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Research Article

Assessment of Knowledge Towards Clinical Audit on Infection Control Among Dental, Medical Practitioners and Health Care Workers in Tamil Nadu: A Cross Sectional Survey

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Abstract

Infection management in hospitals is critical for the safety and well-being of patients, healthcare staff and visitors. It affects several hospital departments and also involves issues with quality risk management, clinical governance of health and safety. In order to create a managed environment, all institutions that provide health care should have a hospital infection control programme with a stable framework. The study's goal is to evaluate and compare infection control policies and practises among healthcare professionals. The study will be useful in bridging the gap between current infection control practises by serving as a source of discovering elements of existing infection control practices. It also combines the process with the organisation in order to sustain and improve it. It was clear that infection control measures and practises were inadequate due to a variety of factors, including inadequate biomedical waste management practises, inadequate spill management practises, inadequate sodium hypo chloride usage practises, inadequate needle recapping and documentation of needle stick injuries, and inadequate hand washing practises before touching the patient. According to the findings of the study, there was insufficient infection control practise among health care workers, as well as a low compliance rate. As a result, there is a need for on-going and necessary training, surveillance, and infection control programmes.

Keywords: Clinical Audit; Tamil Nadu; Health Care

Introduction

Infection is one of the most crucial problems in health care services worldwide. It is considered one of the most important causes of morbidity and mortality associated with clinical, diagnostic and therapeutic procedures [1]. Human body is vulnerable for transmission, inoculation, and development of agents that can be harmful to others [2]. Therefore, transmission of various existing and emerging new infections can easily occur in institutions through various courses which include direct contact with blood, oral fluids, other secretions, indirect contact with contaminated instruments, operatory instruments, and contact with airborne contaminants present in either droplet splatter. The most common people who are susceptible to contracting harmful diseases are the professionals and the healthcare workers if they fail to follow proper infection control procedures [3].

According to Centres for Diseases Control and Prevention 2005, Infection control is defined as "Measures practiced by health care personnel to reduce the risks of transmission of infectious agents to patients and employees such as proper hand hygiene, scrupulous work practices, use of personal protective equipment (PPE),masks or respirators, gloves, gowns and eye-protection)" Infection control measures include contact, droplet and airborne precautions based on how an infectious agent is transmitted [4]. To control these risks of infections in the healthcare setting, standard precautions are formulated which include eye protection with lateral shields, facemask, and protective clothing [5]. Professionals who are all across the world should have an exorbitant level of clinical skills and knowledge on infection control [1].

Clinical audit is defined as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria, where indicated changes are implemented and further monitoring is used to confirm improvement in healthcare delivery" [6]. So, the purpose of the present study is to conduct clinical audit by assessing and comparing the knowledge and practices on infection control among Medical, Dental practitioners & the Health care workers.

Research question

There is no knowledge and practice about the clinical audit on infection control among Dental practitioners, Medical practitioners and Health care workers.

Aim and Objective

The aim of the study is to know the knowledge and practice about the clinical audit on infection control among Dental practitioners, Medical practitioners and Health care workers.

Materials and Methods

- **Study design:** A crosssectional questionnairebased survey.
- **Study site:** The study was conducted across Dental, Medical and Nursing institutions through the online portal and offline portal.

Selection criteria

- Clinical practitioners and Healthcare workers who are willing to participate in the study
- Clinical practitioners and Healthcare workers who complete the entire questionnaire.

Ethical committee

Before beginning the study, an approval was taken from the Institutional ethical committee of Karpaga Vinayaga Institute of Dental sciences (IEC no.KIDS/IEC/2022/11/006).

Sample size calculation

Sample size calculation was done by using Morgan's table was found to be 291 [7] (ANNEXURE I).

Sampling and sampling method

A nonprobability purposive sampling method was used. All the clinical practitioners were included in the study.

Data collection

The data collection is done by giving the self-administered structured questionnaire through online portal to Dental, Medical and in person and online portal to the Healthcare workers and informed consent were obtained from the participants.

Questionnaire

There were 17 close ended questions assessing the

- Prevention of Blood borne virus exposure
- Decontamination
- Environmental design and cleaning
- Personal protective equipment
- Vaccination.

Validation of questionnaire

Questionnaire was assessed for content validity index relevance with simplicity, clarity, objectivity and ambiguity and CVI score is 0.9 [8].

The questionnaire was pilot tested and checked for the reliability with Cronbach's alpha test value of 0.82 [9]. These participants were not included in the main study.

The questionnaire was designed in a local language (Tamil) and the translation was checked by Tamil teacher using back translation method.

