to 10 prescription drugs daily; the number of drugs increases with age. The medical management of diabetes 2 and arterial disease, for example, provides major markets for a variety of expensive prescription drugs. The scientific evidence that links high blood pressure, heart attacks, strokes, Alzheimer's disease, diabetes 2 and obesity grows stronger every day. These are inter-connected diseases caused, at least in part, by eating too much of the wrong food and exercising too little.

A bewildering number of drugs and drug combinations have appeared for the treatment arterial disease. The battle for market share is fought among the drug producers with double-blind controlled studies that compare drugs to placebo and drugs to one another. The studies are designed to impress the prescribers and to provide good public relations thru press releases to the users. Despite years of research, thousands of publications, hundreds of conferences and billions of dollars spent; there is still doubt about the best way to manage arterial diseases. The drug industry prefers that medical doctors only think in terms of drug therapy and the producers aggressively market their newest and most expensive drugs. Payers should prefer that medical doctors prescribe older, less expensive generic drugs. Smart patients prefer to change their diet, lose weight and exercise, before they become drug users.

You could argue that the exclusive interest in drug treatments in medical practice is a major error. As long as physicians see themselves as drug prescribers and not problem solvers, most people will have to look elsewhere for a solution to common disease events such as heart attacks, heart failure and strokes. The real solution to three of the big killers is to remove the causes of arterial disease. A healthy diet high in fruits and vegetables, reduced salt intake, and exercise are all keys steps to avoiding cardiovascular disease. The Heart and Stroke Foundation of Canada stated that three-quarters of Canadians with high blood pressure could throw their medications away if they took up good eating and exercise habits. A 10-pound drop in weight can reduce blood pressure as effectively as a blood pressure pill as can exercising for 45 minutes three or four times a week.

I would argue that promotion of drugs to treat every disease and every discomfort of life has become one of the most expensive aberrations of our civilization. Drug promotion has overwhelmed any other role that physicians might undertake to prevent or mitigate the consequences of diseases. Writing in the New York Times, Harris reported that drug company payments to physicians to prescribe drugs is under investigation by federal prosecutors in Boston ( USA) as part of a broad government crackdown on the drug industry's marketing tactics. Harris stated: ". The pharmaceutical business has grown in from a small group of

companies peddling a few antibiotics and anti-anxiety remedies to a \$400 billion behemoth that is among the most profitable industries on earth. At the heart of the various investigations into drug industry marketing is the question of whether drug companies are persuading doctors — often through payoffs — to prescribe drugs that patients do not need or should not use or for which there may be cheaper alternatives. Investigators are also seeking to determine whether the companies are manipulating prices to cheat the federal Medicaid and Medicare health programs. Most of the big drug companies, meanwhile, are also grappling with a welter of suits filed by state attorneys general, industry whistle-blowers and patient-rights groups over similar accusations... most drug makers now spend twice as much marketing medicines as they do researching them. Their sales teams have changed from a scattering of semi-retired pharmacists to armies of young women and men who shower physicians with attention, food and - until the drug industry recently agreed to end the practice - expensive gifts, just to get two to three minutes to pitch their wares. A code of conduct adopted in 1990 by the American Medical Association suggests that doctors should not accept any gift worth more than \$100, but the guidelines are widely ignored... legal scrutiny will intensify once the new Medicare drug benefit takes full effect in 2006, the government will pay for almost half of all medicines sold in the nation.”

George Lundberg stated that the results, even the existence, of huge numbers of clinical trials are unavailable, not only to the public but to real doctors who care for patients, especially if the results of the trials are adverse or negative to the sponsors' products. Sidney Wolfe of Public Citizen in Washington, DC compiled Worst Pills, Best Pills and extols the virtues of useful drugs; tells you what pairs of drugs, which when used together, may cost you your life; lists the 181 drugs that you should not take and a checklist of 10 rules that you can follow to take the path to safer drug use. A US survey found that 40% of persons aged 65 years or older take five or more different drugs/week, with 12% taking 10 or more. Overuse and misuse of drugs have all been linked to serious health problems, disabilities, hospitalizations, and death. Preventable drug-related morbidity is the fifth most costly health condition. In 2000, the United States spent \$133 billion on drugs and an estimated \$177 billion managing drug-related problems.

The way in which risk factors are modified really does matter. Krumholz and Lee stated: “This approach, however, neglects the importance of which specific strategies are used to modify these factors. A clinical trial is ultimately a test of a strategy, and we should not be surprised that different strategies may have different effects on patients beyond their effect on risk-factor levels. Awareness of this issue increased in 2006 when Pfizer stopped the study named ILLUMINATE and all other trials involving torcetrapib, which until then had been seen as a promising agent that lowered

LDL cholesterol levels and raised high-density lipoprotein (HDL) cholesterol levels. ILLUMINATE was halted because patients receiving torcetrapib plus atorvastatin had a higher mortality rate than those receiving atorvastatin alone — despite 72% increases in HDL levels and 25% decreases in LDL levels. More studies have raised questions about patient management that prioritizes target levels of risk factors over attention to the way in which those levels are achieved.

They continued with other examples of studies that relied on surrogate markers of disease that produced negative outcomes for patients. For example, the Women's Health Initiative revealed that hormone-replacement therapy, which reduces LDL cholesterol levels, increased the risk of cardiovascular disease. Rosiglitazone improves glucose control, but can increase cardiovascular risk. Adding an angiotensin-receptor blocker to an angiotensin-converting-enzyme inhibitor is more effective reducing blood pressure, but increases the risk of adverse events. What seemed to be a reasonable hypothesis that more effecting lowering of blood glucose with multiple medications would improve outcomes in Diabetics did not reduce the risk of macrovascular complications and, in the ACCORD study, increased the risk of death.

They stated: "Thus, the risk-benefit ratio of interventions designed to modify risk factors can vary depending on the type and number of medications and other approaches that are concurrently incorporated. In particular, some medications may have beneficial or harmful effects beyond their effect on a risk factor. Moreover, the strength of the evidence supporting particular strategies varies. Some strategies are known to improve patient outcomes, whereas others are known to affect only risk-factor levels or other intermediate outcomes. We are now beginning to appreciate that a strategy's effect on a risk factor may not predict its effect on patient outcomes. Clearly, the way in which risk factors are modified really does matter. Lifestyle interventions may have few risks, but we cannot assume the same for drugs — and drug-related risks are not always known or appreciated. ACCORD, ADVANCE, and other recent studies remind us that practice is complex and that ultimately we need to understand a strategy's effects on people, not just on surrogate end points."<sup>16</sup>

### **Disappointed with MDs**

I have collected reports from patients disappointed in the medical care they have received. For several years patients would come into my office and complain that they had seen several doctors, had many investigations and tried many drugs without benefit. I noted that patients routinely left the care of their physicians and shopped around the "alternative" community and bought curious, bizarre and often expensive tests, treatments and products with little hope of benefit.



I am aware of the limitations of physicians, however, and want my well-educated, well-motivated reader to recognize these limitations and assume primary responsibility for their own management. When you look critically at modern medicine you see expensive techniques deployed to rescue individuals from calamities which were often avoidable. Although many talk about the "health-care system", they are really talking about a high-cost medical intervention system, directed at treating diseases that are fully developed, but not preventing disease. While "high- tech" medicine promises miraculous cures, it remains late on delivery. There is a short list of problems which can be fixed by medical or surgical methods but a much longer list of problems which cannot be fixed.

