

President's Page

Quality in Healthcare

Price Rs. 100/-



B. Banerjee

1. Introduction

Vision and Mission of Public Health in America are as follows:

Vision: Healthy people in healthy communities.

Mission: Promote physical and mental health and prevent disease, injury and disability.

Healthcare (HC) involves three groups of people: customers (patients), employees (service providers) and the managers that interact in the provision of Healthcare.

According to WHO Healthcare quality is defined as "doing the right things, the right way, at the right time, in the right amount for the right patient that does not result in harm to the patient".

2. Present scenario in India

In India HC is one of the largest sectors in terms of revenue and employment and the sector is expanding rapidly. The private sector accounts for more than 80% of the total HC spending in India. One driver of growth in the HC sector is India's booming population.

India spends US \$ 22.7 Billion in HC which is 5.2% of GDP. However "growth in national income by itself is not enough, if the benefits do not manifest themselves in the form of more food, better access to health and education" -

Amartyo K.Sen.

In HC sector a sudden paradigm shift has been taking place in last 30 years. This shift has become visible only in last 20 years. A shift from an unorganized to an organized sector. It was earlier seen as a social sector but now there is a move towards corporatization. Apollo pioneered the trend of corporate hospitals in India. Later HC divisions of Sun Pharma, Nicholas Piramal, Cipla, Cadila, Ranbaxy, Max India, Wockhardt & Duncan etc followed.

As a result India has now been identified as one of 50 countries for medical tourism where people are travelling across international borders for multi organ transplants like renal, liver, heart, bone marrow etc. which are successfully performed at one tenth of the cost.

In addition Indian Pharmaceutical industry has practically achieved self sufficiency and global recognition as a low cost producer of high quality bulk drugs and formulations.

3. Accreditations

In India NABH (national accreditation board of hospitals and Healthcare) is a constituent body of Quality Council of India (QCI) set up to establish and operate accreditation program for Healthcare organizations.

NABH is an institutional member as well as a member of the Accreditation council of the international society for quality in Healthcare.

Numbers of hospitals have also been certified for Integrated Management System comprising ISO 9001:2008 on QMS, ISO 14001:2004 on EMS and OHSAS 18001:2007 on health & safety.

4. The future of HC in India

"If you think you can run an organization in the next 10 years as you have run it in the past 10 years you are out of your mind" - **CEO, Coca Cola.**

By 2025, an estimated 189 million Indians will be at least 60 years of age – triple the number in 2004, thanks to greater affluence and better hygiene. The growing elderly population will place an enormous burden on India's HC infrastructure.

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Presently the ratio of women to men who have a college degree or higher level of education is 40:60. More women are taking up jobs now further boosting the purchasing power of Indian households-changing composition of HC sector workforce. In addition “Physicians, nurses, medical technicians and other scientific occupations will become growth industries to rival the IT sector within the next decade” - **India Vision 2020 report.**

- More “rolled back Healthcare”, more “community and home based Healthcare” with IT support, will be the order of the day.
- Chronic disease management will be a corner stone of future Healthcare.
- Dementia may eventually strike 85% of the population.

A greater emphasis is, therefore, needed for prevention.

5. Five components of healthy life style for prevention:

- Refrain from chewing tobacco and consumption of alcohol.
- Don't have excess of 6S : Salt, Sugar, Sweets, Stress, Sedentary life and Smoking
- Have balanced and nutritious diet rich in vegetables & fruits and low in fats.
- Practice Yoga, Pranayama (breathing exercises), meditation and regular exercises including morning /evening walk.
- Avoid pre and extra marital relationships.

Remember:

“Knowing is not enough, we must apply and willing is not enough, we must do it” - **Goethe.** Hence as the proverb goes “where there is will, there is way” take a New Year resolution to remain healthy throughout and not be a burden to others.

Wishing you a happy, prosperous and eventful year ahead.

B.Banerjee

Recognition of yeomen services

Over past five decades Mr. B. Banerjee has been relentlessly working towards betterment of teaching and applications in the fields of quality & systems. Recently people have started noticing his silent contribution. On last World Quality Day “Quality Forum” – a registered professional body spreading the message of Quality in the country conferred Lifetime Achievement Award for his yeomen services. The citation reads as follows:

"Quality Forum is privileged to felicitate Prof.Basudev Banerjee, President NCQM for his stellar contribution over last 50 years to the quality profession and quality education in the fields of

- * TQM Tools and Techniques
- * Quality Systems Certifications
- * Statistical Process Control and
- * Business Excellence Criteria

Lifetime achievement award conferred on this world Quality Day-Thursday the 14th Nov 2013"



Mr. B. Banerjee receiving Lifetime Achievement Award

Mr. B. Banerjee's new book - "Statistical Process Control with Applications"

Latest addition to NCQM Library will be the book titled “Statistical Process Control with Applications”. This book is authored by our President Mr. B. Banerjee who recently received lifetime achievement award for his yeomen services in the fields of quality & systems. **This book is recommended as the text book for Paper II (Statistical Process Control).** It will also cover over 50% of Paper I (Total Quality Management) and Paper V (Tools and Techniques for Organisational Excellence) Its forward is written by Dr. N. Ravichandran, CEO Lucas TVS Ltd. For this publication Mr. Banerjee has a tie up with “Minitab - USA”. Under this agreement any body buying this book will have a CD on statistical packages for free usage of one month.

Healthcare Technology: Scenario and Quality

By Dr.(Prof.) A.G.Patil. He is in NCQM's expert panel in the area of Healthcare.

