

To Conduct the Health Appraisal Survey amongst Hospital Personnel Working in Secondary Level Health Care Institution of Haryana and Study the Effect of Job Profile / Duration on their Health

For compliance with Human Resource Management Standard VII of National Accreditation Board of Hospitals and Health Care Organization

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Abstract— Health is a state subject but being in good health and maintaining it is also an individual responsibility. Being in health department does not ensure good health for life time. All employees undergo medical examination before joining services, but none of them under go yearly health screening in service. Over a period of time due to wear and tear, stress and strain, the body systems give way and the Health Army is no more healthy. Moreover, there is lack of accountability on the part of the employer to safe guard the health of employees from occupational hazards which they are exposed to, each day of services.

Good health of hospital workers is requisite to the health of these patients, however, and is therefore of profound importance. Hence there is need for periodic health appraisal to ensure healthy work force. When employees are aware that the hospital is mindful of their performance and health, they take care of job a responsibility which in turn is related to improved efficiency in hospital services.

Keywords-component; Health appraisal, job profile, Human Resource Management Standard VII

I. INTRODUCTION

A. About the hospital

General Hospital Panchkula was started in 1992 as 50 bedded hospital and expanded to 150 beds in 2002. General Hospital Panchkula is Secondary Level, Multi Specialty District Hospital and is currently in plan of expansion to 300 beds. It is one of the ambitious projects of Govt. of Haryana towards the commitment for achieving development and quality. General Hospital Panchkula Outpatient department (OPD) is visited by 2500-3000 patients each day. The hospital caters to a population of 8-10 lacs approximately. The hospital is situated in prime location and easily connectable from railway station & bus stand. The hospital provides OPD services in morning and evening in almost all specialties for benefit of patients. Recently Haryana Government has selected General Hospital, Panchkula for NABH accreditation process. All aspects of Hospital services are being geared up to provide quality services to the patient.

B. Scope of services

The core hospital services include

- Emergency & MLC
- Labor room
- OPD Services
- Ayush Services
- Diagnostics Services : Radiology and Pathology
- IPD Services: 300 bedded in medical, surgical and gynae wards.

The hospital support services include:

- Nursing Services
- Pharmacy Services
- HDU/SNCU: for intensive care of sick patients.
- Operation Theatre
- Blood bank
- Physiotherapy
- Dietetics
- Laundry
- Special Diagnostics: ECG, EEG, TMT, BMD
- Therapeutics : Laser, Phototherapy, Lithotripsy
- Referral Transport Services
- Birth & Death Registration
- Hospital Administration : Personnel & finance management
- Housekeeping & sanitation including Bio Medical Waste management.

- Mortuary and postmortem services

C. About Man Power Position

The manpower planning has been done keeping in view the workload of the hospital. Presently the man power is a mix of 201 regular & 203 contractual employees under different schemes & categories who cater to all the Clinical, Nonclinical and Support Services in the hospital. This also includes the Accounts and admin staff for personnel management. Reference [I] for the detailed, scheme wise manpower database of the hospital.

D. About NABH Standard VII of Human Resource Management

1) Objective Elements:

a) A pre-employment medical examination is conducted on all the employees.

Interpretation : This shall, however, be in consonance with the law of the land.

Remarks : For example, performing pre-employment HIV testing without consent is illegal.

b) Health problems of the employees are taken care of in accordance with the organization's policy.

Interpretation: This shall be in consonance with the law of the land and good clinical practices.

Remarks: For example, employee health and safety policy.

c) Regular health checks of staff dealing with direct patient care are done at least once a year and the findings/results are documented.

Interpretation: The results should be documented in the personal file.

Remarks: The organisation could define the parameters and it could be different for different categories of personnel. The organisation could also identify competent individuals to perform the same.

The staff member shall not be charged for this health check.

d) Occupational health hazards are adequately addressed.

Interpretation : Appropriate personal protective equipment are provided to the staff concerned and they are educated on how to use them.

Remarks: For example gumboots & rubber gloves to sweepers.

II. SITUATION ANALYSIS

A. Health hazards of hospital personnel

For hospital personnel today, a number of hazards exist. These range from toxic substance exposure to safety hazards presented by patients themselves. Health care workers historically have faced serious health problems, such as exposure to patients with tuberculosis. Tuberculosis surveillance for hospital employees may not be essential but

Rubella, because of recent hospital employee out-breaks and because of special risks to foetus and adults, has been spotlighted recently. The only sure break to infection spread, vaccination, has not always led to complication nor increased absenteeism. Enteric pathogens and venereal diseases are more frequently associated with life-style than with hospital employment but still may be rather commonly seen and troublesome.