One problem is that MDs seldom learn how to manage food-related diseases. In the physician's mind, food is someone else's responsibility. Physicians, like everyone else, have prejudices and preconceptions that limit their understanding of the complex issues that determine food selection, metabolism and the consequences of bad diets. Both physicians and patients have an overwhelming bias in favor of drug and surgical treatments. Medical practice is based on a routine of ordering tests and writing prescriptions for drugs. While diet and "lifestyle" modifications are mentioned in medical texts, few MDs pursue this approach to patient management. Many MDs have argued that the task of changing patients' habits is beyond their mandate, is too time-consuming, and is often futile. Even if MDs are interested in solving food-related problems, they are usually too rushed to spend the time necessary teach patients the knowledge and skills they require to self-manage effectively.

There is a fundamental misunderstanding between doctors who know something about their limitations and patients who often have unrealistic expectations for fast solutions. Both sides of the relationship become frustrated and tend to act irrationally when quick and easy solutions do not work. The more passive and dependent a patient is, the deeper this misunderstanding grows and the more expensive it becomes. Patients demand more investigation, referral, and support services; physicians tend to order more tests and prescribe more drugs and that are increasingly potent and more risky. When neither strategy works, many illnesses remain unsolved, suffering is not relieved and expensive problems continue to drain the resource of individuals and their communities.

## **Medical/Drug Studies Create Confusion**

The way in which risk factors are modified really does matter.

Large scale medical studies reveal levels of uncertainty, even confusion that that were not anticipated by physicians who rely on their results. Efforts to prevent vascular disease, for example, focused on using drugs to lower "risk factors" such as low-density lipoprotein (LDL) cholesterol, systolic blood pressure, and glycated hemoglobin. The clinician attempts to reduce risk factors below specific levels using drugs.

There are many examples of studies that relied on surrogate markers of disease that produced negative outcomes for patients. For example, the Women's Health Initiative revealed that hormone-replacement therapy, which reduces LDL cholesterol levels, increased the risk of cardiovascular disease. Rosiglitazone improves glucose control, but can increase cardiovascular risk. Adding an angiotensin-receptor blocker to an angiotensin-converting-enzyme inhibitor is more effective reducing blood pressure, but increases the risk of adverse events. What seemed to be a reasonable hypothesis that more effecting lowering of blood glucose with multiple medications would improve outcomes in Diabetics did not reduce the risk of macrovascular complications and, in the ACCORD study, increased the risk of death.

Harlan et al stated: "Thus, the risk-benefit ratio of interventions designed to modify risk factors can vary depending on the type and number of medications and other approaches that are concurrently incorporated. In particular, some medications may have beneficial or harmful effects beyond their effect on a risk factor. Moreover, the strength of the evidence supporting particular strategies varies. Some strategies are known to improve patient outcomes, whereas others are known to affect only risk-factor levels or other intermediate outcomes. We are now beginning to appreciate that a strategy's effect on a risk factor may not predict its effect on patient outcomes. Clearly, the way in which risk factors are modified really does matter. Lifestyle interventions may have few risks, but we cannot assume the same for drugs — and drug-related risks are not always known or appreciated. ACCORD, ADVANCE, and other recent studies remind us that practice is complex and that ultimately we need to understand a strategy's effects on people, not just on surrogate end points."<sup>17</sup>

## **Limitations of Medical Diagnosis**

Medical diagnosis tends to be descriptive. A collection of symptoms is given a pattern and a syndrome name; thereafter, it becomes an entity. For example, the word "depression" was a description of a collection of symptoms, but has become a diagnosis by years of usage. The term "depression" does not refer to a discrete disease in the usual sense, is not specific or easy to define and does not reveal the cause of the symptoms. The term "arthritis" simply

describes joint inflammation. As we further categorize arthritis, we develop descriptive criteria for different types of arthritis. The diagnosis "rheumatoid arthritis" requires a definite collection of symptoms, especially joint swelling and pain. Objective measurements give some diagnoses even more credibility.

As new illnesses emerge, especially the multi-symptom problems of food-related illnesses, their victims pass through a limbo of ignorance and misunderstanding, lasting years. Patients I have seen have a combination of health problems, extending over a long period. They often complain of disturbances in many parts of their body. Their symptom list is long and perplexing. In terms of our well-established diagnostic entities, these common disorders are not understood and may be called ill-defined-illnesses. A sick patient who does not fit into a standard diagnostic category tends to be ignored or dismissed.

When a patient falls into this diagnostic limbo, curious things begin to happen. A number of "diagnostic default" explanations are often offered by physicians instead of proper diagnoses. Stress, tension, colds, flu, viruses, or references to psychosomatic illness are the favored defaults. Psychiatric diagnoses such as "depression" and "somatization disorder" are descriptions that often conceal the real nature of illnesses. These obscure illnesses may be food-related and when they are, the solution is diet revision, not drugs.

Medical diagnosis is a difficult task that combines intellectual and intuitive skills. Well-defined entities with structural changes in tissues are the easiest to diagnose. Most medical technology addresses these needs. The specification of coronary artery disease, for example, can be precise and is a tribute to the combined effort of physicians, technicians, engineers and equipment manufacturers to fully reveal a disease process. The precision of these well-defined areas of medical concern may mislead the unwary into thinking that all areas of medicine are equally well defined or can be well defined with just a little more effort; however, most disease processes remain obscure and are genuinely difficult to characterize and understand.

Common syndromes are diagnosed on clinical grounds often with no objective evidence whatsoever. While the history of migraine headaches is distinctive and an astute clinician can make the diagnosis on history, the emergency room physician will have trouble deciding whether a patient with a migraine story is really suffering pain or simply wants a narcotic drug. The diagnosis of depression is another subjective syndrome that requires a historical understanding more than positive lab tests. The irritable bowel syndrome is also diagnosis of exclusion. The patient may suffer a great deal but tests are repeatedly negative. The list of ill-defined syndromes is long. A shift from category diagnosis to understanding the process of disease is helpful to understand the patient but is often not acceptable to agencies that pay the bills. The insistence for a disease category works against progress in

understanding disease, simply because everyone wants to know what this is called and not where it came from and how to prevent it from happening.

Without a well-equipped research laboratory, it will not be possible to actually measure the disease-causing events. The patient's symptom reports and a general understanding of pathophysiology will usually suffice to construct an adequate theory (diagnosis) and prescribe effective intervention. Often a burst of symptoms, emerging over hours or days, can be explained by antigenic material from food entering the circulation from the gastrointestinal tract and triggering a variety of alarm and defense procedures. We propose a process interpretation of dysfunction over a category definition. In other words, I am more inclined to ask, "What is the source of the problem and how does the problem develop in the body over what period of time?" These are more useful questions to answer than, "What is the problem called?" If we know more about the way of the disease, then we are better equipped to alter its progression, especially by removing its origin.

Pragmatic, primary medicine is especially difficult because of the wide range of disorders that present in all stages of manifestation. The primary physician faces a nearly impossible task. He or she must deal with patients with common syndromes that lack objective specification, with early illness that may eventually become well-defined, illnesses that are already well defined, mingled with injuries, infections, addictions, psychosocial problems and patients who just want money from insurance and disability claims.

You could argue that primary physicians do well, considering their demanding tasks and their limitations. However, several well-defined diseases that respond well to diet revision are not properly managed by physicians. These include asthma, diabetes 2, Celiac disease, Crohn's disease, obesity, arthritis, hypertension, arterial disease and alcoholism. These problems and others require self-managed care as the primary method of treatment. The patient, not the physician should be in charge. The physician's role is to provide back-up support, laboratory monitoring and the prescription of medication when needed.