1. Introduction

Science and Technology is undergoing revolutionary changes. The revolution of Electronics Engineering and Computers have changed the quality of even common man's life. Telephone, TV, Radio, Computers, Internet, etc. have reached the farthest corners of the country. Medical Electronics instruments have changed the face of healthcare and delivery system completely. Newer, highly sophisticated, reliable and user-friendly systems are being developed for benefit of mankind. They include: biomedical data acquisition and monitoring systems, automatic diagnosis and analysis systems, miniature implantable stimulators, pacemakers, defibrillators, vision aids, artificial limbs, personnel robots, reading systems, voice operated writing systems, talking machines, imaging systems, voice operated computers, smart cards, GPS, and so on

The blind will see, the deaf will hear, smart houses will monitor occupant's health, and artificial wombs will be created. These are some of the predictions for the future forecast by leading medical academics in the book titled Clinical Futures, published by British Medical Journal. The medical electronics technology is changing so rapidly, that every day something new is discovered or developed for benefit of mankind. Today, we are witnessing an increased use of electronics devices in the medical field. The major factor behind the rapid progress in Healthcare has been the development of micro-electronics, micro-controllers, digital signal processing, electrodes, transducers, data processing techniques, etc. It is predicted that future equipment will be Web enabled and will also be used for tele-medicine.

We know that our body consists of Cells, Tissues, and Organ. It has a physiology and we control it with our brain and this is done by the bioelectricity in our body. As early as 1786, an Italian professor, Luigi Galvani found electricity in frog's leg. This discovery made Doctors, Engineers and Scientists to undertake research on human body. The Human Body is a very complex electrical circuit. It contains electricity generators, controllers, carriers, sensors, motors and so on. Well, you know very well that, the brain is the control center for movement, sleep, hunger, thirst, and virtually every other vital activity necessary to survival. The brain controls all our human emotions - including love, hate, fear, anger, happiness and sadness. It also receives and interprets the countless signals that are sent to it from other parts of our body and from the external environment. The brain only

makes us conscious, emotional, and intelligent. Practically nobody knows, how exactly the brain works. The brain being a very complex, delicate and sensitive organ, we have lot of restrictions to perform experiments on it, to understand its working. Whatever little we know is based on the vast experiences that human being has gained since our existence, normal reflexes, and the dissection of brain of dead body. Apart from walking, playing, dancing, writing, speaking, etc. our body organs do perform several physical acts to carry out necessary functions those are essential for survival. These activities of our body give rise to several physical signals.

2. Present Scenario

Mankind has developed very powerful tools for diagnose and prevent diseases. The electronics applications in medical field will change the way of healthcare services delivered and distributed in the future. The present trend in medical electronics technology worldwide is towards developing highly sophisticated and reliable systems for diagnosis, therapy, analysis and imaging.

You can have a very good recording instrument. But, it's of no use, if you don't have a proper sensor. Bioelectric signals generated by the body are in the form of electrochemical change and you need something to sense them and convert into electric current that can be further processed and recorded. Therefore, electrode is very important component of any recording instrumentation. For measurement of biological activity or a physical parameter like blood pressure, flow, temperature, heart sounds, body movements, muscle strength, etc a transducer is must. The performance of system and accuracy of measurement largely depends on the quality of transducer. Measuring system is blind in the absence of transducer or sensor. During last few decades' tremendous work has been done on development of transducers and sensors. The outcome is simple, reliable, miniature, low cost and accurate devices.

During last three decades, there has been tremendous development in the imaging systems too. Several new imaging principles and techniques have been developed and implemented. They include: CT Scanner, MRI, Ultrasonic scanner, thermograph, Endoscope, Electron Microscope and Nuclear Imaging Systems.

3. Life and Healthcare

What is life? Nobody knows. In our culture, Ved says :

जीव जिवस्य जीवनम (Jiv jivasya jivana), that means one life is life of others. But, I say "Life is open ended system" It has neither starting point nor end. Living organism is "Biological Zero". If you move right side of zero, it becomes part of another universe, on the other hand, if you move left, living organism itself becomes universe of other living organisms. Life is invaluable, therefore its duty of everyone to protect it. Electricity has changed the life of humans in 20th century. All the developments that we see today are mostly due to electricity and most of the sophisticated things that we see today or use are basically applications of electricity. Electricity is important part of our life, but it should be properly used and handled. A small mistake can destroy a life of person. In hospitals, we make use of large number of electrical and electronic instruments. Most of these instruments are attached to the patient for treatment and operated by Doctors and Technicians. If something goes wrong or something is done with over confidence that may destroy the life of patient. Therefore, it is essential to learn about electrical safety in hospital environment. Most of the users of medical electronic equipment around the world are unaware of the electrical safety. The average individual thinks that the electrical shock he experiences is due to high voltage. In fact it's not true.

We always think of hazards of electrical shock in terms of high voltage and don't realize that it is primarily the current that kills. Consequently, persons who work around low voltage equipment are not always as careful as they would be with high voltage equipment. The governing factor is the relationship between the voltage and the contact resistance of the circuit of which his body is a part. If this resistance is low, the voltage may be low and still be sufficient to kill. Little attention was paid at first to the hazards that this proliferation might create. Some sensational reports published around 1970 on microshock hazard, which supposedly killed a large number of patients admitted in intensive care units, suddenly drew attention to this subject. Growing concern about electrical hazards resulted in numerous regulations and standards that attempted to improve electrical safety in hospitals.