Special problems faced by hospitals today still include infection and effects produced by patients themselves. Furthermore, hospitals workers share the hazards of those who work in restaurants, factories, offices and construction sites, such as exposure to ionizing radiation, microwaves, solvents, noise etc. The impact of shift work and stress is also notable.

a) *Usual Work-Related Problems:* Physical and environmental hazards commonly found in hospitals include slippery floors, electrical hazards, noise, poor lighting, and inadequate ventilation. Describing the extent of musculoskeletal injury in nurses, one survey showed that nurses lost 750,000 working days a year as a result of back pain, which is twice the national average. Most workplace exposures do not result in disease, because either the biohazard is not transmitted by the airborne route or because the agent is present in too low of a dose. The more nurses know about potential occupational health and safety hazards, the more successful they will be in reducing risks, avoiding accidents, and minimizing occupational stressor outcomes. Actual experience with occupational injury and disease in hospitals shows that most recognized work-related problems are not exotic. A survey published in 1975 and dealing with California reported that almost half of lost-time work injuries to RN's, representing about 13 percent of all injuries and illness to hospital workers, were from strain or overexertion. At least 86 percent of these injuries were related to patient care; almost 40 percent affected the back. Almost 20 percent of most time work injuries related from mishaps of unsafe, wet, littered floors. Aside from musculoskeletal injuries, one of the most frequent topics of conversation about injuries in hospitals is the role of stress. According to the 1977 National Institute of Occupational Safety and Health (NIOSH) occupational stress conference, stress-related disease, high blood pressure, ulcers and artery disease, high blood pressure, ulcers and nervous disorders. Of the 40 occupations with the highest incidence of stress-related disease, 6 were in the health care field. Clinical laboratory technicians were fourth highest in risk after laborers, secretaries and inspectors. Of the 12 occupations with highest mental health admission rates, five were in health-related fields. These were health technologists, LVN's, clinical laboratory technicians, nurses aides and dental assistants. These findings have received wide-spread attentions from the press, but the definitions of stress-related disease is neither universally accepted nor has a cause and effect relationship been established.

b) *Chemical Hazards:* Chemical hazards can be found throughout a hospital, from the laboratory to the operating room to central supply. Benzene, bone marrow toxic and renal effects, may be found in laboratories, depending upon

analytical methods used. Formaldehyde, used in dialysis units, may cause eye, respiratory and dermatologic problems, and other adverse effects. Operating rooms, a source of infection, are also a site for waste anesthetic gases. Ethylene oxide (ETO), used to sterilize equipment that cannot be autoclaved, was linked with development of cancer in female mice in one report.

c) *Infectious Diseases*: Infection control is an important matter for employees and patients. Hepatitis B (HBV) is the major threat to hospital employees who come into contact with patient blood (the chief culprit) and secretions. The current consensus is that patients with HBV pose more of a danger to employees than vice versa, although scattered employee-to-patient reports have appeared. Hemodialysis, oncology, blood bank and veni puncture personnel are at highest risk. Prudent use of gloves, proper needle use & disposal and passive immunization are useful control measures.

III. AIMS AND OBJECTIVES

A. Aim of the study

The aim of health appraisal, in hospital, is to optimize the quality of work and efficiency in the health system. It is pertinent to note that organizations are growing more and more dependent on formal health appraisals to increase productive people and delivery of health care.

As hospitals increasingly focus on quality processes, health care personnel share the responsibility of patient care and outcomes. They are becoming more involved in management as hospital restructure to increase effectiveness and quality of patient care. Ensuring the quality of medical care is the responsibility of both regulatory bodies and hospitals.

The proper health management of human resources is a critical variable affecting an employee's productivity. All hospital employees should be subjected to health appraisals because of hospitals are accountable to patients and the community for the quality of hospital services.

B. Objectives of the study

- Regular health checkups of staff dealing with direct patient care are done at least once a year to ensure safety of employees.
- Occupational health hazards are identified and addressed by protection through vaccination.
- Risk management by adopting safe and environment friendly clinical practices .
- Setting up an Employee Health Counseling Cell to improve their health status.
- Providing congenial work environment to all officers and officials for improving the output and efficiency.

IV. RESEARCH METHODOLOGY

The design and structure of the health appraisal system is important to staff, management and is of equal importance to the appraiser. The way an organization is structured has a direct bearing on who conducts the appraisal. Since health appraisal survey was conducted for the first time in the hospital, a sample size of 200 employees from various job profiles was selected. To monitor the health of employee, routine documentation was accomplished by completing a health appraisal form.

The appraisal form was filled in detail by health counsellors and employees were offered basic / essential investigations depending on age and sex. Examinations done for employees include careful history taking and thorough physical observation for the most reliable health appraisal. Then each employee was reassessed for present health status by a team of specialist and final grading was given.

A. Who were appraised?

Physicians, nurses, technicians, pharmacists and other paramedics who work interdependently to care for the patients were chosen from different age group, job duration and place of work. The study group consisted of mixed of hospital employees. The appraisee were informed clearly and exactly about what to expect from the appraisal so that they are willing to cooperate during investigations and examinations.

B. Who conducted the appraisal?

Generally combination of functional team or programme approach is used for conducting appraisals. A team approach has been used for conducting appraisals. Four counsellors were chosen and trained for conducting the survey. Inhouse investigations were conducted by Pathology and Radiology department. Comprehensive health appraisal was organized with a team of Physician, Surgeon, Orthopedician, Ophthalmologist and Dentist.

C. What was appraised?

- History of any illness, injury and prevention undertaken
- Routine investigations
- Comprehensive medical examination

D. How appraisal was done?

The appraisal was conducted in a 1:1 interview by the group of Counsellors who were provided with Appraisal Form for conducting the survey. Each appraisee underwent a set of defined investigations and this was followed by comprehensive health review by the team of specialists. The Appraisal Form was completed and final health grading given.

E. When appraisal was done?

Health appraisal was done at the end of the financial year i.e. March when the credentials were renewed. Some of the

employees underwent complete checkup for the first time after joining service.