### **Access to Medical records**

To become a well-informed, self-responsible person you need access to all the information collected about you in Physician and Hospital records. Some progress has been made in electronic records that are easily shared, but there is a need for a revolutionary change in the way medical records are organized and shared. An online service Picnic Health is a step in the right direction. They stated: "Doctors increasingly use electronic medical record systems instead of paper files, which is great news for getting all your records together. Because of some recent legal changes, most doctors using these computer systems must now

have what's known as a "Patient Portal" — a website and/or app that allows you to electronically access a subset of your medical records. If you have one of these portals, you'll enter your username and password in Picnic Health's secure signup process. Our system then automates pulling records out of your patient portal, using your username and password to secure access. We'll also research whether your doctor has a portal available and help you get signed up if you aren't already... For most people, not all of your information is available through patient portals, both because not all doctors have them set up and because they're usually missing some key information like doctor's notes and medical images." <sup>18</sup>

Medical Information must be understood to have value so that some education in medical terms and methods is required. A revolutionary change would equip most intelligent people with basic knowledge and resources to make sense of their records. Another requirement is to encourage physicians and other medical record sources to use language that can be understood without an MD degree.

### **Online Information Sharing**

There is an abundance of medical information and alternative care sites on the internet. Patient groups with specific diagnoses often start website sites to share information. The challenge to anyone seeking useful information is to find reliable and relevant information. Sometimes patients sharing experiences are more helpful than standard medical advice.

WebMD is an example of a readable and reliable information source. <sup>19</sup> For people with serious disease, a more focused less commercial source is desirable. The Johns Hopkins Medical library is a reliable source. <sup>20</sup> The US National Library of Medicine Provides an online resource, Medline Plus. They describe: " MedlinePlus is the National Institutes of Health's Web site for patients and their families and friends. Produced by the National Library of Medicine, the world's largest medical library, it brings you information about diseases, conditions, and wellness issues in language you can understand. MedlinePlus offers reliable, up-to-date health information, anytime, anywhere, for free." <sup>21</sup>

For real scholars with a scientific background medical search software can be useful. I use ReadCube. <sup>22</sup>

As an author providing medical information online for 20 years, I utilize the medical literature every day. At the same time, I have a detailed knowledge and specific points of view. I often try to steer patients from MDs who deal only with lab tests and prescribe drugs toward strategies of self-care, modifying and changing disease causing conditions.

## The Role of Genes

The mastermind behind the whole festival of life is DNA, a self-seeking molecular code. DNA expresses genes that direct the assembly of amino acids into proteins. Some of the proteins are enzymes that assemble molecules that are used to construct living cells. The human genome is a living text that continually edits and rewrites itself. Over half of the human genome is occupied by repeating sequences and a historical record of evolution. Some gene sequences suggest two lines of evolution. One is a set of genes from aerobic bacteria. The second set comes from the single-celled organisms that incorporated bacteria as mitochondria. Animal cells depend on mitochondria to combine oxygen with fatty acids and amino acids to produce energy.

The human genome is packaged into 23 pairs of chromosomes found in the nucleus of cells, half of each pair donated by each parent. Early analysis suggested that genetic information is scattered unevenly among the chromosomes. Chromosome 19 is gene-dense, for example. Chromosomes 4 and 8 have fewer genes. Chromosome 19 carries several disease-causing genes: the Apo-E gene, linked to Alzheimer's disease; the LDL receptor gene, linked to high cholesterol and heart disease; and the EpO gene, needed to form oxygen-carrying red blood cells. Since the completion of genomes of several species has been completed, we know that the earlier identification of genes will undergo revision. The meaning of the term "gene" is evolving. We now appreciate that DNA sequences are part of an elaborate, dynamic process of expressing old information in new creatures. As a construction blueprint, genes appear to be autonomous and construct their organism according to a predetermined plan. However, once an organism is constructed and living on planet earth, it needs a plan of interaction with its environment. The DNA plan must be flexible enough to adapt to changing circumstances, yet stable enough to keep a rose a rose, a sparrow a sparrow and a human a human. One human eats too much fat, another eats too much lean, and so DNA is read differently depending on circumstances.

Protein shape is information. The shape may determine where the protein can go in a cell or which biological membrane will let it pass. The shape determines its structural role. The shape of a protein is also its identity. Shape ID is recognized and remembered by the immune system and is the basis of the body's immune defense. If a single gene, encoding the assembly instructions for a protein, is defective, the protein is missing or does not function properly. Abnormal proteins can cause disease by not functioning and by doing something else, not the intended function. The idea of disease-causing prions, for example, is that abnormally folded proteins act as "infectious" agents that cause a cascading transformation of normally folded proteins. In the brain, the transformation of normal proteins into abnormally folded prions can produce neurodegenerative disease.

Human DNA contained in chromosomes is 3 about billion letters long. When a cell divides, DNA splits down the center of the rungs leaving two long strands with only one nucleotide per rung. An enzyme, DNA polymerase, copies each strand. The nucleotides always form complementary pairs; adenosine pairs with thymine and cytosine with guanine. As the new strand is made, each nucleotide pairs with its partner. Copying errors are common. Slippages occur if the new strand gets out of sync with the parent strand. They have to be aligned so that the copies are linked in the same order as the original. A shift of just one base pair in the sequence alters the meaning of the code. Copying errors are a form of genetic mutation. Human populations accumulate mutations that contribute to the diversity of human abilities, diseases and destinies.

The Human Gene Mutation Database (HGMD) is one database of mutations associated with human inherited disease, the catalog includes: single base-pair substitutions in coding, regulatory and splicing-relevant regions; micro-deletions and micro-insertions; indels; triplet repeat expansions as well as gross deletions; insertions; duplications; and complex rearrangements. By August 2005, the database contained in excess of 47,889 mutations detected in 1885 different genes.

The premise of the Alpha Nutrition Program is that each person will have a best fit of safe, nourishing foods and nutrient supplements that permit a long and healthy life. Your best fit diet is likely to be different from other people's best fit. Even close relatives will be different. The idea of a "normal diet" suitable for the whole family is flawed. . Two parents with three children should have five different diets to suit the individual needs of each unique individual. A small selection of best foods may serve the needs of the whole family, but beyond this "core diet" individual differences will become all important in the determination of who does well, who does poorly, and who develops a disease. It may turn out that elemental nutrient formulas, custom-fitted, will be the best way to achieve optimal nutrition in the future. In my fantasy of a future medicine, individualized diets and/or nutrient formulas would be created from a combination of genetic information and metabolic measurements. Medicines will also be custom-fitted to fix specific problems.

### **Genome Sequencing?**

Genetics news has been commonplace for many years, complete with premature promises of revolutionary new medical treatments. These inflated expectations are certain to disappoint the uninitiated. The unfolding science reveals more complexity and uncertainty with each discovery. New methods emerge quickly that empower scientists to discover more, faster and at lower cost, but there is no assurance that new discoveries will take us closer to practical applications, rather than farther away from affordable medical miracles.

