

Hospital Administration Control Room: An Effective Concept for Managing Hospital Operation Issues: A Study in Tertiary Care Public Sector Hospital

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ABSTRACT

Introduction: Hospitals are complex organizations comprising of the myriad of core clinical, diagnostic and support services departments. Conventionally, administrative issues at public sector hospitals are managed by medical superintendent with a mainly clinical background. In the hospital under study, there is a hospital administration control room managed by resident administrators attended to various routine and challenging issues in hospital operations. A study was contemplated to explore the modality of organizing control room services, the issues encountered and their management for the benefit of hospital administrators faced with similar challenges related to hospital operations

Methodology: A descriptive and observational study of various issues was conducted from March to June 2017 in the Hospital Administration Control Room at All India Institute of Medical Sciences, New Delhi. At the control room, all matters reported were recorded in a report book and submitted before the medical superintendent. Review of those daily reports for the year 2016 was conducted. Frequency distribution tables of issues were made. Important issues were described in brief.

Results: The infrastructure of a control room had all the communications channels and other wherewithal needed for accurate inputs for implementing quick decisions—management information system, monthly duty roster, a big chart listing the important phone numbers, telephone directory, hotline, news on television. It was manned by a senior resident administrator holding an MD degree in hospital administration and a junior resident administrator pursuing it. For further support, the matters were escalated to medical superintendent, and support from residents and faculty concerning their hospital areas were sought. Training was provided as understudy duty and supervised duty. Centralized repository of important circulars, resident manual, hospital administrators manual were available in the control room.

The duty officer was responsible for ensuring statutory and legal compliances like brain death, coordinating organ transplant, examination of an asexual assault victim, bed management, local purchase (LP) in an emergency. The duty officer initiated a well-established VIP emergency plan or the disaster

management plan by informing all concerned, personnel management and took necessary actions including escalations to ensure smooth delivery of patient care services. Duty officer got arranged ventilators and provided directions regarding ABG machines. In dispute resolution duty officer played a crucial role. During fire issues, the security cum fire control room was informed, and the quick reaction team (QRT) was activated. At workplace violence, local police were also informed.

Conclusion: The study introduces to a time tested the concept of the administrative concept of control in a hospital room and succinctly describes and management of important issues encountered. It adds to domain knowledge where little is available.

Keywords: Control room, Decision making, Hospital administration.

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INTRODUCTION

Hospitals are intricate organizations comprising of the myriad of core clinical, diagnostic and support services departments. Conventionally, administrative issues at Public sector hospitals are managed by medical superintendent with a mainly clinical background. Qualified and trained hospital administrators are critical to successfully managing hospital operations, being the actual orchestrators. In the hospital under study, there is a hospital administration control room which is the hub of administrative activities managed by resident administrators. Acting on behalf of the medical superintendent, they attended to various routine and challenging issues in hospital operations. Considering relevance and importance of control room, a study was contemplated to explore the modality of organizing control room services, the issues encountered and their management for the benefit of hospital administrators faced with similar challenges related to hospital operations. It initially required understanding the concept of a hospital administrator's control room as well.

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METHODOLOGY

A descriptive and observational study was conducted from March to June 2017 in the Hospital Administration Control Room at All India Institute of Medical Sciences, New Delhi) in India after obtaining due approval from the competent authority. In order to understand the functioning of control room direct observations were conducted to identify the issues being managed. As per the established procedure, all matters reported were recorded in a report book and submitted before the medical superintendent, for information and further action. These were categorized into those related to bed availability, public security, patient/staff/visitor/attendants' complaints, support services, engineering services, sanitation and housekeeping, transport services, any incident reports of fire, theft, breakdowns, molestation, and others. Review of those daily reports for the year 2016 was conducted. Frequency distribution tables of issues were made. Important issues were described in brief.

RESULTS

Concept of Control Room

The control room is an extension of the office of medical superintendent meant to address various administrative issues encountered during hospital operations. It ensured 24 × 7 availability of a qualified and trained hospital administrator in a hospital set-up where operations continue to prevail incessantly. A single control room catered to a conglomerate of the main hospital and six specialties/super specialty centers comprising of more than 2000 inpatient beds.

Infrastructure

The control room was strategically located on the ground floor in the Department of Hospital Administration near

the medical superintendent office. Equipped with a computer having internet connectivity, a laptop, Government of India–Restricted Automatic Exchange (RAX), Hotline, multiple multiline phones, a security alert bell, contingency buzzer, a mobile, a television with cable connectivity, closed circuit television (CCTV) system covering the adjoining department areas, etc., it had all the communications channels and other wherewithal needed for accurate inputs for implementing quick decisions (Figs 1 and 2).