Safety may be defined as the condition of being safe from hurt, injury or loss. Electrical safety is defined as the containment or limitations of hazardous electrical shock, explosion, fire or damage to equipment and buildings. Shock may occur to patients, hospital staff, and relatives of patients and visitors to hospital or Healthcare facility. Shock results from improperly wired or maintained electrical equipment or power systems. To get a shock, potential difference must exist. Explosion may results from electrical contact sparks

that ignite a variety of explosive gases, such as either, cyclopropane anesthetic, etc. Fire may result from heat produced by overloaded, incorrectly wired or improperly maintained equipment or power systems. Damage to equipment and building may result from explosion, fire, or electrical overload. Safety, performance, quality, long term customer support and stress on good features are the five golden principles on which a biomedical professional can lay the foundation of his career. If he does so, I am sure he will not have to look back.

4. Healthcare Technology

Healthcare technology is booming. Outgrowths of the human genome project will lead to newer and better diagnostics therapies, including gene therapy; specific engineering studies of nervous and cardiopulmonary systems are revolutionizing neural and tissue engineering; and medical imaging at minute and organ-level scales is providing virtually harmless diagnostic tools. And as these technologies develop, they change our world. They change medicine, law, science, and industry. The industrial revolution changed forever the way the world worked; the recent networked information biotechnological revolution has changed the way the world communicates, and this revolution promises to change the way the world lives. Unpredictable, fortuitous results in the field of biomedical engineering in the past few years, some discovered by researchers, have already become part of our everyday lives and these results, in pharmacology, imaging, and gene therapy, are an optimistic prediction of the future. A life wholly free of devastating diseases may be achievable before the end of the next century, and biomedical professionals will guide us into this next incredible era.

Now, just take an example of BioMEMS. BioMEMS i.e Micro-Electro-Mechanical Systems. It is the integration of mechanical elements, sensors, actuators, and electronics on a common silicon substrate through the utilization of microfabrication technology. They are systems-on-a-chip, augmenting the computational ability of microelectronics with the perception and control capabilities of microsensors and microactuators. Microelectronic integrated circuits (ICs) can be thought of as the "brains" of systems and MEMS augments this decision-making capability with "eyes" and "arms", to allow microsystems to sense and control the environment. MEMS is destined to become a hallmark of 21st century manufacturing technology with numerous and diverse applications having a dramatic impact on everything from aerospace technology to biotechnology. A recent market research study by Semiconductor Equipment and Materials

International (SEMI), the largest trade organization for the semiconductor industry, projected that the MEMS device industry will grow by nearly \$10 billion annually.

5. Healthcare and Quality

One side, our country has an estimated large percent of medical institutional equipment remaining under-utilized or never utilized. On the other side, there is no properly trained manpower available, although thousands of professionals are produced by present system every year. Therefore, Specialized Continuing Engineering Education Programs are needed to be designed and implemented that will provide in depth training and will generate suitable manpower to handle present Healthcare delivery system. This aspect is to be viewed realizing that there are more than 150 medical colleges, nearly 1250 major hospitals, 500 district level hospital besides nearly 100-150 centers of higher medical specialties. But, the response from the medical and Healthcare authorities for improvement of Healthcare delivery system in terms of utilization of sophisticated equipment, quality of services and team work has been not encouraging as far as participation in seminars, symposia, workshops, conferences, training programs are concerned. "Health for all by year 2000" was the goal? "Destination 2020: India - A Developed Nation!" is the aim. Government, Semi-Government, Public, Private and NGO are working hard to improve the Healthcare Delivery System (HCDS) existing in the country. Therefore, the system is undergoing, tremendous change today. The old system has several & severe problems attached to it. It is an inadequate and outdated system, unable to deal with the present situation. In future, the hospital will not remain just hospital but will get established into advanced technology center that will satisfy healthcare related needs of the patients & citizens.

"Prevention is better than Cure" is a new concept in Healthcare today. Therefore henceforth Healthcare itself will be one of the major areas in healthcare technology rather than only treatment & intensive care. As the awareness of healthcare is growing every day responsibility of the personnel associated with Healthcare delivery system is growing. Now, persons with highly advanced knowledge, skill & ability to understand & handle the advanced instrumentation are required. This also creates need for tremendous effort from industry side & technical community to enhance the status of existing instrumentation, techniques & service to cope with demands. When most of the industries are passing through the recession, the healthcare industry in contrast is growing faster & faster and also opening doors for new

technologies & adequately trained manpower. Special infrastructure & Medical facilities will also be needed in coming future to deal with the problems of our senior citizens.

Everyone deserves quality Healthcare and you can make sure you get the best Healthcare when you are ill. Understanding of quality can be assessed by referring followings:

- The Healthcare that fits your needs and preferences.
- The Healthcare that is safe and does not cause harm.
- The Healthcare that is right for your illness.
- The Healthcare that is given without unnecessary delays.
- The Healthcare that includes only the medical tests and procedures that you need and
- The Healthcare that is fair and not affected by such things as your gender, language, color, age or income.

To measure the quality of healthcare delivery system we have number of scientific ways or tools. These tools are mostly used by healthcare professionals to review and improve the quality of care they provide. A quality measure is information from a patient's record or an operational process that is converted into a rate, percentage or time that shows how well providers are taking care of their patients. Quality measurement is a relatively new science and requires a large amount of resources to develop and collect the information.