In their description of the National Human Genome Research Institute's Encyclopedia of DNA Elements (ENCODE) project, Guigó and Reese stated: "Finding human genes is a complex task because of the peculiar anatomy of the eukaryotic genome. Eukaryotic genes lie within long stretches of intergenic DNA, and within the genes only a few short fragments—the exons—are spliced together, often in alternative configurations, to form the mRNAs. Sequence signals in the genome are degenerate, and computational programs using them are able to identify the exons and link them into genes with relative success. But only through the sequencing of the corresponding mRNA molecule can a gene be unequivocally identified. It is unclear, however, what fraction of genes can be ascertained through mRNA sequencing. In addition, genes are only one type of functional elements. It is likely that most of the functionality of the human genome sequence remains largely unexplored." The modest aim of the first phase of ENCODE was to identify all functional elements in about 1% of the genome sequence through the collaborative effort of computational and laboratory-based scientists. In time, the genomes of many species and many individuals within a species will be determined. Sophisticated comparative analyses of genomes will reveal more about the evolution of species. Computers with increasingly sophisticated software are essential to using genomic information in meaningful ways. DNA sequencing, brilliant programming and digital computing are perfect matches.

## **Personal Genome**

The idea that each person will have their entire genome sequenced and that someone, somehow can read the genome and predict the future is both intriguing and misleading. Sequencing technology is advancing rapidly toward cheap, fast, somewhat reliable genome analysis. However, the brutal truth is that having access to 3 billion base pairs in a sequence is having a surplus of mostly useless information. The intriguing aspect of having abundant genome information is that the doors open to a century of new research, new methods of computing large data sets and work for armies of researchers who conduct studies of populations of humans to find out what the genomic information really means. In other words genomes are just a beginning of a journey of discovery, not an endpoint. George Church, a professor of genetics at Harvard Medical School, founded the Personal Genome Project with the intention of sequencing selected individuals who were willing to share their genomes and medical histories in a public database. PersonalGenomes.org organized a conference in Boston on April 27, 2010<sup>23</sup>

A nature editorial reviewing the 10 years since the first human genome was reported stated: "The first post-genome decade saw spectacular advances in science. The success of the original genome project inspired many other 'big biology' efforts — notably the International HapMap Project, which charted the points at which



human genomes commonly differ, and the Encyclopedia of DNA Elements (ENCODE), which aims to identify every functional element in the human genome. Dramatic leaps in sequencing technology and a precipitous drop in costs have helped generate torrents of genetic data, including more than two dozen published human genomes and close to 200 unpublished ones. Along the way, geneticists have discovered that such basic concepts as 'gene' and 'gene regulation' are far more complex than they ever imagined. But for all the intellectual ferment of the past decade, has human health truly benefited from the sequencing of the human genome? Francis Collins and Craig Venter both say 'not much'. Granted, there has been some progress, in the form of drugs targeted against specific genetic defects identified in a few types of cancer, for example, and in some rare inherited disorders. But the complexity of post-genome biology has dashed early hopes that this trickle of therapies would rapidly become a flood. Witness the multitude of association studies that aimed to find connections between common genetic variants and common diseases, with only limited success, or the discovery that most cancers have their own unique genetic characteristics, making widely applicable therapies hard to find.<sup>24</sup>

Rehm et al reviewed the history of gene-disease correlations: "During the past 25 years, major advances in deciphering the genetic bases of human disease have been achieved, and more than 5000 disorders are now understood at the genetic level. Although this is an extraordinarily important achievement in our understanding of the biologic features of human disease, the integration of these findings into clinical care is severely challenged by a lack of publicly available and accurate interpretations of the vast amount of human genetic variation known to exist. More than 80 million genetic variants have been uncovered in the human genome and for the majority, we have no clear understanding of their role in human health and disease. Thus, we are very far from a world in which we can sequence patients' genomes and easily interpret their risk of disease, even if patients carry a variant in a gene that is associated with a highly penetrant genetic disorder. The rarity of most variants that are identified in genes has made it difficult to decipher the effect of such variants on gene function; most rare variants are labeled a "variant of uncertain significance." A final factor contributing to our lack of consistent, clear, and clinically relevant annotation of human genetic variation is the so-called silo effect, in which various commercial and academic entities maintain isolated, sometimes proprietary, databases of variant interpretations, thus preventing the sharing of critical knowledge that could benefit patients, families, health care providers, diagnostic laboratories, and payers."<sup>25</sup>

## Single-nucleotide polymorphisms (SNPs)

A screening technology that identifies single-nucleotide polymorphisms (SNPs) has developed rapidly and is less expensive and more accessible than complete genome sequencing. As a tool of basic science SNP scanning is interesting and promising. Databases have developed that associated SNPs with diseases in thousands of cases and provide a preliminary view of complex traits and diseases caused by many genetic and environmental factors working together. SNP screens have been offered commercially as tests for disease risk. Their value is doubtful. In a 2010 review of SNP research Monolo stated: "What is becoming clear from these early attempts at genetically based risk assessment is that currently known variants explain too little about the risk of disease occurrence to be of clinically useful predictive value. One can anticipate that as sample sizes increase and more risk variants are identified, the predictive value of cumulative genotypic scores will increase. It has also been argued that the use of dense genotyping information, from tens of thousands of SNPs with only nominal associations with disease, may improve the accuracy of phenotypic prediction. Care is needed in evaluating genetic predictive models, since they are often specific to the population in which they were developed, and their value can vary with genotypic frequencies, effect sizes, and disease incidence. Possible clinical uses of predictive scores — for example, in deciding which patients should be screened more intensively for breast cancer with the use of mammography or for statin-induced myopathy with the use of muscle enzyme assays — will require rigorous, preferably prospective, evaluation before being accepted into clinical practice. Genome wide scans permit screening for many conditions at once. If probabilities were applied to 40 independent diseases, for example, roughly 90% of the population would be placed in the top 5% of those at genetic risk for at least one of the diseases, 33% would be in the top 1%, and 4% would be in the top 0.1%. Expanding such screening to 120 diseases would nearly triple the proportion in the top 0.001% at risk and identify 1.2% at the top 0.01%, levels that could justify population-based screening if appropriate interventions were available. The ability to assess risk for 120 conditions at the same time also raises the concern that predictive models will yield conflicting recommendations; if implemented, they could reduce a person's risk for development of one condition and exacerbate the risk for development of another. Such considerations are timely and important, since several commercial ventures are marketing genome wide association-based screening directly to consumers. Patients inquiring about genome wide association testing should be advised that at present the results of such testing have no value in predicting risk and are not clinically directive. Clinicians would do well to use the discussion as an opportunity to point out other identifiable, modifiable risk factors that motivated patients can control. Whether to heed such advice or instead undergo testing and present the

physician with the test results as a fait accompli is the choice of the individual patient. A decision to undergo genome wide association testing may result in the diversion of scarce time and resources to counseling or follow-up investigation of findings." <sup>26</sup>

While there is great interest in developing rapid, inexpensive genome sequencing, we lack even the most basic understanding of how to read the genomic data. The predication of disease risk is the least likely result of genomic data. Since the code is interactive, the expression of any sequence associated with a disease may be altered by changing food intake or other variables in the environment.

### **Medical Genetics Old Fashioned**

In medical papers, old ideas of genes often prevail. Phrases such as genetic tendency, genetic component, and genes play a role in are typical of obsolete generalities that confuse rather than inform. The new appreciation that genes are not solid, real entities is difficult for physicians to understand. Part of the problem is that medical education pretends that humans are static entities and that diseases are discrete phenomena. A dynamic, interactive systems model better accounts for what actually happens. Rather than solid, reliable genes, you can imagine segments of DNA as codes that are read differently depending on circumstances. Much of the coding deals with getting food, digesting it, distributing nutrients, and excreting waste products. Food intake to the body is a major player in determining gene expression.

