

# Patient Health Hazards & Health Care Systems

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## **Abstract**

*A cost-effective and sustainable healthcare system is emphasized on the ability to collect process and transform healthcare data into knowledge and action. However, in implementing health care systems, the provider may face many unique and complex challenges since such systems are very sensitive. The hospital systems are facilitating patients in such a manner that the patient gets an accurate diagnosis, accurate treatment, and reliable consultancy. For emergency systems, the hospitals are equipped with OPD systems where the patient is treated without any delay. Either in developed or in developing countries, the healthcare systems are continuously improving.*

## **I. Introduction**

Health care systems are always supervised by the organizations that are experienced in healthcare skills in order to provide services to meet the health needs of the targeted population. Different individuals experience a different type of medical complications. Every patient is usually treated in a different way.[1,2] The treatment may consist of different dose of medicine, precautions, does and don't and a professional medical plan.

Health and Education are the two main pillars of any nation. Any nation which is serious about its population always has a keen interest in improvement [3,4,5] of healthcare facilities. Governments allocate funds and the huge budget to improve the quality of health in the country. In this concern, there is a wide variety of health systems around the world. Nations always design and develop health care system in accordance with their needs and resources.

Different world health-related organizations directing and coordinating concerned authorities for [6] health improvement. Different trusts and supporting organizations work in collaboration to the government, promoting the goal of universal health care to ensure that all the people obtain health services [7] they are needed, without suffering financial hardship, paying for them.

In the US, medical big data is used to predict accurately which patients are likely to be readmitted to the hospital within 30 days, with data analysis also suggesting the remedial actions needed for each patient. In Mississippi for example, scientists are making effort to be able to help predict accurately [8,9] for example the cost of managing asthmatic children across an entire state. Some diet components are just added to diets which are not beneficial for health [10]. As for example, someone drinks may contain harmful chemicals which may cause diabetes in future. Health hazards also include some poor adapted habits, as if someone is smoking, it is always sure that the cigarette is always a source of serious diseases.

It is a common way to call or consult with other emergency services right away if one takes medicine. Self-medication is destructive usually. For every drug intake, there must be a proper consultation and recommendation. Playing in this way with life means that throwing life at high risk and exposing it to further complexities. This is never a wise decision.

## II. Medicine side effects

There are many medical problems which occur due to medicine side effects and become severe with the passage of time. Many frequent health problems are potential predictors of an increased risk or vulnerability, for example, the alcohol use disorders in developed countries and even in under developing countries. The people are addicted and damage their health sometimes when the quality of alcohol is poor; even sometimes prolonged alcoholic addiction. However, due to the modest hazard ratios, we were unable to establish a clinically useful tool to exactly determine what problems people actually face. In most of the cases, patients least consult doctors and adopt self-treatments which may be fatal.

As a patient, another commonly used medicine is called anti-depressant. People often use it and become habitual. In worst cases, the person can never sleep without using this as a regular suppliant. Some of the side effects caused by this medication are Nausea, Dry mouth, Trouble sleeping, Constipation, Tiredness, Drowsiness Having trouble with breathing. A person, who is a regular user of this medicine, is completely unaware of such complications. Get hives, swelling of the face, lips, tongue, or throat, faint (lose consciousness) or feel like one may feel faint. These are signs of a severe allergic reaction to the medicine.

Another example may be of people sensitive to Aspirin which reacts as a way look similar to asthmatic attacks and skin rashes may occur occasionally. Aspirin may induce gastric irritation, nausea, dyspepsia, and stomach bleeding. Hypoglycemia, or low blood sugar, is the most common side effect of insulin glargine. Symptoms include a headache, hunger, weakness, sweating, tremors, irritability, trouble concentrating, rapid breathing, fast heartbeat, fainting, or seizure (severe hypoglycemia can be fatal). Antacids may cause dose-dependent rebound hyperacidity and milk-alkali syndrome. Antacids that contain aluminum hydroxide may cause constipation, aluminum-intoxication, osteomalacia, and hypophosphatemia.

Since a parasite cleanse is intended to kill parasites so that the body can expel them, one may experience gastrointestinal upset while using the parasite cleanse. During the first few days of the parasite cleanse, one may experience neurological symptoms such as dizziness or headaches. According to naturopathic physician Dr. Brenda Watson, these symptoms are usually triggered by a large number of dead parasites and the toxins they released into the body.

## III. Complications Due To Diseases

If the patient uses a lot of medicines then future complications could be in chronic diseases for example kidney damage, hypertension, and diabetes. People with diabetes are at high risk of kidney disease (nephropathy) due to changes in the small blood vessels of the kidneys. Usually, such phenomena occur silently and the symptoms are unnoticeable until the last stage. When declared, the treatment is very complicated and usually is helpless to save a life. If luckily the problems are identified at initial stages, nephropathy can be slowed or prevented with the right treatment. Only Diabetes it can lead up to eight common complications which can be discussed as follows:

### A. Neuropathy:

The nervous system is the command and control systems of the body. It is centralized controlled by Brain and the nerves connected all the body parts. The neurons are the basic unit of the nervous system. It is a term for nerve damage. Erectile dysfunction, which can be a complication of diabetes, is actually a form of neuropathy.