An unique honour

The President of India presented the National Award under the Ministry of Social Justice and Empowerment as a Role Model to Dr. A.G. Patil in a function held at Vigyan Bhawan, New Delhi, on 3rd December, 2013. The award consists of cash prize of Rs. one lakh and certificate



Dr. A. G. Patil receiving National Award from India's President Mr. Pranab Mukherjee

Tools for Improvements in Hospitals and Healthcare Sectors

By Mr.S.V.Viswanathan. He is a senior faculty of NCQM.



Some of the improvement tools described here if applied in Hospitals and Healthcare Sectors will lead to improvements in quality, turnover, recognition and growth.

A. Lean tools

1. 5S in hospitals

5S in a hospital is understood. However the customer i.e. the patient and they get the benefit to be judged. 5S is Sort, Set in order, Shine, Sustain, Standardize and a typical 5S implementation will ensure better results by 5 to 15%.

Even though 5S look very simple it is its very simplistic nature that people flout to ensure. Let us analyse each of these activities.

1.1 Sort

Each material/ medicine/ items should be tagged and kept in a particular identified location with total clarity on destruction of outdated stocks. I do believe most of the hospitals maintain these. However we do come across in the news time to time how wrong blood was administered, wrong medicine given. At the operating table Doctors do face situation of non availability of the right tools. We have heard beddings of one patient being used by others without the mandatory disinfectant. Worst patients not finding beds are dumped on the floor.

1.2 Set in order

The success of any hospital lies in clear segregation, tagging and retrievability of things. There are compliances to be followed such as retaining the organs removed; blood for transfusion etc. Hence the logistics in a hospital is extremely important how you receive, store and transport. We do hear deaths when wrong medicines are used. Normally in a hospital the staff set things in order every shift wise; account for medicines, equipments and facilities used. A kaizen blitz on a periodic basis say once a month will help the hospital grow in a big-way.

1.3 Shine

All areas are to be neat, sanitised and the patient feels nice as long as he is attended. You always like to visit a dentist who has a clean office. Against these one has to

visit organizations toilet to confirm how good they are in cleanliness. Especially one need to see the toilets of their gynaecological & OPD departments to see how clean they are. Canteen/Kitchen is another area in hospital where you will find insects, worms and cockroaches. If you look at the vessels or utensils used you will find many a time they are not clean. Toxic soap left as residue after cleaning. There could be cases where the facilities without being sanitized directly being used by another patient. AC's are not maintained regularly, they are clogged, pigeons living on them with nests. All these results ICU's becoming breeding grounds for diseases. So when you hear a particular hospital one always land up with Pneumonia it could be related to a simple activity called Shine.

1.4 Standardise

It is important as routine all procedures are standardised and SOP is available for every activity. Facilities are standardised, equipments are standardised. Contracts exist for AMC's of all equipments and maintained. The cost of maintaining spares for different equipments are clearly understood. Timings are maintained and routine procedures time related are also maintained.

Sustaining the benefits against costs incurred as to be routinely analysed.

1.5 Sustain

No amount of mentoring and training the staff will help the organization unless all accrued benefits are sustained. These changes become the rule, the organization change culturally and adopt changes as a routine to success.

2. The typical 8 Wastes in hospitals that will improve the bottom line by 20 to 30%

These Wastes are very easily seen if viewed carefully and are as follows:

2.1 Transportation

One will find departments placed far apart when you need to have them close; example the x-ray unit need to be very near orthopaedic department. Thus the patients as well as medical staff are made to travel which is a waste of time and money. You will also find toilets and facilities totally misplaced or located.

2.2 Inventory

All inventories are wastes. However these are to be judged based on life saving opportunities. Stocking of all items has to be strategically done. In bigger hospitals

one has to weigh central stores against arbitrary storage in each department. Very clearly one can plan for materials against every operation being done and items requisitioned on a time based manner. Thus JIT and Kanban can be used effectively in hospitals too.

2.3 Unnecessary motions – It needs workplace to be ergonomically designed.

2.4 Waiting

All waiting is wastes if not criminal. Examples of this waste: a patient waiting for medical attention after being involved in an accident; a doctor is waiting for a patient to be shaved before the operation; the operation team is waiting for the patient to be wheeled in; patient waiting in OPD department; patients waiting for xray machine/ MRI/ CT-scan machines to be serviced; Both the patient and operation team waiting for the power to come.

2.5 Overproduction – Excess food prepared in canteen may go as waste and over booking may dissatisfy patients..

2.6 Over processing

Unnecessary tests and medicines are a drain to customer and fall in this category.

Patients are made to wait in the name for post operative observation instead of discharge with the sole profit motive. These also fall into waiting category.

2.7 Rejections & reworks

Any wrong operations, wrong medicine and utilizing faulty machines fall into this category.

I will also include ward boys made to do sutures and bandages against doctors or nurses as the case may be. The failure rate in hospital is a typical example of this; however the question will come how to tackle the same and

2.8 Non utilization of talents

Wrong utilization of doctors or staff are typical example of this, with a result this leads to de-motivation, disgruntlement and inefficiency.

Success of every hospital is going to be on the basis it addresses these issues

3 Cycle time reduction

The time it takes to service fully a customer is the cycle time. So far as the customer is concerned the time spent on waiting for registration, waiting for doctor, attending, operation/ correction, post operative actions and discharge will be the cycle time. So many hospitals have started online data entry, telephonic entry so that

patient needs to wait minimum. In fact in many hospitals discharge process takes 3 to 4 hours.

Lean is very much applied in dental hospitals where they have reduced time of servicing by more than 70% over the years. The quality of dentistry has also improved resulting in better teeth for patients. Retaining the old teeth is the norm

4 Costs reductions

With ever rising of costs, many NGO's have thought fit to introduce hospitals that charge less compared to normal hospitals. Against 4 lakhs for a heart operation a rupees sixty thousand heart operation is not alien. Government municipal hospitals are known for quality as well as cost effective.