F. What was the followup action?

Communication regarding improvement in self care was given. Feedback sessions were conducted 1:1 followed by training on hospital safety practices.

V. DATA INTERPRETATION AND ANALYSIS

The present manpower database is a mix of regular and contractual employees for hospital services based on the workload of the organisation. Out of a total of 404 employees, 50.2% are regular and 49.8% are on contract. And of these 57.7% are females [2].

TABLE I. JOB PROFILE AND JOB DURATION

| Category | SMO/ MO | | Nursing staff | | Technical | | Admn staff | | Class-IV / sweeper | | Total | |
|------------------------------|---------|----|---------------|----|-----------|----|------------|---|--------------------|----|-------|-----|
| Sex | M | F | M | F | M | F | M | F | M | F | M | F |
| 1-5 year (upto 30 year) | 0 | 0 | 1 | 6 | 4 | 2 | 2 | 2 | 0 | 0 | 7 | 10 |
| 5-10 year (upto 30-35 year) | 0 | 0 | 0 | 28 | 8 | 8 | 2 | 3 | 2 | 5 | 12 | 44 |
| 10-15 year (upto 35-40 year) | 5 | 20 | 0 | 17 | 13 | 14 | 0 | 0 | 4 | 2 | 22 | 53 |
| >15 year (<40 years) | 2 | 7 | 0 | 15 | 6 | 3 | 7 | 2 | 6 | 4 | 21 | 31 |
| Total | 7 | 27 | 1 | 66 | 31 | 27 | 11 | 7 | 12 | 11 | 62 | 138 |

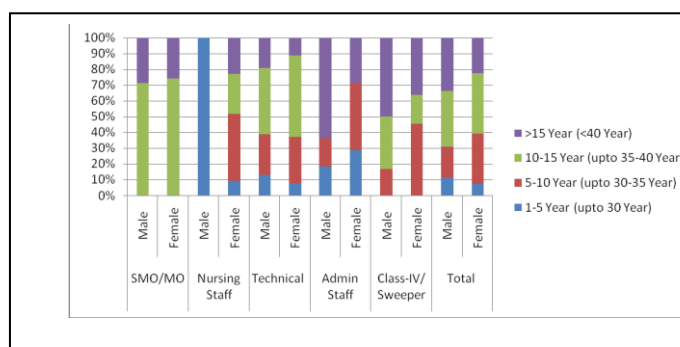


Figure 1. JOB PROFILE AND JOB DURATION

Interpretation: The sample group shows that work force at the hospital under study consist of higher percentage of senior officers and admin staff with more than 10 years job experience while higher percentage of technicians and nursing staff are junior with 1 to 10 year job experience.

TABLE II. HEALTH STATUS AS PER JOB DURATION

| Category | 1 to 5 years | | 5 to 10 years | | 10 to 15 years | | >15 years | | Total | |
|------------------|--------------|---|---------------|----|----------------|----|-----------|----|-------|-----|
| Sex | M | F | M | F | M | F | M | F | M | F |
| Dental Ailments | 6 | 8 | 9 | 34 | 19 | 49 | 20 | 27 | 54 | 118 |
| Eye Ailments | 0 | 0 | 0 | 2 | 2 | 7 | 2 | 5 | 4 | 14 |
| Ortho Ailments | 0 | 2 | 0 | 11 | 3 | 18 | 5 | 11 | 8 | 42 |
| Medical Ailments | 0 | 1 | 2 | 9 | 7 | 16 | 14 | 10 | 23 | 36 |

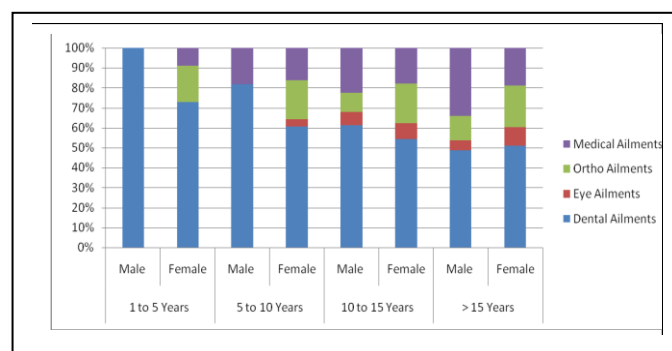


Figure 2. Health status as per job duration

Interpretation:

- The graph clearly indicates prevalence of dental diseases irrespective of job duration/age of employees. This could be related to lack of self care due to work stress and negligence about oral health care due to lack of awareness.
- Increase in vision defects with increases in job duration/age of employee. Role of improper lighting in the wards or eye strain due to computer application cannot be ruled out.
- The prevalence of low backache and cervical spondylosis has been noted more in females than males. With increase in job duration, increase in incidence of spondylosis has been noted. Spine Health issues are related with wrong posture, long working hours, lack of exercise, diet inadequate in calcium. (excess of tea, coffee and soft drinks interfere with absorption of calcium)
- Chronic illness such as HT, DM, CAD, COPD etc were reported with increase in job duration in both sex more so in females as compared to males with 10 year of job duration and more in males above 15 years of job duration. This could be related to work stress, prolonged exposure to chemical fumes in lab, OT, radiation exposure etc.