Hospital information system (HIS) installed on the computer had a customized dashboard. Management information system consisted of an admissions blocking module, inventory management module, employee health scheme (EHS) module for temporarily adding beneficiaries, etc. for discharging assigned responsibilities. Monthly duty rosters of faculty and resident doctors from all departments, nursing staff, the staff of support facilities are kept handy to contact concerned officials when required. A big chart listing the important telephone numbers of various areas of the hospital and external agencies like nearby hospitals (for referral) was displayed on the office table. A telephone directory containing contact details of the hospital staff was also available. The hotline offered immediate information



Fig. 1: Control room inside view

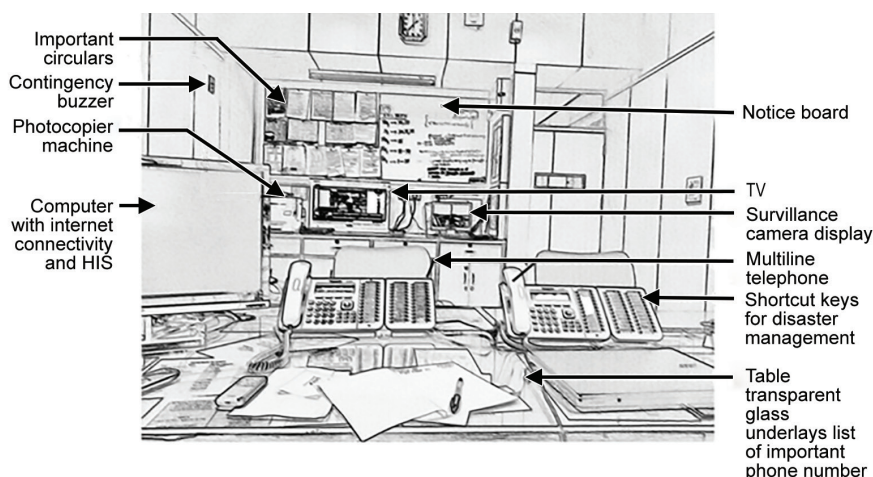


Fig. 2: Control room infrastructure

during emergencies involving very important persons (VIPs) like Ministers. The CCTV system displayed public movement in the department. The news on television set helped in staying abreast and live with incidents in the country crucial for preparedness during contingency and disaster management. A washroom and an anteroom furnished with a settee were attached to the control room for the convenience of administrators on duty.

The control room was manned 24×7 by two resident hospital administrators (having a medical qualification, i.e., MBBS) on duty called "duty officers". One of them was a senior resident (SR) administrator holding an MD degree in hospital administration while the other was a junior resident (JR) who was pursuing the MD course in the Department of Hospital Administration. An experienced senior resident was designated as control room SR in-charge and one Faculty of Hospital Administration as Officer-in-charge have been assigned the responsibility of control room for day to day functioning (including policy matters). For further support, the matters were escalated to the medical superintendent as per the established matrix (Fig. 3). The duty officer could seek support from residents and Faculty concerning their hospital areas as assigned by the medical superintendent and the Head of the Department of Hospital Administration.

Training of Duty Officers

The newly joined duty officers (resident hospital administrators) were made aware of the functioning according to a comprehensive induction programme that introduced them to various hospital areas, common administrative issues and discharge of routine responsibilities including disaster management and VIP protocol in conjunction with "under study" and "supervised control room duties". During the "under study duty", the trainee observed the functioning and learned while during "supervised duty", actual duties were being independently performed under the supervision of a senior colleague. The experienced Duty Officer trained, enabled and empowered them for independent decision making. The duty officers

participated in informal discussions on important issues faced during the control room functioning, under the guidance of the medical superintendent, Head of the Department and other faculty members of Department of Hospital Administration over a cup of tea at noon. The department provided platform for teaching, training and research in the field of hospital administration.