5 SMED

Its full form is single digit minute exchange of dies. Dentistry is again a good example of this where different tools are used where patients are not made to wait.

6 TPM

Leading hospitals all over the world, in order to be cost effective, implement TPM that ensures the best utilization of facilities, man power and costs.

7 Visual management

Visual management in Hospitals are generally implemented well. All routes, facilities, departments are clearly marked with arrows of different colours.

8 Value stream mapping

Carefully analyzing the operations, identifying the value stream and eliminating the wastes in the flow will go a long way towards increased effectiveness.

B. Six Sigma tools

Six sigma applications include applying the DMAIC (defines measure, analyse, improve and control) technique with a view to reduce failure rates in all categories of operations, medicine and techniques. The results are breakthrough anywhere from 20 to 40% savings and the sustaining of the same ensures organization moving up the quality ladder.

Application of DMADV (define, measure, analysis, redesign, if needed and validate) is done in Genetic engineering, introduction of new medicine and techniques. DOE (design of experiments) is well known for new medicines application.

The seven quality tools are very well applied. Fishbone diagram, Pareto diagram, Histogram, PDCA are well used. Project teams are formed, project identified and it

is not only administrative costs which are saved but also operation costs.

The Commonwealth Health Corporation is credited to be the first healthcare organization to implement the Six sigma strategies in 1998 for lowering their operational costs and improving their billing cycle. The radiology dept improved throughput time by 33% and costs in the department decreased by more than 20%.

Stanford hospital & clinics as well as Red cross hospitals in the Netherlands., Mount carmel Health system were others who applied six sigma initiatives. It was very clearly understood that the delivery of patient care is largely a human process and the causes of variability are often more subtle and difficult to quantify. Usage of statistics and advanced statistical tools ensured data collection and improvement in both financial and operational performances.

Six sigma has been used to reduce medical errors, manage risks, improve patient safety and quality care, financial return, Increased employee and physician satisfaction and organization overall performance improvement plan.

C. Lean Six Sigma

Some of the benefits of Lean Six sigma in healthcare sector include break through own functional teams working are itemized below :

1. Create methods to effectively decrease costs per procedures
2. Generate high savings
3. Reduced medication
4. Reduced laboratory errors
5. Improved patient safety.
6. Reliable operations.
7. Greater market share & satisfied shareholders
8. Shorter stay in hospital.
9. Lesser use of materials and devices.
10. Optimize utilization of available capacities
11. Effective utilization of staff
12. Improved cash flow
13. Streamlining processes
14. Enhanced quality of services
15. Reduced costs of operations.
16. Shorter waiting times

Successful completion of 5S Project at BPCL, Mahul, Mumbai

The NCQM Management wish to thank Quality Management (QM) Cell of BPCL & Senior Management Team of Warehouse for entrusting "5 S" job to NCQM & making it a grand success through Proactive Leadership & Active Participation by all concerned. The empowered Teams at Warehouse are shining example of attaining Outstanding result through Teamwork & Dedication. NCQM wishes to congratulate Each & Every team members of Warehouse Zonal Teams & wish them success in all future improvement initiatives.



Empowered Zonal "5 S Teams" of Warehouse at BPCL

Occupational health - causes and remedies

By Dr. S.V. Datar. He is in NCQM's expert panel in the area of Healthcare.

1. What is your occupation

"What is your occupation?" A million dollar question was asked by Bernardino Ramazzini, a physician in the 17th Century to his patients.

Many centuries back condemned criminals and prisoners of war were treated as slaves and were engaged in manual labour. Needless to say, nobody bothered about the ill effects of the dangers they faced while doing the work. Besides, manual work itself was considered unholy and was at the lowest place in social hierarchy.

Ramazzini and other brilliant observers like him awakened the world to the dangers faced by workers in various occupations.

Hippocrates the Father of Modern Medicine was probably the first to recognize toxic properties of lead and described them in his books.

Many health professionals after that described the ill effects in various chemicals on the health of the workers but it was Bernardino Ramazzini who studied the conditions of work in different occupations and wrote the book entitled "De Morbis Artificum Diatriba" (A treatise on Diseases of Tradesmen). He is aptly called the "Father of Occupational Health".

1.1 Examples of occupational diseases

Let us take a look at some examples of the occupational diseases.

- Workers in coal mines have repeated exposure to coal dust, which when inhaled, settles in the innermost portion of lungs and damage them. The workers develop a lung condition called "Coal Workers Pneumoconiosis" which in advanced state incapacitates the workers and eventually cause death. Similar lung conditions are observed in workers exposed to silica and asbestos dust.
- Workers exposed to noise over prolonged period such as in textile mills can develop deafness due to damage to the ear. This is called "Noise Induced Hearing Loss".
- A chemical substance called carbon-di-sulphide can have adverse effects central nervous system and heart and blood vessels.
- Exposure to various chemicals can cause adverse effects on different systems such as respiratory, cardiovascular, nervous and

reproductive systems.

- These chemicals can also cause cancer in human beings the examples being vinyl chloride, asbestos, chromium etc.
- These harmful chemicals enter in the body by various routes such as inhalation (by lungs), ingestion and skin absorption, inhalation being the most important and commonest route.
- Occupations such as farming, Healthcare, waste management, involve a risk of contracting diseases due to exposure to germs.