Beyond the genome lies epigenetics - the study of how the expression of the DNA code is altered as dynamic processes that can change in minutes. The expression of DNA is balanced between stability mechanisms that preserve a long-term species memory in the genome and adaptive mechanisms that change the expression, depending on circumstances. It is the adaptive mechanisms and changing DNA expressions that making predictions based on genome analysis alone an act of faith rather a reliable expression of science. Epigenetic began with the discovery that DNA nucleotides can be silenced by adding methyl groups. Somehow, somebody in cells or cell to cell communications adds or subtracts methyl code to change the expression of DNA. Methylation is just the beginning of discoveries that revealed more and more mechanism that alter the expression of the genome. While there is great interest in developing rapid, inexpensive genome sequencing, we lack even the most basic understanding of how to read the genomic data. The predication of disease risk is the least likely result of genomic data. Since the code is interactive, the expression of any sequence associated with a disease may altered by changing food intake or other variables in the environment.

## Is Food Allergy a Problem?

I continue to believe that a number of illness patterns can be explained as the result of delayed food allergy mechanisms. If you want to understand the importance food allergy, you have to start thinking about the many ways that immune mechanisms interact with food materials as food passes through your body. You have to recognize that colon bacteria are important players in body dynamics and the prevalence of different bacteria is determined by the food you eat. You also have to think of the increasing complexity of the food supply and contamination with agricultural chemicals, pollution and food additives. You have to consider the possibility that some of the new chemicals that pass through our bodies may induce hypersensitivity diseases by activating and distorting immune mechanisms.

Common confusions about food allergy can be avoided by realizing that we are talking about a process and a not a thing. When you are sick everyone asks - what is wrong with you? You have to answer with a familiar name. "I have the flu" You cannot say I have food allergy because this is a concealed process that leads to problems with common names. What you can say is that my migraine headache is caused by food allergy or my eczema, my arthritis, my depression or my mysterious flu-like illness is caused by food allergy. Your condition or disease is caused by a process called "food allergy". The process is rather complicated but can be resolved by using the inexpensive, safe technology of diet revision.

### **Fatigue, Sick-All-Over**

Often, I saw patients with in-between disease; they have some of the symptoms and signs that suggest the diagnosis of a specific disease, but not everything fit together. My impression is that in-between disease is more common now than the nicely packaged diseases described in textbooks. A patient may have joint pains and swelling, for example, but not show typical blood test or X-ray signs of rheumatoid arthritis; they feel like second-class citizens after visiting doctors since they do not have a definitive diagnosis.

Most chronic diseases take many years to evolve so that many in-between people are on their way to the final disease product, but more in-between diseases are here to stay and represent increasing problems in the food supply and environment. Alpha Nutrition has helped many people with in-between disease.

Sometimes patients present with strange illnesses asking for help and our answer has been - "We do not know; your illness is strange and unfamiliar, but why don't we try careful diet revision and see if it helps?" The latter approach has been very useful in adding conditions to our list of problems that respond to diet revision therapy. The answer often is - yes it does; but not always, of course.

Many of my patients had ill-defined but troubling chronic disorders and have come saying - "you are my last hope; can you help me?" The answer is often - "yes we can because we have seen many patients get better who are very similar to you." This answer is easy to give to patients with delayed pattern food allergy -- we also call it the Type 3 pattern; it involves so many people and we see it so often. This pattern produces many symptoms in any part of the body over many years and can make life miserable.

The main feature of the Type 3 food allergy pattern is chronic or recurrent low-grade illness; patients report frequent colds or flu or simply say "I feel sick all the time", or "I'm tired of being tired", or "I feel so lousy, life is not worth living". The Chronic Fatigue Syndrome has received the most attention in past decade because of effective lobbying by Chronic Fatigue support groups. I believe that chronic fatigue syndrome and fibromyalgia are examples of non-specific hypersensitivity disease and should be treated with diet revision as the first and most essential form of therapy. Both CFS and fibromyalgia are characterized by persistent and debilitating fatigue and additional nonspecific symptoms such as sore throat, headache, muscle pain, joint pains, difficulty thinking and disturbances of short-term memory.

The real question is how prevalent is chronic ill health, characterized by fatigue and other symptoms? The best answer is probably that more than 50% of adults in Canada and the USA suffer from chronic ill health with fatigue as a dominant symptom. In Canada, a women's health survey revealed the surprising statistic that 70% of women identified fatigue as their number one health concern. We are talking about ill-defined illness without well-defined boundaries. Once you have the concept that people fit into boxes like "Chronic Fatigue Syndrome," you artificially separate people from the causes and connections that link their disease with other diseases. People with chronic fatigue are said to have associated symptoms. They, in fact have a multisystem, polysymptomatic disease. You have to consider that chronic fatigue is a little box inside a much bigger box. You then ask: "what is the common cause or common mechanism of all the conditions in the bigger box?"

### **Different Kinds of Food Allergy**

The design of the Alpha Nutrition Program originated by solving the health problems created by delayed pattern food allergies and other food intolerance. Allergy, by definition, is any harmful immune response and there are many types. We are not just talking about the obvious immediate type of food reaction. Food is probably the largest supply of foreign material that enters our body and can cause daily activation of the immune systems of susceptible individuals.

There are numerous possibilities for food-caused immune injury. A simple classification separates immediate reactions from the

delayed. Most people with immediate reactions know that they have food allergy. Patients with delayed reactions usually do not know they have food allergy - these patients report a wide range of symptoms in mixed and variable patterns. The story of food allergy gets interesting when we consider the possibility that food materials digested or undigested gain improper access to the interior body space and cause disease. This is the basic mechanism of delayed patterns of food allergy.

Knowledge of the nature and mechanism of allergic reactions to foods is limited. Uncertainty about mechanisms of food reactions continues into the community where many improvised and questionable tests and treatments for food allergy or "food sensitivity" have become popular. The relative neglect of food factors in medical practice creates interesting blind spots in the handling of patients and the understanding of disease. A major shift of popular interest in food problems, however, has created a need for better-informed physicians who are ready to grapple with the real-life issues of food, eating, and the multifaceted problem of adverse reactions to food. The subject of food allergy has never assumed the importance that it is due.

Many books in the popular literature talk about food allergy, sensitivity and intolerance. Many books and articles proclaim the benefits of diet revision and a groundswell of interest and concern has engaged an ever-enlarging group of patients in the search for nutritional solutions to their health problems. A variety of practitioners have emerged with dubious schemes to test for and treat "food sensitivity". Some MD's retreat to the safe ground of ignorance and prejudice, believing that food allergy is something for quacks and charlatans and not real doctors.

We believe that food allergy is a logical consequence of the human body's operation, probably afflicting everyone in some degree or other. Food allergy often co-exists with digestive and absorption disturbances, as well as metabolic and biochemical problems. We are convinced that if you define food allergy in the broadest sense - all immune activity related to the food supply - then food allergy explains a variety of symptoms that occur daily in most human beings. Another term for allergy is hypersensitivity - increased immune responses causing dysfunction or disease. Hypersensitivity is a biological concept, a description of increased reactivity in a person, mediated by immune and nervous systems. We have developed a general theory of hypersensitivity disease that includes the total response to the environment. The environment consists of food, air, water, light, sound, ideas, and events. Food is part of the foundation of biological function and is therefore a determinant of everything biological.

