


# Chapter 9


## Challenges and Opportunities of Digital Dentistry in Remote Environments

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### **ABSTRACT**

*Digital dentistry has transformed dental care, providing advancements in diagnostic accuracy, treatment planning, and patient outcomes. Objectives: This chapter examines the specific challenges and opportunities presented by Digital Dentistry in Remote Environments. Materials and Methods: An electronic literature review was conducted, focusing on articles published from January 2014 to June 2024. Results: The review encompassed 16 studies. Discussion: This chapter underscores the significance of integrating digital technologies into remote dental practices to improve patient care and access to services. Further research is needed to address challenges and optimize opportunities associated with digital dentistry in remote settings.*

DOI: 10.4018/979-8-3693-7165-7.ch009

## **1. INTRODUCTION TO DIGITAL DENTISTRY**

In contrast to conventional dentistry techniques, digital dentistry frequently presents solutions without many of the previous problems, creating lifetime opportunities for both patients and dentists. Nevertheless, this technology still faces challenges in real-world dentistry, such as the feeling of touch while suturing tissue or diagnosing a dark spot on a radiograph. In Teledentistry applications, it is evident that clinical cameras and dental practitioner services are needed. Using digital photography has removed some of the issues connected to standard dental photographic needs and/or the use of film and non-clinical printing. The transitional technologies between standard clinical photography and digital clinical photography include dental generic point-and-shoot cameras and general digital point-and-shoot cameras. The clinician can take mouth photographs for imaginative purposes using these transitional technologies. For point-and-shoot cameras where the photographer does not have control over exposure, the clinical images are modified, and basic color evaluation using simple image processing on a desktop computer can be performed. The use of template slides, which are printed out and connected with glue, steadies the point-and-shoot camera during therapy planning, imaging, and status photographing. Some clinicians and training institutions also exchange digital clinical photographs using their computer systems in second-generation communications. In later-generation transitional technologies, images are easily transmitted to a personnel consultant using analog output or digital input. The professional service of digital remuneration for the specifics of dental photography is offered by digital photography professionals. Some clinicians and imaging centers require an outside supplier for on-site service (Suese, 2020; Joda et al., 2020; Putra et al., 2022).

## **2. LITERATURE REVIEW: DIGITAL DENTISTRY IN REMOTE ENVIRONMENTS**

### **2.1 The Role of Digital Technologies in Dentistry**

New technologies are being increasingly incorporated in dental practices, with the improved diagnostic workflow, strategic planning, and successful execution of true interdisciplinary dentistry, allowing effective and lasting oral rehabilitation. Information and communication technologies have increased significantly over the years. They provide new methods of directing health services delivery. Technologies have impacted dentistry, especially in the creeping paradigm shift towards digital

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