It must be remembered that not only the employees but the surrounding community can also be affected due to chemical accidents, release of industrial wastes in drinking water etc. The Bhopal gas tragedy of 1984 is a glaring example.

1.2 Type of occupational hazards

The hazards faced in any occupation can be classified into physical, chemical, biological, ergonomic and psychosocial.

Physical hazards include heat and cold stress, noise, vibration, illumination, radiation and high or low atmospheric pressure. Chemical hazards include metals, dusts, noxious gases and vapours, liquids etc.

Ergonomic hazards such as prolonged working in fixed and odd postures, lifting of heavy weight and excessive and incorrect use of electronic gadgets including computers cause backache, joint pains etc.

Mental health also can be adversely affected by various conditions at workplace such low job satisfaction, insecurity, overwork, under work, separation from family, addictions, home sickness, labour unrest etc.

2. Factors affecting health

As we know, disease is caused by various factors such as polluted air and water, poor hygiene, exposure to germs and also due to genetic factors. To make an accurate diagnosis, doctors take a detailed history of the patient and ask many questions. Ramazzini made an invaluable contribution to the medical profession by asking this vital question "What is your occupation?".

In addition to factors mentioned above, ill health effects can also be caused by exposure of workers to harmful conditions and substances at their workplace. It is said that there is no man without occupation and there is no occupation without any hazards.

Thus, occupational health is the branch of medicine that deals with the recognition, identification, diagnosis, treatment and control of diseases arising out of occupations.

3. Preventive measures

The occupational diseases by the very nature of causation are 100 % preventable as they take a very long time to develop and the workplace hazards are identifiable. Effective control measures and early detection is the key to the control of these diseases.

A person cannot be said to have suffered from an occupational disease due to a chemical just because he/she is working in the factory using that chemical. It requires prolonged history of exposure, classical signs and symptoms and specialized diagnostic tests to confirm the diagnosis. One has to take in account exposure outside the place of work and exclude other natural causes.

3.1 How do we deal with the problem

It requires change in the attitude and mindset of all stakeholders such as management, unions, employees, customers, government and community at large.

The control can be achieved by engineering, medical and legislative measures.

Engineering methods include design of safe building and industrial processes, elimination or substitution of the harmful chemical in use if possible, isolation and enclosure of the harmful process, general ventilation, good housekeeping, training etc. If the hazard cannot be totally eliminated or reduced, then workers are protected with second line of defence what is called personal protective equipment e.g., helmets, safety shoes, respiratory masks, ear muffs etc.

Medical measures include examination of the worker before employment and also before transfer to working in hazardous process to assess the fitness and suitability. The periodic checkup every 6 or 12 months also is invaluable in assessing the fitness and detection of early occupational disease.

3.2 What is to be done and we can do

There are various legislations in our country such as Factory Act, Miners Act, The Dock workers act, ESIS Act, BOCW Act, Environmental Protection Act which contain many provisions for health, safety and welfare of workers as well as community at large.

An employee and the surrounding community have every right to know the hazards faced at workplace and take precautions.

However, just making a law does not solve the problem. As said earlier, awareness and change in attitude and harmonious and coordinated efforts by all concerned can certainly achieve 100 percent protection of all people in all occupations.

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How To Choose A Healthcare Provider

Mrs. Shubhanjali Gadgil. She is a Healthcare Activist and is an associate faculty of NCQM.



1. The problem

A big Problem, a huge responsibility for all of us – whether we are patients or relatives in charge.

This problem could turn into a crisis if we are not aware and make the choice. The situation of availing healthcare services arises not only in case of a sickness for cure but even when care with respect to disease prevention through routine checks is required for wellness, from infancy to old age. From vaccinations or immunizations to diagnostic services along with treatment of acute or chronic illness, we wonder where we could get the best.

2. The changing scenerio

With numerous diseases, and advances in technology, there is increase in the latest techniques and consequently more and more options of healthcare providers. Gone are the days when the family physician who treated most cases after clinical examination, was the only guide for the source and reference.

In the last century certain diseases like Chickengunia, HIV infection, Hepatitis B infection or Giyabari syndrome which were not commonly heard have come in. But with advances in the Medical field and use of technology for therapeutic and diagnostic services, it is a difficult option. The old adage - 'Prevention is better than cure', and the fact that ' Early detection leads to 100% recovery' or "The golden hour" being crucial for starting treatment , saving life, all these are well known to all of us. But the concern and question is -Where to go, Whom to consult?

3. What does a patient want and need

Every patient needs a technically competent doctor who provides effective and affordable care and cure in a safe environment The other concerns are:

- Is the hospital well equipped to handle emergencies 24/7?
- Are the staff qualified and trained ?
- Are the Investigations reports accurate for correct diagnosis?

- Are adequate measures taken for Infection control, or will I acquire any Infection during Hospitalization?and last but not the least
- Am I in safe hands or have I got caught in a racket?

These are some of the doubts which remain unanswered because the patients are suffering and in a state of anxiety.

The visible Quality is only the Housekeeping, facilities, the behaviour of staff and exterior of the Hospital. But Provision of Quality care depends on a lot of factors which the patients cannot ask or see to clear their doubts and fulfil their requirements. The only way is to ask friends or neighbours or relatives. With Globalisation, these sources get restricted. In new places with hardly any known people, Quality Healthcare providers are not known and can we depend on Internet information in the form of ratings or reviews? Patients should be able to avail services without fear and hesitation.

4. Role of third party evaluation

All the issues are addressed in the Standards for Accreditation which is a process of Third Party Evaluation of the Quality of services provided by an Organization and conforming them against a set of Standards. The Certificate gives Quality Assurance.