TABLE III. HEALTH STATUS AS PER JOB PROFILE

| Category | SMO / MO | | Nursing staff | | Technical | | Adm staff | | Class-IV / sweeper | | Total | |
|------------------|----------|----|---------------|----|-----------|----|-----------|---|--------------------|---|-------|-----|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Dental Ailments | 4 | 19 | 1 | 48 | 23 | 19 | 8 | 6 | 10 | 9 | 46 | 101 |
| Eye Ailments | 2 | 3 | 0 | 5 | 1 | 2 | 1 | 2 | 0 | 0 | 4 | 12 |
| Ortho Ailments | 2 | 5 | 0 | 23 | 3 | 10 | 2 | 2 | 1 | 2 | 8 | 42 |
| Medical Ailments | 3 | 6 | 0 | 11 | 4 | 4 | 2 | 2 | 5 | 3 | 14 | 26 |

Figure 3. Health status as per job profile

Interpretation:

- The graph clearly indicates prevalence of dental diseases in all categories of job profile irrespective of sex. Caries & gum diseases were prevalent in both sex suggesting poor oral hygiene/ oral health status. This could be related to lack of awareness about oral hygiene, lack of training/motivation in oral health care & above all lack of time due to work load (occupational hazards due to lack of importance to self care).
- Out of these 40% were doctors and rest were technicians and admin staff. Amongst females admin staff had high prevalence of defects in vision. This shows relation between eye strain and poor lighting in wards or working long hours on computers in admin office.
- Low back problems are more prevalent amongst females in all categories and more amongst male technicians and admin staff which could be related to bad posture and long sitting hours.
- Chronic illness is prevalent in senior staff amongst doctors and technicians. Even class IV and admin staff were under treatment for HT, DM, CAD, COPD but were poorly followed up and on irregular treatment. This could be related to stress associated with work & improper self care.

TABLE IV. JOB DURATION AND SIGNIFICANT LAB REPORT

| Category | 1 to 5 years | | 5 to 10 years | | 10 to 15 years | | >15 years | | Total | |
|-----------------------|--------------|---|---------------|----|----------------|----|-----------|---|-------|----|
| | M | F | M | F | M | F | M | F | M | F |
| Anaemia | 0 | 3 | 0 | 22 | 1 | 13 | 4 | 4 | 5 | 42 |
| Abnormal TLC | 1 | 6 | 5 | 21 | 7 | 17 | 4 | 3 | 17 | 47 |
| High Blood Sugar | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 4 | 4 | 8 |
| Abnormal urine report | 0 | 0 | 0 | 1 | 0 | 8 | 2 | 5 | 2 | 14 |
| Abnormal X-ray report | 0 | 0 | 1 | 2 | 2 | 3 | 2 | 2 | 5 | 7 |

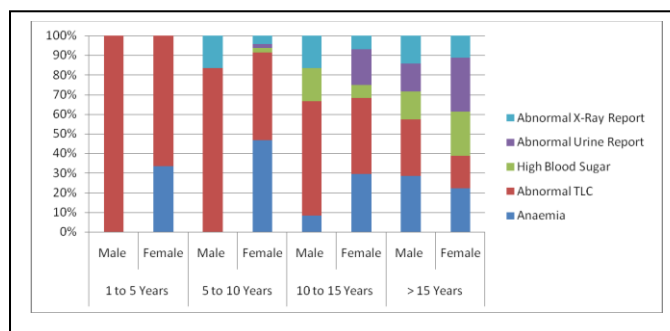


Figure 4. Job duration and significant lab reports

Interpretation:

- The routine investigation highlight the prevalence of anemia more in females and younger age group (child bearing) i.e. short job duration while in males the prevalence is low and more in 5-15 years of job. The reasons could be lack of self care including balanced diet and iron supplementation, stress due to work overload, shift duties etc.
- High TLC could be related to hospital acquired infections more in 1-5 or 5-10 years of services because of lack of hand hygiene practices. This could be attributed to lack of training. Lack of motivation and careless attitude of employees in patient care areas who are most exposed to risk of transmission of infection from the patient. There is urgent due for intervention regarding hand hygiene practices, motivation for use of PPE, vaccination and initiative of standard safety measures etc.
- Diabetes was diagnosed in both male & female of 5 to 15 year duration. This could be attributed to environment factors such as stress, change in life style (lack of exercise, refined diets etc.) besides heredity which is the major cause of prevalence of the NCD's.
- UTI is more prevalent in females of 10 years job duration and above. This could be related to poor hygiene in the work place or prolonged retention because of work overload, lack of self care such as drinking plenty of fluids/water during work hours.
- Chronic lung disease is related with work environment such as contact with infected patients, exposure to chemical gases (formalin), reagents in lab, personal habits such as smoking etc. Therefore positive X-ray findings are prevalent more in employees with job duration in 10 years & above.