Guiding Policies

Centralized Repository of Important Circulars

All important hospital circulars or office orders or memoranda related to policy matters about hospital functioning are either directly received or are down marked for Control Room by the medical superintendent. These essentially spelled out actions and guided decision making for the duty officers pertaining to the functioning of the hospital. These were kept as a hardbound/paperback compendium of circulars, and new circulars were added in a new file for compilation. A soft copy of scanned circulars was sent on a Google control room group e-mail account specially created for the department of hospital administration. This enabled accessing requisite notification on personal e-mail as well. A catalog of optical character recognition (OCR) enabled searchable PDFs of the important circulars had been created as a centralized repository in Google drive. All the available existing compendium of documents (since the 1980s) had been scanned and uploaded. The folder was shared with all duty officers.

Manuals

A resident manual providing briefs on functioning and processes related to various hospital areas including outpatient department (OPD), wards, casualty, support services, diagnostic services, disaster management, infection control, biomedical waste management, patient welfare services, employees health scheme, etc. and a Hospital Administrator's Manual of Department of Hospital Administration were also available for reference.

Functioning of the Control Room

The duty officer was approached by the hospital employees/officials, patients, visitors, VIPs (by anyone and everyone) either in person or via telephonic interactions. The major duties and responsibilities of hospital administrators in the control room were:

Statutory Requirements

The duty officer was responsible for ensuring statutory and legal compliances including giving permission for

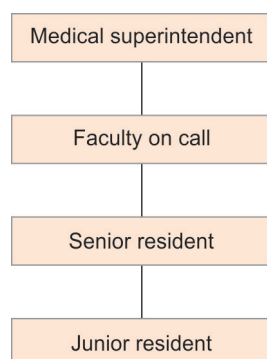


Fig. 3: Escalation matrix

requisite interventional procedures for unknown unconscious patients, declaring brain death as a member of the team, coordinating organ retrieval and transplant, preservation of dead bodies and embalming after checking requisite legal documents like a formal request, no objection certificate from the police (and/or embassy in case of foreign national) and a death certificate. Examination of a sexual assault victim was also facilitated as per existing law and necessary escalations in case of a delay.

Bed Management

The hospital had emergency wards for patients requiring emergency care. In case a department did not transfer its patients from emergency wards to its parent ward within 48 hours, their routine admissions were temporarily blocked by the duty officer until these beds were vacated for casualty patients awaiting admission. The duty officer had rights to allot any hospital bed to seriously ill patients on a life-saving basis (referred to as a peripheral bed). He/she also allotted the EHS beds for institute employees routinely and isolation beds for needful patients. The duty officer authorized an ambulance pool for referring patients to other hospitals in case of non-availability of beds and those with communicable or psychiatric illnesses to earmarked specialty hospitals.

Local Purchase (LP) in Emergency

During the off duty hours, in case of non-available medicines, surgical consumables, etc. required as a life-saving measure, the duty officer arranged these from authorized LP vendor after receiving justification for emergency procurement from treating doctor. However, before placing an order, the assistance of the nursing supervisor was sought to confirm if these were available in any other patient care area.

Preparedness for Emergency Care of VIP and Disaster Management

For both external and internal disasters, duty officer acted as nodal officer and control room was designated as command centre.

For both external disasters causing a sudden surge of patients and internal disasters like fire incident, main pipeline burst, building collapse, etc., the duty officer acted as nodal officer and the control room was designated as the command and control centre for receiving and passing necessary instructions and information to concerned stakeholders. Information for VIP emergency was received from Police and media or other sources for any disaster situation. The duty officer initiated a

well-established VIP emergency plan or the disaster management plan by informing all concerned.

Personnel Management

In case of absenteeism of housekeeping personnel, security, hospital attendant, ECG technician, radiographer, etc. the duty officer ascertained the cause of absenteeism and took necessary action including escalations to concerned officials and authorities and ensured smooth delivery of patient care services.

Arranging Ventilators and Directions Regarding ABG Machines

A location wise list of ventilators and ABG machines was kept handy for providing required services needed on an emergency basis at surge or during down times.

Deferment of Charges

For poor, indigent patients hospital charges were deferred on authorization by duty officers (until next working day) after socio-economic assessment by casualty medical social service officer (MSSO) available during or after office hours as well.

Request for Duplicate Receipts

In case of lost receipts for investigations still not performed or receipts required for claims reimbursement, duty officer authorized duplicate receipt issue from the billing department, after establishing the genuineness of request.

Special Rights for Privileging Hospital Staff

To extend medical benefits to newborns of hospital staff, temporary addition as EHS beneficiaries, valid for 1 month, was done by the duty officer through e-hospital applications and provided a buffer for completion of formalities through routing channel.

Unattended Patients

Allied health service staffs (hospital attendants) were provided for the care of unattended patients on authorized by duty officer.