Now the word – ACCREDITATION is sinking in the minds of Doctors – the Healthcare Providers and the Patients. Till the early 21st century, the word was not known to our population. The Quality movement in Healthcare in our country began with ISO 9001 Certification and then led to NABH – National Board for Accreditation of Healthcare and Hospitals in 2005. ASNH – Accreditation Standards for Nursing Homes, a joint venture of AMC (Association of Medical Consultants) and FEQH (Forum for Enhancement Of Quality in Healthcare) came into being in 2009. NABL – National Accreditation Board for Laboratories is a Certification for Pathology Labs.

5. How accreditation helps

Accreditation ensures a Quality System whereby the availability of Qualified Doctors, trained Paramedical staff, Equipment maintenance, Risk mitigation measures, Emergency services, strict Infection Control Practices, and transparency in the Pricing of services are taken care of. All these elements result in Customer

confidence and Patient satisfaction being “Rights of Patients” which every citizen should be well aware.

- Every Patient is entitled to ethical and fair treatment with information regarding his or her health, diagnosis and treatment from time to time.
- Patients have a Right to receiving a documented summary of the treatment received and access to records pertaining to treatment.
- Patients are entitled to take second opinion whenever they desire and have a right to maintaining confidentiality regarding their ailment.
- Patients have a right to participate in decisions taken about the treatment undertaken and medication used from the range of options available.

6. Conclusion

Our conscious decisions are based on reliability. Hence it is advisable to go to an accredited healthcare centre or Hospital. After all trust and transparency between patients and healthcare service providers are essential elements of a healing relationship between them.

NCQM's 8th BEST EDUCATIONAL QUALITY ENHANCEMENT TEAM (BEQET) PRESIDENT AWARD-2013

With a view to enhance NCQM's involvement and encourage Quality Improvement Teams in Educational Institutions in the country, NCQM has instituted these Best Education Quality Enhancement Team (BEQET) Awards.

The improvement areas covered so far are academics, administration, infrastructure and house keeping. All of them have been following structured quality improvement methodologies, using the powerful team approach coupled with applications of statistical techniques.

So far more than 58 teams of colleges have participated in the competition with their projects.

8th competition of BEQET Award will be held on February 1, 2014 at 1.30 pm

Venue : NCQM Learning Centre, Vikhroli (W), Mumbai - 400 079.

NCQM NEWS

WELCOME ABOARD - NEW MEMBERS

Converted from Patron to Patron Life category :

PL0003 American Spring & Pressing Works Pvt. Ltd.,
Mr. Jatin S. Patel Mumbai

Converted from Senior to Senior Life category

SL0031 Mr. Dhananjay J. Joshi Thane

Individual Member Category

MI0536 Mr. Nandkishor R. Deore Navi Mumbai

MI0537 Mr. Prashant S. Lohar Nashik

MI0538 Mr. Mohd. Anas Siddiqui Navi Mumbai

An international recognition

Our Trustee Dr. H. M. Mehta has been selected to be an Honorary Member of ASM International (India Chapter) in 2013.

Citation reads as follows:

“For distinguished service to the materials science and engineering professions, and for leadership in establishing the ASM presence, vision, professional excellence, and entrepreneurship in India.”

Honorary Membership in the Society was established in 1919 to recognize distinguished service to the materials profession, to ASM International, and to the progress of mankind. Award ceremony took in place Montreal, Canada



Dr. H. M. Mehta receiving ASM Honorary Membership in 2013

Food safety for goodness sake - Safe food handling in canteens

Compiled by Mr. V. Hariharan Iyer. He is a senior faculty member at NCQM.



1. Keep the food safe to keep the customer safe

Personal health and hygiene is a major part of safe food handling to prevent customers who buy food from getting sick. Everybody who works in the canteen must be aware and understand

their health and hygiene responsibilities before they start.

2. Health and Hygiene requirements

2.1 Protective clothing (aprons, hair and shoes)

- Clean clothing is to be worn by everyone. Aprons should also be provided. Aprons are worn to protect food from bacteria you may have on your clothes. They should be washed on a daily basis.
- Aprons should not be worn outside the food handling area. When changing work duties, taking breaks and when going to the toilet make sure that you remove the apron.
- Hair must not be able to contaminate food. Hair should be tied back where possible or wear a hat or hair net (when available).
- Enclosed non-slip shoes (no toes exposed) should be worn at all times in the canteen, to meet occupational Health and Safety requirements.

2.2 Jewellery and nails

- Keep jewellery to a minimum (wedding band OK) as it harbours dirt and bacteria.
- Keep fingernails short and clean with no nail polish or false nails.

2.3 Hand washing

- Wash hands thoroughly in separate basin provided with warm water and soap and dry using paper towels - never in the food preparation sinks.
- Wash hands before starting work, after using the toilet, after eating, after blowing your nose, after combing or touching hair, after smoking, between handling raw and cooked foods, after touching waste food or rubbish and after handling money.
- Keep hands away from your mouth when preparing food as saliva droplets can contaminate food.
- Cover your mouth if you sneeze or cough, then wash your hands thoroughly.
- Avoid tasting or eating food while you are preparing or handling it.

- Avoid handling food with your hands - use either disposable gloves or tongs and utensils provided.

2.4 Personal belongings

- Keep handbags and personal belongings away from food preparation benches. Store in the cupboard has directed.
- Do not sit on the bench tops.
- Do not smoke in the canteen or on the school grounds.