The idea of hypersensitivity as amplified, persisting immune responses to food materials can explain many chronic diseases. You eat food in good faith, hoping that all the stuff you swallow will be broken down into a nice set of nutrients.

The digestive tract lets nutrients into your blood and is supposed keep everything else out. Digestion produces a complicated set of chemicals from the foods you eat - some are nutrients, but most are not. The surface of the digestive tract is an immune-sensing device that immunizes us to materials flowing through it. If digestion and absorption of nutrients proceed in an ideal fashion, all may be well. But, if the digestive tract reacts to food materials and malfunctions, you are in trouble. One concern is that digestive tract may be excessively permeable, and may "leak". The wrong molecules, not just normal, nice nutrients may enter internal body spaces and cause harmful immune responses in the form of inflammation.

### **Type I Hypersensitivity as Allergy**

Type I hypersensitivity is the most common pattern of allergy, detected by skin tests and treated by allergen avoidance, allergy shots, antihistamines and other drugs. This immediate type allergy is usually obvious to everyone who suffers from it and afflicts only 5 to 10 % of the population. You can often diagnose immediate type food allergy by skin tests. Hidden or delayed pattern food allergy is more prevalent and usually goes undetected. Delayed pattern food allergy may afflict over 50% of the population with regular or recurrent symptoms over many years.

The immediate or type 1 food allergy pattern is easily recognized because it involves quick and dramatic symptoms. Hay fever is the most common type 1 allergy and can be diagnosed by allergy skin tests. Some food allergy is also type 1 and shows up on skin tests. Delayed patterns of food allergy are not so obvious and generally go unrecognized. Allergy skin tests do not show this problem nor do IgE antibody tests such as RAST or ELIZA. Symptom onset is delayed many hours after eating foods and chronic disease is often the result.

### **Delayed Patterns – Food Allergy**

I refer the less obvious and more complicated mechanisms of food allergy as "delayed patterns", following the lead of Coombs, McLaughlin, Gerrard, Knicker, Brennerman, Brostoff, and many other researchers. Understanding what crosses the digestive tract wall is critical to the understanding of food-related dysfunction and disease. Coombs and McLaughlin summarized the problem: "Food proteins in the gastrointestinal tract and their absorption into the body as antigenic molecules have immunologic significance both in (i) initiating an allergic state and (ii) in the subsequent challenge(s) where, by a variety of mechanisms, they may cause some form of 'food-allergic disease'." When you do not know about delayed patterns of food allergy, mysterious diseases surround you. When you know about food allergy, many common illness patterns begin to make sense. Linda Gamlin writing about food allergy in the New Scientist stated that:

"Evidence is growing that many debilitating and chronic symptoms of ill health come from an intolerance for certain foods. "The medical establishment finds many aspects of food intolerance difficult to swallow, but the main problem is the plethora of symptoms and the variations from one patient to another. Doctors working with food intolerance report more than 40 possible symptoms and conditions...the severity also varies. Some patients are said to have nothing more than an occasional migraine or bout of fatigue, while at the other end of the scale the sufferer is unable to work or lead any sort of normal life."

Given access to the blood or tissue spaces, many food substances, especially proteins, can evoke a harmful immune response. This theory of delayed pattern food allergy can explain a number of chronic diseases that are common but poorly understood. For example, migraine headaches, chronic nose congestion and the recurring cold syndrome, asthma, eczema, fibromyalgia, hives, chronic fatigue, joint pains all can be expressions of food allergy.

Delayed patterns of food allergy often present as long-lasting non-specific syndromes with many symptoms over many years. Many patients describe recurring colds or recurring flu-like illnesses. Typical complaints are chronic fatigue, nose congestion, sore throats, muscle aches, joint pains, irritable bowel syndrome, flushing, sweating, itching, skin rashes. Often, changes in thinking and feeling plague the food allergy patient; the chief complaints are fatigue, reduced concentration, impaired memory, irritability, sleep disturbances and many experience bouts of depression. In children, a similar syndrome with behavior and learning difficulties proves to be common. Since there is no specific test for the delayed patterns of food allergy, a trial of diet revision is both diagnostic and therapeutic.

A food holiday on Alpha ENF is often the most dramatic way to demonstrate that the illness is food-related and can be managed by diet revision. Alpha ENF bypasses the food allergy mechanisms and can be used to as a combined diagnostic test and treatment. If Alpha ENF is substituted for food, the mistakes in absorption stop completely and the problems downstream in the body begin to resolve. Alpha ENF is often used to replace food completely for 10 days or longer to induce a remission of symptoms. We call this "Clearing". Alpha ENF is then used to support nutrition while foods are reintroduced and evaluated for adverse effects. Clearing on Alpha ENF is often the first step of the Alpha Nutrition Program.

- Physicians have unusual difficulty recognizing illnesses caused by delayed pattern food allergy. Some of the difficulties arise because:
- Food allergic mechanisms are complex and are difficult to demonstrate; there are no simple and reliable tests
- There is little interest in medical research in this disease mechanism.



- Many physicians repeat dogmatic denials of other physicians, claiming that food allergy is not a common problem.
- Most patients do not recognize that their food supply is making them ill and are looking for conventional diagnoses and drug treatments.

There are two important advantages with this theory: You can test the theory yourself using safe experiments. If it is true, you can solve your health problems by diet revision. An understanding of hidden forms of food allergy has been missing from medical practice, despite clinical and research papers in the allergy literature. The knowledge of delayed patterns of food allergy has remained sequestered, leaving a large gap in the comprehension of modern disease. There is a selection bias in the medical system overall - only certain kinds of research gets done, and only certain topics get included in medical curricula and only certain kinds of treatments are utilized in ambulatory medicine. Drug treatments are preferred over difficult changes in diet and lifestyle.

### **Best Ideas about Food Allergy**

- Food allergy is immune responses to food materials.
- There are several different mechanisms of food allergy.
- Everyone has food allergy - it is a matter of how much.
- The existence of food allergy is ignored or repressed.
- There are no reliable laboratory tests for food allergy.
- Diet revision is both diagnostic and therapeutic.
- You get better by following the Alpha Nutrition Program.
- You get symptoms back when you eat the wrong food.

Immune responses to food materials create many symptoms in any tissue in complex patterns. We refer to all types of immune responses to food as food allergy, not "food sensitivity" nor "food intolerance". This symptomatic process begins with the action of food materials in the digestive tract, continues into the blood stream, and then affects the function of any target organ that receives the food problem.

## Alpha Nutrition Program

The Alpha Nutrition Program is about beneficial change. The good news is that many common health problems can be resolved by changing the food supply. For years, we have known that heart attacks were diet-related. High blood pressure was related to high fat and salt intake and millions of people have followed low salt diets. Others have pursued a variety of weight-loss diets usually only achieving brief success. Now, nutritional advice is shifting towards physical fitness and disease prevention.

The Alpha Nutrition Program has grown into an all-purpose method of diet revision. The Program has also become a diagnostic standard. Anyone can explore the possibility that a medical problem is related to their food supply by using the Alpha Nutrition Program. If the program alleviates symptoms, you know that food was involved in the cause of your symptoms and your disease. You may not know exactly how your original diet caused the problem, but you find out how to make it better. We think of the program as a personal technology of health restoration and health maintenance

We recognize a set of general health reasons for doing the program and another set of problem-solving reasons. The program allows you to solve a variety of health problems in the form of self-directed therapy. The most encompassing reason for doing the program is to feel and function better - this always works no matter where you begin. While we are focused on improving health by changing food choices and eating behaviors, we also recognize that important changes in food selection involve other changes in attitudes, personal, and social values. If individual changes become more common, we recognize that the changes we advocate will have significant political and economic impact. For several years, most of the people who pursued the program have been ill and wanted to get better. Several thousand people have contributed their experience to the evolving Alpha Nutrition and have done well. Through their efforts, we have learned a lot about the process of change. We have also recognized a remarkable diversity of health problems that improve with diet revision.