TABLE V. JOB PROFILE AND SIGNIFICANT LAB REPORTS

| Cate gory | SMO / MO | | Nursing staff | | Tech- nical | | Adm staff | | Class-IV / sweeper | | Total | |
|-----------------------|----------|---|---------------|----|-------------|---|-----------|---|--------------------|---|-------|----|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Anaemia | 0 | 2 | 0 | 21 | 0 | 9 | 1 | 3 | 4 | 7 | 5 | 42 |
| Abnormal TLC | 1 | 5 | 0 | 26 | 9 | 6 | 0 | 2 | 7 | 8 | 17 | 47 |
| High blood pressure | 0 | 1 | 0 | 3 | 1 | 2 | 0 | 1 | 3 | 1 | 4 | 8 |
| Abnormal urine report | 0 | 1 | 0 | 5 | 0 | 3 | 1 | 1 | 1 | 4 | 2 | 14 |
| Abnormal X-ray report | 0 | 1 | 0 | 5 | 1 | 2 | 1 | 0 | 3 | 1 | 5 | 9 |

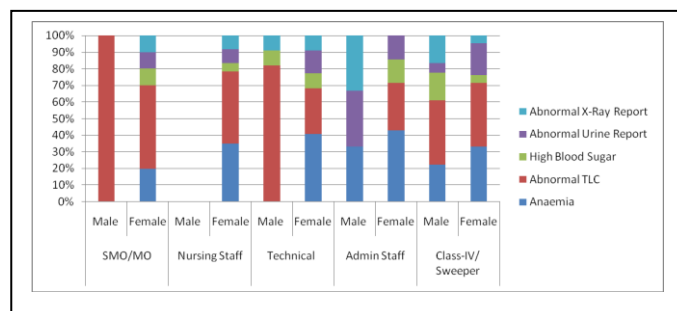


Figure 5. Job profile and significant lab reports

Interpretation:

- The routine investigations high light the prevalence of anemia more in female with job profile of nursing, technical, class-IV & admin staff. This shows that stress due to work overload & self care important as regards diet, deworming & iron supplementation for management of anemia. Moreover chronic cases may need further investigation.
- TLC of males showed abnormal counts more in technicians & class-IV while in females nursing, technical, class-IV had high TLC count. This could be related to hospital acquired infections in nursing, technical, class-IV because of direct contact with patients & lack of hand hygiene practices, which in turn could be attributed to lack of training, lack of motivation and careless attitude of employees in patient care areas who are most exposed to risk of transmission of infection from the patient. There is urgent due for intervention regarding hand hygiene practices, motivation for use of PPE, vaccination and initiation of standard safety measures etc.
- Diabetes was diagnosed in all job profiles of sex i.e. officers nursing, technical, class-IV & admin staff. This could be attributed to environmental factors such as stress, change in life style (lack of exercise, refined diets etc.) besides heredity which is the major cause of prevalence of the NCD's.
- UTI is more prevalent in females of nursing, technical & class-IV. This could be related to poor hygiene in the work place or prolonged retention because of work

overload, lack of self care such as drinking plenty of fluids/water during work hours.

- Chronic lung disease is related with work environment such as contact with infection patients, exposure to chemical gases (formalin), reagents in lab, personal habits such as smoking etc. Therefore positive X-ray findings are prevalent more in job profile of nursing technical & class-IV.

TABLE VI. SPECIAL INVESTIGATION AS PER JOB PROFILE

| Cate gory | SMO / MO | | Nursing staff | | Tech- nical | | Adm staff | | Class-IV / sweeper | | Total | |
|--------------------------|----------|---|---------------|---|-------------|---|-----------|---|--------------------|---|-------|----|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Sex | | | | | | | | | | | | |
| Deranged lipid profile | 1 | 2 | 0 | 5 | 1 | 1 | 1 | 2 | 2 | 1 | 5 | 11 |
| Deranged cardiac profile | 0 | 0 | 0 | 4 | 1 | 1 | 0 | 1 | 1 | 1 | 2 | 7 |
| Deranged renal profile | 0 | 0 | 0 | 3 | 1 | 2 | 0 | 1 | 1 | 1 | 2 | 7 |
| Abnormal US findings | 0 | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 |
| Abnormal BMD report | 0 | 2 | 0 | 4 | 1 | 1 | 1 | 1 | 1 | 0 | 3 | 8 |
| Abnormal MG report | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

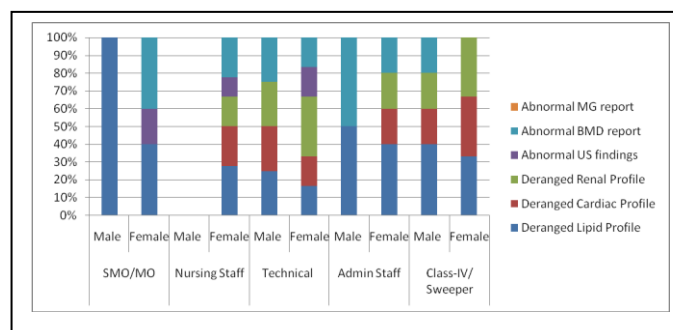


Figure 6. Special investigation as per job profile

Interpretation:

- The special investigation were suggestive of presence of chronic illness such as HT, DM & CAD etc. which are more prevalent in female officers, nursing staff, Technical & admin staff. These are all associated with age and also stress due to work load. Male technicians and class-IV (near retirement) were reported with more chronic illness which could be associated with age & work stress. Since the study group has more female employees and with job duration (higher age group) the distribution of chronic illness is more amongst females.
- The special investigation were suggestive of presence of chronic illness such as HT, DM & CAD etc. which are more prevalent in female officers, nursing staff, Technical & admin staff. These are all associated with age and also stress due to work load. Male technicians and class-IV (near retirement) were reported with more chronic illness which could be associated with age &

work stress. Since the study group has more female employees and with job duration (higher age group) the distribution of chronic illness is more amongst females.