Statistical analysis

Data collected during the survey were entered into excel sheets and were subjected to statistical analysis. Statistical analysis was done by the IBM SPSS Statistics 20. Descriptive data analysis was done using frequency and percentages and inferential data analysis was done using chi square with the p value of <0.005.

Results

A total 0f 320 participated in the survey which consists of the Medical professionals, Dental professionals and Healthcare workers of about 125,135 and 60 participants respectively.

The questionnaire sent to medical, dental and nursing colleges and received the response rate of 80%,70% and 87% respectively.

Table 1 shows that there is overall increased in knowledge regarding policies and guidelines.

Early detection and management of potentially infectious persons at initial points of patient encounter (taking a travel history and occupational history) were 57%.

A log of needle sticks, sharps injuries, and other employee exposure events is maintained according to state or federal requirements were maintained with 65%.

COVID-19 Policy and Procedure followed in their place with the response of 55%.

Hepatitis B vaccination is available at no cost to all employees who are at risk of occupational exposure to blood or other potentially infectious material with the response of 64%.

Covid booster vaccination is available at no cost to all employees who are at risk of exposure to patients with the response rate of 54%.

Do all patients wear a face mask on entering and exiting the building with the response rate of 72% (yes they follow).

S.L.	Questions		f	%
1	Is infection prevention policies and procedures specific for dental settings are available based on evidence based guidelines?	Yes	111	37
		May be	146	49
		Not available	42	14
2	Are you trained in infection prevention (hospital maintenance) in the clinics	Trained via course	111	37
		Working with basic knowledge	149	50
		Not trained	39	13
3	Early detection and management of potentially infectious persons at initial points of patient encounter (taking a travel history and occupational history)	Yes	172	57.3
		May be	71	24
		No	56	19
4	Have all staff received training on the prevention and management of blood borne virus exposure?	Trained via course	127	42
		Working with basic knowledge	127	42
		Not trained	45	16
5	A log of needle sticks, sharps injuries, and other employee exposure events is maintained according to state or federal requirements	Yes its maintained	194	65
		Ma be	93	31
		No its not maintained	12	4
6	Have all clinical and sterilization team members received training on decontamination processes(autoclaves, washers disinfectants) they are expected to perform?	Trained via course	146	49
		Working with basic sterilization	125	42
		Not trained	28	9
7	Does the practice had a covid-19 policy and procedure(social distancing(2metres),hand sanitizing gel and clear shield in front of reception disk) in place?	Yes we followed	166	55
		May be	89	30
		No we did not follow	44	15
8	Are two meters social distancing markers on the floor in all areas during the pandemic?	Yes marked	166	55
		No, not marked	134	45
9	Is hand sanitizing gel readily available in all rooms?	Yes, we provide	164	54.7
		No, we did not provide	136	45.3
10	Hepatitis b vaccination is available at no cost to all employees who are at risk of occupational exposure to blood or other potentially infectious material(dental practitioners)	Yes	192	64
		May be	65	21.7
		No	43	14.3
11	Covid booster vaccination is available at no cost to all employees who are at risk of exposure to patients	Yes	162	54
		May be	56	18.7
		No	82	27.3
12	Does the practice have a ppe policy and procedure while screening and treating the patients that includes covid government guidelines?	Yes, i wear	218	72.7
		No i did not wear	82	27.3
13	Do all patients wear a face mask on entering and exiting the building?	Yes they follow	217	72.3
		No, they did not follow	50	16.7
		We provided the masks	33	11
14	Have all staff been trained at their induction on the process of waste disposal?	Yes, they are trained	172	57.3
		No, they are not trained	128	42.7
15	Are red clinical waste bags used for infectious category b waste such as blood swabs, and blood contaminated gloves	Yes, we are aware	168	56
		Not aware	132	44
16	Are yellow (with a black stripe) bags used for offensive/hygiene waste that is not contaminated with saliva, blood, medicines, chemicals? For example, tissues and non-contaminated gloves	Yes, we are aware	185	61.7
		Not aware	115	38.3
17	Are black or clear bags used for domestic waste including paper towels?	Yes, we are aware	174	58
		Not aware	126	42

Table 1: Assessment of knowledge towards clinical audit on infection control among Medical practitioners, Dental practitioners and Health care workers to each question.