### **Benefits of the Alpha Nutrition Program**

We have been impressed, pleased, and sometimes surprised by the positive impact of Alpha Nutrition in eight major areas of health concern:

Resolution of some of the most common adult health problems - asthma, eczema, hives, chronic rhinitis, chronic fatigue, migraine and tension headaches, indigestion, irritable bowel, chronic diarrhea, fibromyalgia, edema, and sleep disorders

Resolution of major health, learning, and behavioral problems in children. Food problems start in early infancy and continue to develop into major health problems as children grow into an

increasingly synthetic, contaminated and polluted environment. Significant relief from several major chronic diseases including rheumatoid arthritis, psoriatic arthritis, Crohn's disease, and ulcerative colitis.

Remarkable pain relief - some chronic pain disorders are caused by a faulty food supply. This is the most surprising of our discoveries. Pain in all parts of the body, from the specific patterns of migraine or joint pain in rheumatoid arthritis to the non-specific pains which attack people mysteriously in the head, chest, abdomen, arms, or legs - all have improved with diet revision therapy.

A solution for food-related illness and malnutrition problems in aging patients that stem from loss of interest in food, disorganized eating patterns, drug side effects, and symptoms from food allergy mechanisms that may lead to food avoidance.

Relief from emotional disturbances and mental disorders has been another surprising discovery. Often foggy-minds, irritability, anxiety, panic disorder, and depression will improve with diet revision.

Relief from eating disorders and other addictive eating and drinking behaviors. The program has been used in the treatment of bulimia, anorexia, and in drug and alcohol detox.

Successful weight management - even though the initial design of the program was not concerned with weight loss as a primary goal, the program proved to be successful in achieving weight management goals.

We have also been encouraged and gratified to discover that many people who were successful in applying the program, used the experience for personal growth. Many patients began the Alpha Nutrition Program after years of chronic illness and were despondent; some had lost hope. With proper diet revision, their symptoms improved, their minds cleared, their energy returned, their zest for life was renewed and a whole new phase of personal growth began. Body and mind heal together.

Healthy people have the mental clarity, the energy and the interest to go beyond just the techniques of being well, to explore their spiritual potential. They are more able to affirm life, explore its mysteries, and seek beauty and truth.

Recoveries presented difficulties, however. There are many problems of learning new ways. There are ongoing challenges in choosing the correct foods and solving recurrent problems when the wrong foods are eaten. There are self-control issues as the recovering person struggles with old habits, and the constant temptation to eat carelessly. There are emotional problems as the recovering person tries to reform family and friends so that there is enough support to keep going on a healthier path.

Families resist the changes that one member wants to make. Frustration, anger and arguments often obstruct constructive change. Recovery raises questions about personal and family values. Recovery raises questions about what lies beneath the surface. What issues have not been addressed? What motives do people have when they sabotage your efforts to get better? What values does your society have as it allows environmental pollution and promotes unhealthy lifestyles?

## **Food Choices**

The Alpha Nutrition Program is based on the idea that everyone probably has a small set of best-fit foods that offers optimal health. When you eat only your best foods, you feel good and perform well. When you feel poorly, you know you are outside your safe-food zone. When you develop the symptoms and signs of a disease you know you have been out of your adaptive zone for too long. You must find your way back.

The first goal is to identify the simplest set of best foods for you. To accomplish this goal, most people have to eat more vegetables and fruits. Poultry, fish, and small quantities of red meat are also suggested although a vegetarian version may be preferred. Legumes, tofu and other soya products are meat and dairy alternatives but are introduced into the diet with caution and with limits on the total amount eaten. Selected flavoring herbs, spices, and a small number of prepared and preserved foods are suggested.

Most people have to make more meals at home. Most processed, packaged and fast foods have to go. You stop buying packaged and processed meats, for example. You change your route through the supermarket and learn to ignore food displays that are no longer part of your new, healthy diet. A return to primary plant foods has important biological advantages. Your body will work better when you have a simple, regular food supply with no surprises.

The simple concept also makes good nutritional and economic sense. Human diets all over the world are based on a set of staple foods. The core of a new, healthy, modern diet should be a small number of staple foods. Which staple foods?

The bias of the program toward solving the problems of delayed patterns of food allergy is an advantage over other systems of diet revision. The program design makes assumptions about food reactivity, safety, and overall desirability. These assumptions have been confirmed by 20 years of testing different food choices in a large number of patients who suffered from a variety of diseases.

The Alpha-concept developed as we kept score of adverse food reactions reported by patients. The program includes foods that are desirable nutritionally and, at the same time, cause the lowest incidence of adverse food reactions.

We found that rice, cooked vegetables, and some fruits were among the best tolerated and most nourishing of all food choices. Research in the 20<sup>th</sup> century identified many foods in the Alpha Nutrition Program to be the most beneficial and desirable of all foods to eat on a regular basis. The plant foods get the highest rating and contain a variety of phytochemicals that protect against a surprising number of serious diseases. The program excludes food choices, even popular choices such as milk, eggs or bread, if we found that these food choices commonly created health problems.

Whatever the complex of causes behind the food problems we observe, the health-seeking goal of the program is based on a return to a diet of simple, carefully selected, natural foods. Fresh or frozen vegetables, fruit, and rice products are the primary food choices. Poultry, fish, and small quantities of red meat are also suggested as food options unless you have a vegetarian preference. Flavoring herbs, spices, and a small number of prepared or manufactured foods are suggested. These foods allow you to reconstruct daily menus with the confidence of good nutrition and stable life-long eating habits.

### **Natural Food**

The Alpha Nutrition Program is a natural food eating plan. Under ideal circumstances, we would all be eating organically grown vegetables and fruits from our own gardens or neighborhood market gardens. For many of us, the garden is a distant retirement dream and we must do our best with store-bought food.

Our intention is to simulate eating from the garden by buying and preparing fresh or frozen vegetables, fruit, poultry and fish, according to your own preferences and tolerances. Most of the desired food is purchased in the regular supermarket or produce stores. We would prefer organically grown produce and naturally raised and fed animal foods. Whenever organic foods are available and affordable, they are our first choice. Unfortunately, pure, uncontaminated food is not always available or is too expensive, and we make due with the foods at hand. We occasionally look for unusual rice products, wheat flour substitutes and dairy substitutes.

The success of the program involves regulating your intake of food to minimize or eliminate dysfunction and disease. To simplify the task of food selection, the plan suggests reducing your reliance on foods in bottles, cans, and boxes. There are, of course better and worse choices on the supermarket shelves. Reasonable program food choices may include canned fruit, tuna, flavoring herbs, jams, jellies, and sauces. Frozen vegetables, fruits, frozen juices, fish, and poultry are all recommended.

**The Alpha Nutrition Program is presented in three sections.**

Section 1 Understanding Nutrition Therapy

Section 2 Alpha Nutrition Program Instructions

Section 3 Kitchen Practice, Food Profiles & Meal-Planning

**Section 1** provides you with the general knowledge for understanding how to use the Alpha Nutrition Program. The theme is Getting Better with Nutritional Therapy.

