

# Study Of Infection Control Practices in Dental Clinics Within a University Setting

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**Abstract**—Infection prevention and control (IPC) is fundamental to patient and provider safety in dental healthcare settings. University dental clinics pose unique challenges because of high patient turnover, aerosol-generating procedures, and the simultaneous involvement of students, faculty, and auxiliary staff. **Objective:** To evaluate infection control practices among students, faculty, and staff in a university dental clinic, identify factors influencing compliance, and propose targeted interventions to improve adherence. **Methods:** A mixed-methods study was conducted at GITAM Dental College, Visakhapatnam. Quantitative data were collected through structured observations and self-administered questionnaires, while qualitative insights were obtained via semi-structured interviews. Compliance with hand hygiene, personal protective equipment (PPE), instrument sterilization, surface disinfection, and biomedical waste management was assessed. Descriptive and inferential statistics were applied to quantitative data, and thematic analysis was used for qualitative data. **Results:** Among 212 participants, high compliance was observed for PPE usage (96%) and instrument sterilization (92%). However, compliance with hand hygiene before patient contact (68%) and protective eyewear use (55%) was suboptimal. Recent infection control training (<12 months) and professional category were significant predictors of compliance ( $p < 0.05$ ). Qualitative findings highlighted workload pressures, infrastructural limitations, and supervision variability as key barriers. **Conclusion:** Infection control practices were satisfactory overall but demonstrated critical gaps in hand hygiene and protective eyewear usage. Regular refresher training, infrastructural improvements, and continuous audit mechanisms are recommended to strengthen compliance in university dental clinics.

**Index Terms**—Infection control, dental clinics, hand hygiene, personal protective equipment, compliance, university setting

## I. INTRODUCTION

Infection control is a cornerstone of quality assurance and patient safety in dental practice. Dental procedures involve frequent exposure to blood, saliva, and aerosols, creating a substantial risk of transmission of pathogens such as hepatitis B virus, hepatitis C virus, human immunodeficiency virus, and respiratory pathogens. Teaching dental hospitals face additional challenges due to multiple operators, high patient volume, and the integration of clinical education with service delivery.

Despite the availability of comprehensive guidelines issued by the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and national regulatory bodies, gaps in compliance persist. These gaps are often attributed to workload pressures, limited infrastructure, inconsistent supervision, and behavioral factors. Evaluating infection control practices in academic dental settings is therefore essential to identify deficiencies and inform evidence-based interventions.

## II. OBJECTIVES

**Primary Objective**

To assess compliance with standard infection control practices among students, faculty, and staff in a university dental clinic.

### Secondary Objectives

- To evaluate knowledge and attitudes regarding infection control.
- To identify factors and barriers influencing compliance.
- To propose strategies for improving infection control adherence.

### Hypotheses

- H<sub>0</sub>: There is no significant difference in infection control compliance among different categories of dental personnel.
- H<sub>1</sub>: Infection control compliance is significantly associated with recent training and availability of resources.

## III. METHODOLOGY

### 3.1 Study Design and Setting

A mixed-methods descriptive study was conducted in the teaching clinics of GITAM Dental College, Visakhapatnam, India.

### 3.2 Study Population

Participants included faculty members, postgraduate students, undergraduate clinical students, and dental assistants involved in direct patient care.

### 3.3 Data Collection Tools

- Observation Checklist: Based on CDC and WHO infection control guidelines.
- Questionnaire: Assessed demographics, knowledge, attitudes, training history, and perceived barriers.
- Interview Guide: Explored perceptions and institutional challenges related to infection control.

### 3.4 Data Analysis

Quantitative data were analyzed using SPSS (version 26). Descriptive statistics summarized compliance rates, while chi-square tests and logistic regression identified predictors of compliance. Qualitative data were analyzed thematically.

### 3.5 Ethical Considerations

Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was obtained from all participants, and confidentiality was maintained throughout the study.

## IV. RESULTS

A total of 212 participants were included. High compliance was observed for PPE usage (96%) and instrument sterilization (92%). Lower compliance was noted for hand hygiene before patient contact (68%) and protective eyewear use (55%). Recent infection control training significantly improved compliance (OR = 2.3;  $p < 0.01$ ).

Qualitative analysis identified three major themes: knowledge–practice gaps, systemic constraints, and the influence of supervision and institutional culture.

## V. DISCUSSION

The findings indicate satisfactory overall infection control compliance, consistent with previous studies in academic dental settings. However, deficiencies in hand hygiene and protective eyewear usage persist, particularly among undergraduate students. Training recency, workload, and infrastructural adequacy emerged as critical determinants of compliance.

A multi-level approach combining education, audit and feedback, infrastructure enhancement, and leadership engagement is necessary to address these gaps and sustain high standards of infection prevention.

## VI. CONCLUSION AND RECOMMENDATIONS

Infection control practices in the studied university dental clinic were generally satisfactory, with notable strengths in sterilization and PPE use. Targeted interventions focusing on hand hygiene, protective eyewear compliance, regular refresher training, and infrastructure optimization are recommended. Establishing continuous audit systems and fostering a culture of safety are essential for long-term improvement.

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