Q	Groups	1	2	3	Chi square	p value
Are you trained in infection prevention (Hospital maintenance) in the clinics	Medical	86	29	9	99.82	0.001**
	Dental	20	72	23		
	Healthcare worker	5	48	7		
	Total	111	149	40		
Early detection and management of potentially infectious persons at initial points of patient encounter (taking a travel history and occupational history)		1	2	3	53.811	0.001**
	Medical	95	28	1		
	Dental	47	27	41		
	Healthcare worker	30	16	14		
	Total	172	71	57		
A log of needle sticks, sharps injuries, and other employee exposure events is maintained according to state or federal requirements		1	2	3	0.606	0.001**
	Medical	78	41	5		
	Dental	75	35	5		
	Healthcare worker	41	17	2		
	Total	194	93	12		
Does the practice had a COVID-19 Policy and Procedure(Social distancing(2metres),Hand sanitizing gel and clear shield in front of reception disk) in place?		1	2	3	38.706	0.001**
	Medical	67	52	5		
	Dental	58	24	33		
	Healthcare worker	41	13	6		
	Total	166	89	44		
Hepatitis B vaccination is available at no cost to all employees who are at risk of occupational exposure to blood or other potentially infectious material(Dental practitioners)		1	2	3	165.22	0.001**
	Medical	112	0	12		
	Dental	80	20	15		
	Healthcare worker	0	45	16		
	Total	192	65	43		
Covid booster vaccination is available at no cost to all employees who are at risk of exposure to patients		1	2	3	115.84	0.001**
	Medical	82	26	16		
	Dental	80	0	35		
	Healthcare worker	0	30	31		
	Total	162	56	82		
Do all patients wear a face mask on entering and exiting the building?		1	2	3	46.089	0.001**
	Medical	98	25	1		
	Dental	88	5	22		
	Healthcare worker	31	20	10		
	Total	217	50	33		

Table 2: Significance among the medical, dental and health care workers.

There is a significant positive responses among the medical, dental and health care professionals in the following questions with a significant p value of <0.005 in questions :A log of needle sticks, sharps injuries, and other employee exposure events is maintained according to state or federal requirements, Does the practice had a COVID-19 Policy and Procedure (Social distancing (2 metres), Hand sanitizing gel and clear shield in front of reception disk) in place, Hepatitis B vaccination is available at no cost to all employees who are at risk of occupational exposure to blood or other potentially infectious material (Dental practitioners), Covid booster vaccination is available at no cost to all employees who are at risk of exposure to patients, Do all patients wear a face mask on entering and exiting the building.

Discussion

The study findings shows that there is an insufficient exposure in comparison between and Dental, Medical and Healthcare workers knowledge, attitude and practice about the clinical audit on infection control. Infection prevention and control (IPC) is a practical, evidence-based approach preventing patients and health workers from being harmed by avoidable infections. Effective IPC requires constant action at all levels of the health system, including policy-makers, facility managers, health workers and those who access health services. Infection prevention and control effects all aspects of health care, including hand hygiene, surgical site infections, injection safety, antimicrobial resistance and how hospitals operate during and outside of emergencies. Programmes to support IPC are particularly important in low- and middle-income countries, where health care delivery and medical hygiene standards may be negatively affected by secondary infections.

The study's findings indicate that efforts are needed to improve medical professionals, dental professionals, and health care workers knowledge of infection control protocols and to implement it in their routine practise. Not only education, but also competency-based training, should be considered. Institutions can organise a variety of mandatory infection control workshops.[7] Furthermore, a curriculum that includes more lectures to provide a thorough understanding of infection control and sterilisation protocols should be considered. These lectures can include interactive sessions, innovative presentations, and quizzes to keep them motivated and help them understand the importance of infection control measures. Strict monitoring of the routine use of infection control guidelines should be adhered to by all institutions for the safety of patients and health care workers. This will help the professionals and health care workers to instill a positive attitude towards infection control and hence improve their quality of their practise and life. More such surveys should be conducted to validate our findings and achieve the goal of infection-free practise [8].

Limitations

Survey was totally based on self-assessment and not totally on the practice which could not thoroughly reflect the knowledge, attitude, and practice on infection control.

Recommendations

Motivational activities for staff For Involvement of staff in overall maintenance of optimum standards of infection control the following can be done: Quiz Contests for Clinicians, Nursing Staff, Paramedical Staff, Tamil Quiz for Sanitary Staff, Test your IQ (Infection Quotient), Elocution, Debate Competitions, Poster Competition 'I-keep-my-hands-clean' Competition, Best House Keeper Awards, Spillage management championship (Team of Ward Nursing Supervisor and Housekeeper), Infection prevention championship (For Critical as well as Non-Critical Areas), Challenger cup championship (Innovative idea which has effectively challenged the Infection Growth).

Conclusion

The findings in this study indicate that efforts are needed to improve the attitude of the towards infection control protocols and to implement it in their routine practice. Not only education but also training based on competence should be taken into consideration. Institutions can arrange for various mandatory infection control workshops. Hence it is very much essential to assess the hospital infection control rate and so that corrective and preventive action is taken to eliminate the cause of infection and make health care delivery.

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