- Ultrasound finding are significant in 12.9% females & none was positive among males which were related to benign conditions such as fibroid uterus, PCOD etc. suggesting prevalence of menstrual disorder related to sedentary life style.
- Overall 14.2% Male & 25.8 % females showed low BMD readings suggesting osteoporosis due to age & lack of self care i.e. exercise, diet, calcium supplementation etc.
- Screening test were done for females above 40 years for early detection of breast cancer, secondaries etc. for prevention and management of cancer associated with environment exposure to carcinogens (chemicals, radiation exposure etc.).

TABLE VII. JOB DURATION AND OCCUPATIONAL HAZARD EXPOSURE STATUS

| Category | 1 to 5 years | | 5 to 10 years | | 10 to 15 years | | >15 years | | Total | |
|------------------------------|--------------|---|---------------|----|----------------|----|-----------|----|-------|----|
| | M | F | M | F | M | F | M | F | M | F |
| Sex | | | | | | | | | | |
| HIV antigen positive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hbs Ag positive | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| Mantoux test positive | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 | 1 | 4 |
| NPI | 4 | 7 | 8 | 15 | 3 | 4 | 0 | 2 | 15 | 28 |
| H/O HAI | 1 | 8 | 2 | 5 | 0 | 3 | 0 | 0 | 3 | 16 |
| Immunization status complete | 2 | 5 | 11 | 24 | 16 | 22 | 7 | 20 | 36 | 71 |

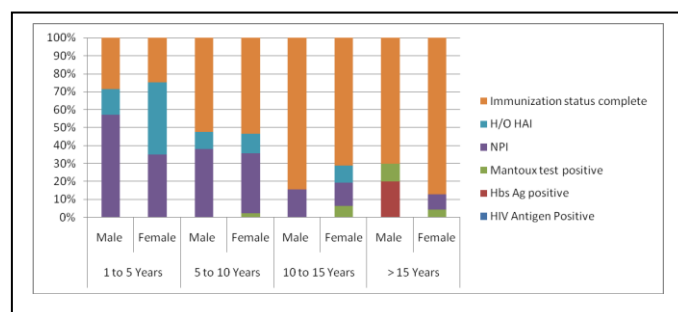


Figure 7. Job duration and occupational hazard exposure status

Interpretation:

- HBsAg cases were unreported & untreated leading to high antigen titre in employees exposed to BMW. There is urgent need for training, motivation mandatory use of PPE & timely reporting of each & every case of NPI which is followed by PEP for the safety of employees.
- This is occupational hazards associated with employees delivering, patient's services in wards, emergency, labour room, operation theatres etc. Precautions such as avoiding haste, recapping of needles, transporting syringes and needles without cover should be taken seriously.
- Lack of hand hygiene practices & safe precautions during patient management are the major cause for hospital acquired infection amongst employees with less job experience. There is urgent need for training, motivation mandatory use of PPE & timely reporting of each & every case of HAI for the management & safety of employees.
- Immunization status was impressive amongst males in 5-15 years job duration while it was high in females with more than 10-15 years job duration. There is urgent need to sensitize the staff and achieve 100% immunization status for all staff involved in direct care within 1 year of job duration.

TABLE VIII. JOB PROFILE AND OCCUPATIONAL HAZARD EXPOSURE STATUS

| Category | SMO / MO | | Nursing staff | | Technical | | Admin staff | | Class-IV / sweeper | | Total | |
|------------------------------|----------|----|---------------|----|-----------|----|-------------|---|--------------------|---|-------|----|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Sex | | | | | | | | | | | | |
| HIV antigen positive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hbs Ag positive | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 0 |
| Mantoux test positive | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 4 |
| NPI | 3 | 2 | 1 | 21 | 7 | 2 | 0 | 0 | 4 | 3 | 15 | 28 |
| H/O HAI | 1 | 3 | 0 | 8 | 1 | 3 | 0 | 0 | 1 | 2 | 3 | 16 |
| Immunization status complete | 7 | 25 | 1 | 34 | 18 | 11 | 0 | 0 | 10 | 1 | 36 | 71 |

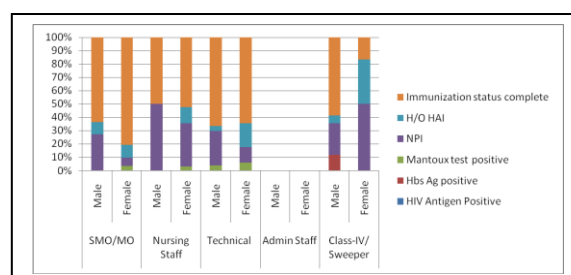


Figure 8. Job profile and occupational hazard exposure status

Interpretation:

- Due to NPI (during BMW segregation) HBsAg antigen was positive and was unreported & untreated leading to high antigen titre. There is urgent need for training, motivation mandatory use of PPE & timely reporting of each & every case of NPI which is followed by PEP for the safety of employees.
- This is a occupational hazards associated with employees delivering patients services in wards, emergency, labor room, operation theatres etc. Precautions such as avoiding haste, recapping of needles, transporting syringes and needles without cover should be taken seriously.
- Lack of hand hygiene practices & safe precautions during patient management are the major cause for hospital acquired infection amongst employees with less job experience. There is urgent need for training, motivation mandatory use of PPE & timely reporting of each & every case of HAI for the management & safety of employees.
- Most of the officers were vaccinated while nursing & technical staff were not completely vaccinated because of awareness. Immunization profile was complete in class IV male probably because of pro active response by hospital administration (Two employees tested positive for HBsAg).
- More than half of nursing and technical staff was immunized which could be related to self awareness and safety rights exercised by employees. Since admin staff is not related to patient care directly, none was immunized.