Hearse Van

Provision of hearse van was not routine services. However, the contract with the vendor for shifting dead bodies from inpatient wards to mortuary was leveraged. Contact details maintained in the control room were provided to the next of kin. For poor patients, the duty officer facilitated the same free of cost with the assistance of the MSSO from the poor patient fund.

Dispute Resolution

Conflict among employees or with patients or their attendants is resolved amicably by the duty officer.

Absconded Patients

Details of absconded patients from the hospital were received by the duty officer who reported them to local police and informed the Medical Superintendent on daily basis.

Administrative Issues Encountered in Control Room

Various issues were categorized as follows (Tables 1 to 3):

Patient/staff/attendant complaints/problems, Incident reports (fire/theft/breakdown/molestation, etc.) and other issues were further analysed (Table 2).

Other problems encountered less frequently, were regarding cross consultation not done/delayed, monkey bite.

Issues detected only on one occasion were delayed examination of sexual assault, lift malfunction, lost patient medical record, delay in radiodiagnosis procedure, ceiling or false ceiling fall off, doctor unavailable, breakdown of ABG machine, missing patient from casualty, delayed discharge, unauthorised stay in waiting hall, procurement

of drugs for transplant during off duty hours, accident at construction site and a natural devastation created by storm winds and torrential rain leading to flooding and uprooting of electric poles and trees.

Issues needing more attention are elaborated as follows:

Fire and Related Incidents

Of the total 37 Incidents of fire alarm incidents reported, false alarms were noted in only four cases while 33 were actual fire incidents. In 19 of such incidents, a short circuit was the causal factor and in two instances, the fire started in the UPS (uninterrupted power supply) units. The security cum fire control room was informed and QRT (that included fire supervisors and guards trained in handling fires) was activated. Patient safety and uninterrupted functioning of vital medical equipment were ensured by involving the electrician and oxygen supply to the non-critical area were closed.

Examination of a Victim of Sexual Assault

The opinion of the duty officer was sought for a case of alleged sexual assault on a male child (oral intercourse) brought by the police. Duty officer suggested consultation by forensic medicine specialist and psychiatrist.

Consent Related a Few Incidents

- *Incident 1:* A patient accompanied by her employer presented with ectopic pregnancy and underwent a lifesaving laparotomy after valid consent. During the surgery, gut exploration was required. The assistance of the duty officer was sought as the attendant was not traceable and intra-operative consent was required. In view of life-saving procedure, consent of treating doctor countersigned by duty officer was documented and the procedure performed.

A case of perforation peritonitis needing exploratory laparotomy on an emergency life-saving basis was managed in the same manner.

Table 1: Observations of duty officers on control room daily reporting parameters

Issues	Observations (n = 365)
Bed Availability	In all the observations it was noted that bed availability for admission of emergency patients was restricted and not all patients requiring admission could be admitted
Incident reports (fire/theft/breakdown/molestation, etc.)	122
Among Patient/staff/attendant complaints/problems	104
Compiled various least frequent issues	71
Any VIP in private ward	Reported on 17 occasions only
Related to the provisioning of hospital services:	
Radiology, Laboratory, Electrocardiograph	10
Engineering services	24
Sanitation services	8
Telecommunication facilities	7
Ambulance/transport services	7
Any unusual occurrence	5
Support services	4

Table 2: The majority of the complaints, incidents and other issues were following

S. No.	Issue	Frequency
1.	Fire/false alarm/short circuit/burning smell	37
2.	Computerization related	27
3.	Misbehavior by staff	27
4.	Violence against staff	17
5.	Theft	15
6.	Admission related	12
7.	Delayed service	11
8.	Misbehavior by patient attendants	9
9.	OPD related	9
10.	Security-related	9
11.	Billing and cash counter related	8

Table 3: Summarized details of complaints, incidents and other issues are as following