**Section 2** is the Alpha Nutrition Program itself. The program has three phases, each explained in its own chapter. The food list and instructions for each phase are described in detail. Predictions about changes are then described with problem-solving instructions. The goals are clearly defined for each phase and you are given instructions about what foods you should eat, what to expect, how to problem solve, and how to use tools such as Alpha ENF and Alpha DMX.

**Section 3** deals with food selection, shopping, cooking and meal-planning. You will find information about the foods chosen, cooking advice, and meal-planning suggestions.

The book, **Cooking and Recipes** expands the Alpha Nutrition Program instructions on meal preparation and recipe development. This text provides practical knowledge, helpful in understanding how to prepare foods and create recipes that are suitable for recovery from a variety of health problems. In a practical sense, your kitchen becomes your personal chemistry laboratory where your recipes for better health are carefully put together and records of your progress are kept.

You start to think of the 40 or so nutrients that your body need to extract from the foods you prepare and eat. You want to minimize exposure to any substances that are not nutrients. You want to balance nutrient intake so that your metabolism functions well.

The recipes are gluten-free, milk-free, egg-free and follow a progressive path from Phase 1 foods (a hypoallergenic diet) to a more expanded food list in Phase 3.

### **Alpha Nutrition Nutrient Formulas**

Nutrition is built of basic building blocks. Carbohydrates, fats and proteins are typical components of foods. Vitamins and minerals are essential nutrients. Elemental nutrient formulas represent the ultimate reduction of food, replacing food intake with a chemically defined set of nutrients. While foods recommended in the Alpha Nutrition Program can supply complete and balanced nutrition, there are many circumstances when replacing food and adding nutrients is necessary. Alpha Nutrition Formulas provide choices of nutrient modules so that nutrient intake can be supplemented and balanced in a variety of ways.

Alpha ENF can supply complete nutrition on a food holiday and it remains the formula of choice for meal replacement long term. For most people following the Alpha Nutrition Program, Alpha ENF is the complete nutrient set formulated by assembling nutrients into modules that supply energy, electrolytes, antioxidants, phosphate, vitamins, minerals, neurotransmitter substrates and amino acids as the protein building blocks. To answer the specific needs of diabetics we formulated Alpha DMX by reducing the caloric content, and deleting sodium for the mineral module. A diabetic can use DMX in place of Alpha ENF. Anyone who wants to boost total nutrient intake can use Alpha DMX. If the goal is to reduce or eliminate protein intake, amino acids can be added to the diet as AAX in a dose range of 10 to 50 Grams per day. To boost nutrients responsible for bone growth and maintenance, Alpha OMX can be added in the dose range of 5 to 15 grams per day.

## **Alpha Education Book List**

[Aching & Fatigue](#)

[Air and Breathing](#)

[Alcohol Problems and Solutions](#)

[Alpha Nutrition Cooking](#)

[Alpha Nutrition Program](#)

[Eating & Weight Management](#)

[Feeding Children](#)

[Food and Digestive Disorders](#)

[Food Choices](#)

[Gluten Problems and Solutions](#)

[Heart and Arteries](#)

[Human Brain in Health and Disease](#)

[Inflammatory Arthritis](#)

[Immunology Notes](#)

[Managing Diabetes 2](#)

[Managing Food Allergy](#)

[Nutrition Notes](#)

[Skin in Health and Disease](#)

See eBooks for download online at Alpha Online

<http://www.nutramed/index.html>



- 
- 1 Knicker WT. Deciding the Future for the Practice of Allergy and Immunology 1985 *Annals of Allergy*.55;106-113
  - 2 New York Times Editorial. World's Best Medical Care? August 12, 2007
  - 3 Steven Peters States With the Longest (and Shortest) Life Expectancy Wall St. February 25, 2017
  - 4 Accessed Online Feb 2016  
<http://www.meetup.com/HealthTechnologyForum-Vancouver/>
  - 5 Agnes Shanley. Shouldn't Patients Be More Responsible for Their Outcomes? *Medscape* December 15, 2016
  - 6 Thomson Prentice et al. World Health Report 2002. World Health Organization 1211 Geneva 27, Switzerland Fax: (41-22) 791 4870 Email: [whr@who.int](mailto:whr@who.int) Copies of this publication can be ordered from: [bookorders@who.int](mailto:bookorders@who.int)
  - 7 Carolyn Clancy. How Do We Involve Patients in Their Own Healthcare Decisions? *Medscape Online* Posted 11/30/2007
  - 8 Nick Mulcahy, Laurie Barclay. New Evidence Cites Alcohol as Causing Cancer in Seven Sites. *Medscape CME* 10/4/2016
  - 9 Roxanne Nelson, Laurie Barclay. Can Bacon Increase the Risk for Cancer? *Medscape Education Clinical Briefs*. 11/24/2015
  - 10 Based on the National Academy of Sciences 2005 Dietary Reference Intakes Series ([www.nap.edu](http://www.nap.edu))
  - 11 Jähren and Kraft Carbon and nitrogen stable isotopes in fast food: Signatures of corn and confinement. *PNAS* November 18, 2008 vol. 105 no. 46 17855-17860
  - 12 Zuger, A. Doctors Who Wield the Pen to Heal the Profession. *NYT*. May 15 2007.
  - 13 Groopman Mental Malpractice, *NYT*. July 7, 2007
  - 14 ." Pamela L. Wible. Physician Bullying: 'Not Allowed to Cry'. *Medscape*. Feb 20, 2015.)
  - <sup>15</sup> Carolyn Clancy. How Do We Involve Patients in Their Own Healthcare Decisions? *Medscape Online* Posted 11/30/2007
  - 16 Harlan M. Krumholz, M.D., and Thomas H. Lee, M.D. Redefining Quality — Implications of Recent Clinical Trials. *NEJM* Volume 358:2537-2539 June 12, 2008 Number 24
  - 17 Harlan M. Krumholz, M.D., and Thomas H. Lee, M.D. Redefining Quality — Implications of Recent Clinical Trials. *NEJM* Volume 358:2537-2539 June 12, 2008 Number 24

- 
- 18 PicnicHealth accessed online Feb 2016  
<https://picnichealth.com/how-it-works>
- 19 . Web MD. Accessed online March 2017  
<http://www.webmd.com/>
- 20 Johns Hopkins Medicine Accessed Online Feb 2017  
<http://www.hopkinsmedicine.org/healthlibrary>
- 21 Medline Plus. Accessed online March 2017.  
<https://www.medlineplus.gov/>
- 22 Read Cube. Medical Search Engine. <https://www.readcube.com>
- 23 Genomes, Environments, Traits, inviting prominent individuals who have already been sequenced to share their experiences. Genome sequenced speakers include James Watson, Jay Flatley, Skip Gates, Esther Dyson, Stephen Quake, Misha Angrist, George Church, James Lupski, Dan Stoicescu, Seong-Jin Kim, Greg Lucier and Rosalynn Gill. April 27, 2010
- 24 Nature Editorial. The human genome. Nature 464, 649-650 (1 April 2010) | doi:10.1038/464649a; Published online 31 March 2010
- 25 Heidi L. Rehm et al. ClinGen — The Clinical Genome Resource. N Engl J Med June 4, 2015.
- 26 Teri A. Manolio. Genomewide Association Studies and Assessment of the Risk of Disease. NEJM Volume 363:166-176 July 8, 2010 Number 2