Interpretation:

- The very good health profile score are related to job duration. The above statistics indicate that as job duration increase the health status score falls thus proving an inverse relation between the two. The two main factors affecting the health score are the stress of work load (shift duties) and exposure to health hazards during service deliver. Regular monitoring of health status through yearly health appraisal will not only ensure early detection & management of health issues of employees but also identification & elimination of risk related occupational health hazards. This will ensure safe work environment for employees and safe delivery of patients services as per NABH standards.

TABLE X. OVERALL HEALTH GRADING AS PER JOB PROFILE

| Category | SMO/MO | | Nursing staff | | Technical | | Admin staff | | Class-IV / sweeper | | Total | |
|-----------|--------|----|---------------|----|-----------|----|-------------|---|--------------------|---|-------|----|
| | M | F | M | F | M | F | M | F | M | F | M | F |
| Very Good | 1 | 7 | 1 | 28 | 10 | 5 | 2 | 2 | 2 | 4 | 16 | 46 |
| Good | 4 | 14 | 0 | 23 | 13 | 14 | 4 | 2 | 6 | 5 | 27 | 58 |
| Average | 2 | 6 | 0 | 15 | 8 | 8 | 5 | 3 | 4 | 2 | 19 | 34 |

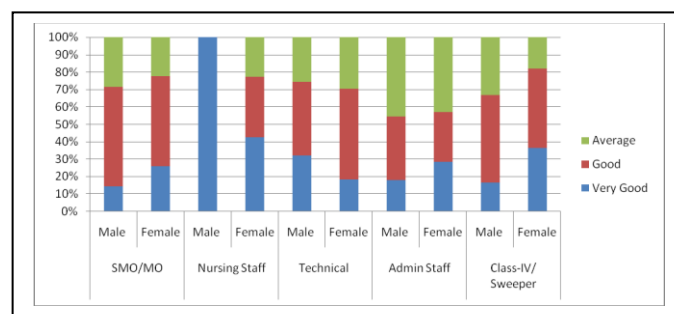


Figure 10. Overall health grading as per job profile

Interpretation:

- Females in all job profiles have higher percentage of very good health profile.
- Males in all profile have higher percentage of good health profile.
- Admin staff job profiles have higher percentage of average health profile. The above statistics indicate that as majority of employees in all categories have good health status & the health status distribution is uniform in all job profiles. The two main factors affecting the health score are the stress of work load (shift duties) and exposure to health hazards during services delivery.
- Regular monitoring of health status through yearly health appraisal will not only ensure early detection & management of health issues of employees but also identification & elimination of risk related occupational health hazards. This will ensure safe work

TABLE IX. OVERALL HEALTH GRADING AS PER JOB DURATION

| Category | 1 to 5 years | | 5 to 10 years | | 10 to 15 years | | >15 years | | Total | |
|-----------|--------------|---|---------------|----|----------------|----|-----------|----|-------|----|
| | M | F | M | F | M | F | M | F | M | F |
| Very Good | 3 | 4 | 5 | 21 | 7 | 13 | 1 | 8 | 16 | 46 |
| Good | 4 | 6 | 6 | 15 | 12 | 26 | 5 | 9 | 27 | 56 |
| Average | 0 | 0 | 1 | 6 | 3 | 24 | 15 | 14 | 19 | 44 |

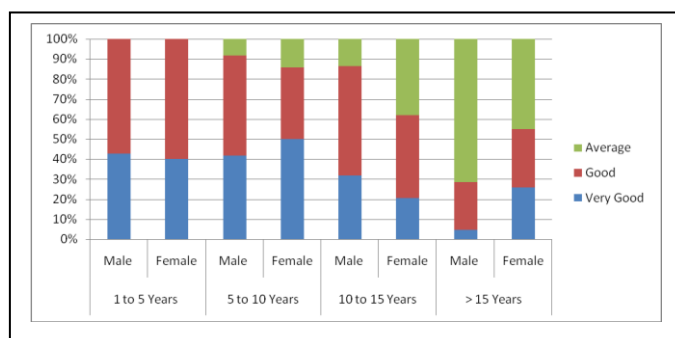


Figure 9. Overall health grading as per job duration

environment for employees and safe delivery of patients services as per NABH standards.

VI. SUMMARY

Quality may simply be defined as fitness for purpose by ensuring healthy work force. According to NABH standard VII of HRM it is mandatory to conduct regular health checkup for hospital personnel to not only prevent and manage the occupational health hazards but also take corrective measures to provide safe work environment.

It should not go without saying that for workers with direct or indirect patients contact, the patients themselves are often the injurious agents. Thus, patients are the source of orthopedic problems, infection and stress related medical illness.

The study conducted not only brought to light the occupational health hazards prevalent in the hospital but expressed a definite relation between job duration and job profile and also other stress factors on overall health status of hospital employees.