### B. Kidney Disease:

The basic nutrient filtration process is carried out by kidneys. The smallest unit of the kidney is Nephron. Kidney disease is a common complication because high levels of glucose cause the kidneys to filter too much disturbance in normal functionality, making them work hard enough to maintain the balance.

### C. Vision Problems:

A condition called diabetic retinopathy can affect one's vision over time when the patient has uncontrolled blood sugar levels. This may result in partial to complete loss of eyesight. It is again the matter of blood capillaries which are damaged un-noticed and may result severe after effects.

#### **D. Heart Disease:**

Diabetes kills from the heart. The majority of patients will end up having some atherosclerosis-related event. Heart enlargement, disturbed flow etc are some of the complications. More the time is taken, more the complexity increase.

#### **E. Stroke:**

You're two to four times more likely to have a stroke when you have diabetes  
Low testosterone levels. "I often tell patients that testosterone is a reproductive hormone, and if the body is focusing on dealing with other issues, it's not focused on reproductive function

#### **F. Gastroparesis:**

Gastroparesis is a condition where your stomach slows or stops the movement of food to the small intestine. Symptoms include nausea, vomiting, stomach pain and feeling full after just a few bites. This is again a severe complication of Diabetes. The patient is found to be in this problem after a prolonged time period. This is again difficult to cure if found at late stages.

#### **V. Future Health Problem**

The patterns of human genes can be determined by the DNA structure, about the health concerns of an individual. Genetic engineering is the vast research field that is used for applied research in biotechnology in this regard. The genes are the basic building blocks of chromosomes. Chromosomes are the parts of characteristics transmission from parent to a child. Some traits are inherited and some traits are developed by the result of mutation and some are formed due to new combinations.

The health problems which are inherited from parents to the children can be identified from genes. However, all the health hazards are not transmitted as an inheritance. The human lifestyle, diet, food processing methods, environment, daily life activities, stress and mental health, medication, modes of treatment, disease complications are some of the factors that may disturb health. Lack of physical activities, prolonged sitting and telecommunication methods use more than normal also have a bad impact on health. Apart from that, the radiations from different sources in the form of x-rays, radio waves, microwaves and much more are also disturbing the normal functionality of human organs.

The genetic engineering problems also a reason for future health problems. If the genes are formed in a combination that its dominant gene is disease free than there are more chances to improve health in next generation. But in the worst case, where the genes are recessive one with disease transmission as a dominant factor than the offspring will be experiencing health problems more than usual. Technically, the research is being processed to refine this genetic mutation in good aspect.

However, the other factors that affect health parameters, like environmental pollution, eco-system imbalanced conditions and situations that destroy the normal behavior of a healthy body can cause disturbance of immune system. The continuous attack on the immune system too weaken its strength can be a reason of health decline. The human body is weak at the newborn and in entire old age. The defensive system is very strong in young age but as the time passes, the resistance reduces due to any of the factors as mentioned above. In coming years, as observed, there will be more complex health problems.

#### **VII. Predicting Health Issues**

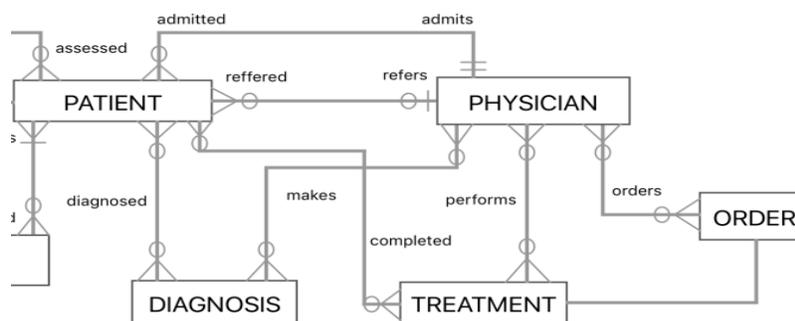
We can also design a logic based on the persistent habit of someone who isn't changing his habit and behavior and can predict the damages that may occur to one's health. For instance, if a person is smoking 1 pack of cigarette

daily and does not quit or reduce; takes cold drinks more often and other types of junk and spicy foods that also have a tendency to damage lungs then we can predict his lungs sooner or later will fail to work.

There are many algorithms and schemes that work on the prediction of health issues for future determinations and detection. Many data mining schemes like Greedy Algorithms, Decision Tree, Naive Bayesian, Support Vector Machines and much more are used to determine pre-declared Hypertension, Retinopathy, Diabetes and Cancer types of severe and fatal diseases. The basic classification is based on supervised algorithms. Algorithms are applied to the input data. Classification is done to know exactly how data is being classified. Meta-supervised learning is also supported which shows the list of machine learning algorithms. Tanagra includes support for arcing, boosting, and bagging classifiers. These algorithms, in general, operate on a classification algorithm and execute it multiple times manipulating algorithm parameters or input data weight to increase the accuracy of the classifier. Two learning performance evaluators are included with Tanagra. The first simply split a dataset into training and test data, while the second performs cross-validation using folds.