Category	Incident	Action taken
Admission-related Issues	Disagreement among doctors regarding the specialty under which the patient should be admitted	The faculty on call in an emergency was designated authority to assign patient under the care of the concerned department.
	Despite prior information by EHS beneficiary doctors expressed an inability to admit due to non-availability of a temporary pacemaker	A temporary pacemaker was arranged with the assistance of a nursing officer
	SR requested to provide a bed for a child with an alleged history of sexual assault.	A peripheral bed was provided by the duty officer
	A discharged patient refused to vacate the bed as he had some court case pending against him.	Security and police informed. The patient left the hospital
Allotment/exchange of beds under the authority of administration	Nonbeneficiary patient admitted on earmarked beds	Patients were verified, and matter escalated to medical superintendent. The instruction was passed to Chief Nursing Officer for all nurses to comply that bed under administration has to be provided on duty officer verification and consent.
	Beneficiary admitted on EHS bed without the approval of duty officer	
	At the time of verification of bed status by the duty officer, found that EHS bed exchanges allowed without permission.	
Issue of bed bugs infestation		Protocol for management of bed bugs initiated. It comprised the use of hot air gun, filling of crevices, treatment of mattresses and furniture with chemicals
Census-related	A patient was allotted isolation bed did not report to ward for 4 days.	Patients discharged (as abscond) and bed vacated
Computerization related issues	After the patient was shifted to ICU he was declared absconded from ward and discharged from the census.	Entries in the admission-discharge module modified with the assistance of Nursing Informatics Staff
Inebriated staff on duty	Two such incidences were observed	The staffs were handed over to police after MLC generation and examination by the casualty medical officer.
Hospital meal issue	Complaint regarding stale dinner given to the patients	Inspection of the kitchen and other areas where the food was distributed was done. The issue with only this patient was found probably due to leftover lunch in his unwashed plate.
Overstay emergency patients	Patients occupying observation beds for more than 7 days.	Concerned Doctor was asked to shift patient in their ward. Reported to the department HOD
Security related issues	CT scan premises not locked	Guard was placed in night and Radiology SR on call informed.
Seepage/flooding	Complaint of water leakage Main OT.	Duty officer reached the spot and assessed the situation. Plumbers called in for source identification and do the needful. Carpenters contacted for protecting false ceiling from collapse. Lift operators instructed to shut down operations. Engineers informed. Water supply shut. Definitive repair started in the morning.
Theft	Cases of theft of oxygen adaptor and regulator, pulse oximeter, water taps, mobile, purse, cash office stationary were reported	Informed higher security official
Unauthorized entry by an outsider	Unauthorized private vendor wooing patients for investigations	Police complaint lodged and matter escalated to Chief Security Officer

- *Incident 2:* A patient under police custody was admitted and refused medical management. Duty officer advised for informed consent and written communication was sent to the concerned jail authorities.
- *Incident 3:* In a case of an eloped couple brought by police, the gynecological examination was refused by the girl (above 18 years) despite insistence by parents and this decision was upheld by Duty Officer.

Workplace Violence

Altercation, verbal and physical assault were reported among staff and patient attendants in eight cases and staff members in four cases. Death of patients and the generation of MLC at casualty were important causes of violence. In an isolated incident, an impersonator posing as a youth leader threatened to implicate duty officer for allotting beds in lieu of informal payments. In all security-related matters QRT was activated, and local police were informed.

Billing and Cash Counter Related Issues

Incident 1: Enquiry into a complaint of harassment by asking for photocopies from outside, during bill settlement had revealed an on-going fraud. A billing executive counterfeited signature to take unutilized deposits. He was traced from system profile account and penal provisions were initiated.

Incident 2: A patient complained that the procedure categorized as "others" in the bill could not be claimed through insurance. The matter was escalated to concerned officials for necessary amendments.

Drugs/Consumables-related Issues

Two incidents of intravenous solutions having fungus occurred. Recall of the entire lot supplied to various wards was done and samples were preserved. The matter was escalated to the medical superintendent.

For facilitating emergency liver transplant at midnight, duty officer arranged expensive medicines (like injections albumin, methylprednisolone, and hepatitis immunoglobulin) through local purchase vendor and a rare AB negative blood.

Lost/Found Child

A case of a lost child was reported. The duty officer activated QRT and instructed to monitor all exit gates. Later it was informed that the child had reached home.

DISCUSSION

The Concept of Control Room

The study provides a vision on how a control room can be planned, staffed and operated in a hospital setting.

It also highlights that administrative issues in health-care services vary in complexity which itself drives the concept of the control room. Managed by doctors qualified, trained and experienced in administration, it seems to be the ideal approach. Empowered with the delegated authority of the medical superintendent, the duty officer is a classic example where responsibility is supported by necessary authority.