To summarize the results of study conducted for health appraisal of hospital employees, it is pertinent to mention that;

- Job profile and job duration are correlated with health status in all categories, with stress being the common factor.
- While occupational hazards such as spondylosis are related with long job duration >10 year, NPI and HAI are associated with young and new employees (1-5 year) due to inexperience and lack of skill.
- Vaccination status of senior and regular employees was more updated than new and contractual employees.
- Significant lab reports suggest that we should be more vigilant and regular with periodic health checkups of hospital staff to ensure safety of all employees.
- Dental health issues were cause of concern irrespective of age and job profile suggesting lack of awareness and self care.
- Eye and spinal health was related more with age and job profile such as over use of computers and prolonged sitting posture etc.
- Prevalence of chronic illness in majority of female employees of all categories was observed in >10 years job duration while male employees showed chronic illness with >15 years job duration.
- Regular screening and follow up of employees should be practiced for healthy work force.

Concern and awareness are not sufficient to protect the health of hospital workers. Precise knowledge of workplace hazards will allow modification and proper surveillance. Acquisition and analysis of Material Safety Data Sheets (MSDS) for substances used in departments such as maintenance, the laboratory, environmental services

and the Standard Operating Procedures Manuals are crucial for risk management. Identifying and eliminating hazards before they are established and encouraging the purchase of equipment that can decrease accidents can have a dramatic impact on hospital health. Similarly, walk around tours of all hospital departments by health and safety personnel can be enormously valuable for feedback & training.

VII. CONCLUSION

Since our hospitals depend greatly on a professional work force for achieving the goals of quality health care, we must pay attention to employees and their health. Because the health of hospital workers has not been a major concern of regulatory or research organizations and has only rather recently received attention from employees themselves, there is urgent need to develop comprehensive health programmes for the employees.

Health assessment of employees is usually done on a prescribed format at the time of entry when they take up their appointment and never again until retirement. Now with the adoption of quality management standards by the government hospitals, the development and implementation of health appraisal system will continue to be important for their continued existence.

Periodic health appraisal programme for employees in health care industry are desirable and effective. The primary reason for having a health appraisal programme is to monitor employees performance, motivate staff and improve hospital morale, thus improving the quality of health care services being delivered by the hospital.

Development of these programmes depends upon enthusiastic support from the highest level of administration in Government setup which include supervisorial accountability for health and safety training for compliance. Analysis of the cost effectiveness of the employees health appraisal programme and the possible impact it can have on medical reimbursement and health insurance cost can assure and augment the support of higher authorities. These details need to be jointly addressed by directors, medical staff, administrators, finance and employee representative.

The health appraisal system should be developed which is sustainable and acceptable to all. The frequency of the health appraisal will depends on the nature of work and exposure to hazards. The policy guidelines should make the health appraisal mandatory with investigations free of cost for all health care professionals atleast yearly so that interventions at right time can be done to protect them from occupational hazards and prevent further complications. Employees who face special hazards should have special protocols for their medical surveillance so that early intervention can occur. Thus, laboratory, central supply, engineering, operating room and dialysis unit personnel would have distinctive evaluations such as liver function test and hepatitis status. Assessment of radiation exposure in operating and emergency rooms where c-

arm is being used and intensive care personnel may be indicated with the help of dosimeter.

Executives over the age of 40 constitute the group most in need of them due to prolonged exposure to occupational health hazards. Undesirable factors to be guarded against in these examinations are unnecessary hospitalization, excessive laboratory & radiologic procedures, absence of rapport between examiner & examinee. Ideally, the results of the examination should be made known to the employee only, not to the employer except with the stated permission of the employee.

Personal health assurance is also important. This can include fitness programmes, employee health assistance programmes and chronic diseases screening and follow-up programme, Nutritional counselling etc. Establishment of department safety committees, participation of health & safety personnel in infection control, risk management & radiation safety etc. and inter hospital cooperation for implementation of standard protocol for control and prevention of occupational hazards will not only safeguard the hospital personnel but also the patients visiting the hospital.

Regular screening and counselling to educate the employees about their health status may improve the health profile. The role of awareness, health education and training can't be ruled out in improving overall health profile and implementing occupational safety guidelines. Trainings for uniform/standard precautions should be repeatedly communicated to reduce risk of occupational hazards. Thus the healthy work force will ensure strategic management of current human resources and improve the quality of patient care and safe delivery of health services.

VIII. LIST OF ABBREVIATIONS USED

| | |
|----------|--|
| NABH | National Accreditation Board of Hospitals and Health Care Organization |
| HRM | Human Resource Management |
| OPD | Outdoor Patient Department |
| IPD | Indoor Patient Department |
| MLC | Medical Legal Case |
| USG | Ultra Sono Graphy |
| CAT scan | Computerized Axial Tomography scan |
| ICTC | Integrated Counselling and Testing Centre |
| HIV | Human Immunoglobulin Virus |
| HDU | High Dependency Unit |
| ECG | Electro Cardio Gram |
| EEG | Electro Encephalo Gram |
| TMT | Tread Mill Test |

| | |
|-------------|--|
| BMD | Bone Mineral Density |
| ENT | Ear Nose Throat |
| MG | Mammography |
| NPI | Needle Prick Injury |
| HAI | Hospital Acquired Infection |
| BMW | Bio Medical Waste |
| HEPA filter | High Efficiency Particulate Air filter |

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AUTHORS' PROFILE



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