### VIII. Online Healthcare Systems

The traditional systems usually cure for patients in a sophisticated way. The patient usually first registers himself at the reception, the receptionist attends him/ her and refers him to the respective consultant. If the patient is treated from his consultation then he pays the bill and have medication and wins the treatment. If the patient has a complex problem, then he is further referred to diagnostic tests, specialist or re-consultation after a mini treatment. This cycle continues till the treatment is good enough to recover the patient. If the problem is not too complicated, the recovery chances are earlier but if the problem is severe, it takes more time and complex treatment plan to recover. As soon as the patient follows the plan, there are more chances to cure only if proper does and don't are followed in a correct way. Sometimes some diseases needed periodic re-consultation or follow-ups. So it means if a patient is serious enough to cure of the problem, then there are more chances of early recovery. Ignoring the health problems or delay treatment, such factors result in poor health quality and low recovery. Such model is adopted in most of the regions around the world with slide modifications depending upon the facilities and budget of regions.



**Fig 1: Basic Health Care Model**

Getting an appointment for a health cure system is not only a single activity but it is associated with a number of different inter-related activities. Its key concern is not only a patient's health, but the viability of a health system from a revenue standpoint, its reputation, the insurance company, and even medical device and pharmacy companies. It is a tight-knit ecosystem where if one chain in the communication link breaks down then all heck breaks loose and everyone suffers. The important thing is that: there are finally platforms on the market that helps providers and staff route patients to the most appropriate high-quality clinician in a community using Smart

MATCH Technology from Referral Medical Systems. Best of all it can integrate into the any EMR systems on the market like Epic, Cerner, Clinical Works while reducing referral leakage saving health systems 100's of millions.

Apart from that, the systems are now moved to advanced technologies to facilitate mankind in a better way. The complex systems are shifted to cloud technologies. Such fragile but highly technical projects integrate person-centered and family-oriented domains under one platform. This approach results in a shared decision-making process that results in the creation of advance directives that reflect individualized goals of care. Some of the online systems are mentioned as follows which are implemented and are working efficiently to improve the quality of lifespan. Some of the online healthcare systems are mentioned as below:

**A. Webicina:**

This is a web portal. On the website, one can find medical news, advice, and tips one can actually trust – from over 11,000 hand-picked, constantly monitored sources in over 180 conditions and specialties

**B. MedlinePlus:**

Produced by the National Library of Medicine, the world's largest medical library, it provides information about diseases, conditions, and wellness issues in language that anyone can understand. Moreover, patients can use MedlinePlus to learn about the latest treatments, look up information on a drug or supplement, find out the meanings of words, or view medical videos or illustrations.

**C. Drugs.com:**

This online website provides a free drug-information service to help patients better understand how medicines work: their uses, side effects, and potential to interact with other medicines.

**D. Mayo Clinic:**

This is a very popular website that provides detailed information about medical conditions and diseases – by browsing through hundreds of disease descriptions or by characterizing the illness in the Symptom Checker.

There are much more and Tele-Medicine, E-Health systems are the advanced medical facilitating techniques that are still under developing and much research is being carried out to improve such systems in a more better way. In this regard, [11] advance 5G technology, under Software Defined Network (SDN) has allocated health sectors as a separate slot for low latency and accuracy emphasized systems.

## **IX. Multidimensional Methods to Cure Health Problems**

Today, we are facing a number of health problems that require individual corrective actions. For this, we are needed to be educated enough and serious enough regarding our health. Life is only once and it is at high risk. Our single mistake is cured many times by Nature but repeatedly haphazard definitely destroy the normal and healthy functionality of a sound system.

The task is unusually difficult because of the insidious nature of the chronic diseases, the lack of any action individuals may take, the age-group that must be influenced, the large number of agencies that are involved, and the need for modification of some of our cultural patterns and value systems. This is the challenge to the profession of health education. Natural home remedies, exercise, Homeopathy, Allopathy, Ayurveda are some of the other modes of treatment. All of these treatments are different in applications, methods, and strategies but all of them work under same goal, that is, to cure the patient quality of health and indirectly increasing the lifespan of an individual.

## **X. Conclusion:**

The human health is very important. Along with the life, the health risks and illness is always a side matter of life. To cure health problems, there are many medical systems that are operated by highly professional and well-trained staff. Most of the systems are equipped with highly sensitive and advanced systems. There are many reasons that cause health damage and if treated timely, the health systems can work in a proper manner, delay or wrong treatment cause more damage to a well-operated system. As the technology is changing from simple to sophisticated

ways, the modes of treatments are also changed in order to make them more approachable to the patients, easily accessible, simpler to adopt and efforts are being made to make them more inexpensive so that number of population can approach them with ease. This paper determines some health problems, causes of health problems, possible methods of treatment, and alternates. Still there is a huge research share, conducting by many scientists and scholars to improve health provision facility to people. The future concern is how easily a patient can get awareness of health quality improvement.

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