Decision Making in Control Room Evidence-based

Hospital communication has an important role in the management of disasters.¹ An established communication system comprising of telephonic calls, short message services (SMS), pre-recorded voice messages, etc. are utilized for this. Circulars and manuals ensure that written communication provides a permanent record of communication for reference.² It contributes to evidence-based management by delving upon on the professional experience and organizational data for decision making. Evidence-based management practice relies on scientific, organizational, experiential and stakeholder evidence.^{3,4} The duty officer utilized the experience gained through under study and supervised duties, consultations with senior duty officers, advice from the faculty of hospital administration and medical superintendent in addition to knowledge gained from formal education from literature, classroom learning and experiential learning from discussions about important control room issues during informal tea clubs.

Decision making in a control room in Brazil was aligned with the well-defined protocol.¹ In the present study, the control room has a crucial role in decision making during preparedness for emergency care of VIP/disaster are guided by a well-established and rehearsed protocol. Organizational relations and coordination structures are crucial for disaster management operations.⁵ Similarly, the present study, coordination with stakeholders viz. clinicians, security (including the quick response team) and support service is done. Mock drills are also conducted by both external and internal agencies. This help evaluates and validate contingency plans for preparedness of the facilities and personnel.⁶

Soft Skills

The amicable resolution of issues involving aggrieved attendants and actual violence reflects that the duty officers are groomed to be soft (yet firm) on sound decision making.

Bed Management

Overcrowding and prolonged waiting time for admissions in an emergency are associated with increased

mortality.⁷ Interventions have been adopted such as leadership involvement, hospital-wide coordinated strategies and are data-driven.⁷ The duty officers ensured efficient and effective utilization of hospital beds through blocking of admissions; it is, and leadership was involved in developing this hospital-wide strategy.

Organizational Effectiveness

Duty officers was pivotal in facilitating hospital operations and supporting staff in their work. This may contribute to higher job satisfaction in addition to organizational effectiveness.⁸

Consent

The featured issue was consent. Good decisions were taken related to intraoperative consent for life-saving procedures. Although a procedure specific informed consent must be taken from an adult patient, their courts have taken exceptions for emergency lifesaving procedures. In *Samira Kohli vs. Dr Prabha Manchanda and Anr* case, although the doctor was held negligent for performing an additional procedure without taking her prior consent, however, the court added, "that unless the unauthorized additional or further procedure is necessary in order to save the life or preserve the health of the patient, and it would be unreasonable (as contrasted from being merely inconvenient) to delay the further proceedings until the patient regains consciousness and takes a decision, a doctor cannot perform such procedure without the consent of the patient".⁹ In *Pravat Kumar Mukherjee vs. Ruby General Hospital and Ors* (2005), the National Commission observed that "emergency treatment was required to be given to the patient who was brought in seriously injured condition; there was no question of waiting for the consent of the patient or a passerby who brought the patient to the hospital and was not necessary to wait for consent to be given for treatment." "In emergency or critical cases let them discharge their duty/ social obligation of rendering service without waiting for fees or consent."¹⁰ Refusal for treatment in jail inmate was accepted by the doctors. Competent patients have the legal right to refuse treatment, even in life-threatening emergency situations. An informed refusal must be obtained; patient's witness's signature taken and two doctors document the reason for non-performance of life-saving surgery or treatment as an express refusal by the patient or the authorized representative and inform the hospital administrator about the same.¹¹ Information sent to jail authorities closed the loop of communication.

Refusal for gynecological examination of an adult patient exemplified sound decisions. Even sexual

assault survivor above 12 years can legally refuse examination or collection of evidence or both.¹²

Spectrum of Issues not Reported

Heads of Departments and services carried out routine administrative responsibilities. As regards hospital administration, with a full-fledged department, the core administrative responsibilities of the entire hospital of various areas were delegated to various officer in-charges. The entire hospital is covered in entirety. With such a matrix, routine and non-emergent matters were managed by the respective heads and were not reported to control room. It is reflected in the low frequency of issues from CSSD, laundry, mortuary, dietetics, store, etc.

Recommendations

The study paves way for future work on standard operating procedures. Follow-up studies on minimizing contentious administrative issues by preventive actions may be conducted for the strategic outlook on day to day issues.

Limitations

Limitations related to documentation review based studies are also a limitation of the study and information lacked related to issues handled directly by concerned officials. Long term preventive actions instituted by Heads of respective areas are also missed.

Strengths

Conduct of study in the department pioneer in hospital administration and time tested concepts are the strength of the study.

CONCLUSION

The study introduces to a time tested concept of administrative control room in a hospital and succinctly describes management of important issues encountered. It adds to domain knowledge where little is available

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