2.5 Feeling unwell

- If you are suffering from a transmittable condition or symptoms of food borne disease (such as diarrhoea, vomiting, fever or sore throat with a fever) don't engage in food handling.
- If you have sores on your hands, arms or face cover them with coloured waterproof dressings and use disposable gloves.

Food handlers must tell the Canteen Manager if they have a condition that could contaminate food and the Canteen Manager must ensure that all practicable measures are taken to prevent food contamination.

2.6 Gloves

- The Standards do not require gloves to be used but require food to be protected from contamination. Gloves will keep your hands clean, but don't forget that gloves get dirty too and because your fingers don't get sticky, it is easy to forget to change the gloves. Gloves should be changed just as often as you would wash your hands.
- Remember to wash your hands before putting on gloves, otherwise you will just put the bacteria from your hands onto the outside of the glove.
- Gloves are great for messy jobs, and for covering band aids, long nails and jewellery.
- If you choose to use gloves, USE THEM PROPERLY!

2.7 First aid

First aid kits should be available in all canteens and should be checked regularly by the Canteen Manager to ensure they have adequate stock.

3. Preventing food poisoning in canteens

3.1 What Is Food Poisoning

Food poisoning comes from eating foods that contain high levels of food poisoning bacteria. The bacteria

themselves may cause illness or the bacteria may have produced poisons (toxins) in the food that cause illness.

3.2 What are the symptoms of food poisoning

The common symptoms associated with food poisoning include diarrhoea, vomiting, nausea and stomach cramps. These usually occur within two to thirty - six hours of consumption of the food, although with some types of food poisoning, illness may not occur for days or even weeks. The last thing eaten is not necessarily the cause of the food poisoning.

The symptoms usually last between one and seven days, although this may be longer. You can pass on the infection to other people at any time during the period that you have the symptoms, and in some cases for some time after you are not careful.

3.3 Why does food poisoning happen

If food isn't cooked thoroughly or handled properly at the canteen, person may get food poisoning.

Food poisoning bacteria are often present naturally in food but with the right conditions they can multiply very quickly! A single bacterium can multiply into more than two million bacteria in just seven hours.

It is VERY IMPORTANT not to give bacteria the conditions under which they can multiply.

Bacterium grows best when the temperature is between 5°C and 60°C. This is called the Temperature Danger Zone. Make sure that food is kept out of the Temperature Danger Zone for as long as possible.

3.4 Are there types of food which bacteria prefer

Yes, the following foods are known as 'potentially hazardous foods':

- Meat and Poultry
- Seafood
- Dairy products
- Eggs
- Small goods e.g. salami, ham and devon
- Cooked rice
- Cooked pasta
- Prepared salads e.g. coleslaw and pasta salad
- Prepared fruit salads

These 'potentially hazardous foods' if contaminated with food poisoning bacteria and then left in the Temperature Danger Zone can cause food poisoning.

4. Prevention of food poisoning

4.1 Workers in the canteen can prevent food poisoning by:

- Preventing food from being contaminated with bacteria by safe food handling practices
- Storing and handling food so that any bacteria cannot grow or multiply

4.2 For food poisoning to occur there must be a chain of events:

- There must be bacteria on the food.
- The bacteria must have the right conditions to grow:
 - o Warmth - between 5°C and 60°C
 - o Moisture
 - o Food
- The bacteria must have time to grow and multiply.

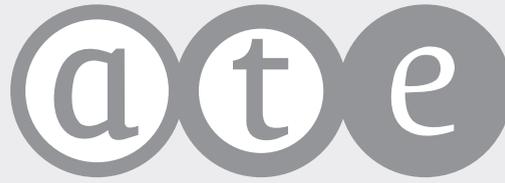
By preventing each of these you can break the food poisoning chain and prevent food poisoning.

4.3 Practical ways canteen workers can break the food poisoning chain:

- Make sure your hands are washed and thoroughly dried before handling food
- Do not touch food and money at the same time
- Thoroughly wash and sanitise all equipment used to prepare raw food including benches and chopping boards
- Store food in containers that are clean, non - toxic, easy to wash, have tight fitting lids or are covered with foil or plastic film
- Store raw food BELOW cooked food in the refrigerator
- Store food correctly. In particular do not keep food in the "temperature danger zone"
- Keep hot food hot (above 60°C) and cold food cold (below 5°C)
- Make sure food is served as soon as possible after preparing
- Thoroughly wash fruit and vegetables
- Always use food before the expiry dates on packaging

Reference : Healthy Kids Association

Website : www.healthy-kids.com.au



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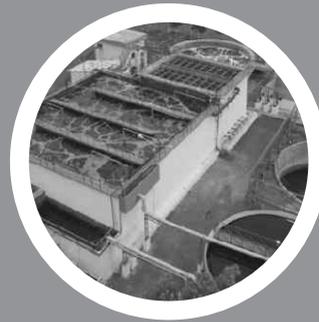
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- Effective Management of Work Place Through Principles of Housekeeping (5S) & Waste Elimination (8W) - Feb 15, 2014
- Internal Audit for Integrated Management System (ISO 9001: 2008 QMS, ISO 14001: 2004 EMS and OHSAS 18001: 2007) Feb 24-25, 2014
- Performance Management Systems - March 3, 2014
- Internal Audit for Energy Management Systems Based on ISO 50001:2008 - March 2014
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- Lean Six Sigma Green Belt - April 2014
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- Internal Audit for Quality and Environment Management System (QEMS) ISO 9001:2008 QMS & ISO 14001:2004 - May 2014
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