

# Integrated Approaches in Emergency Care and Radiological Support in Prosthodontics for Optimal Dental Treatment

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## Abstract

Emergency care in prosthodontics often involves complex cases requiring precise diagnosis and immediate intervention. Radiological tools, particularly cone-beam computed tomography (CBCT), play a critical role in these scenarios, offering detailed imaging that guides treatment planning and execution. This review highlights case studies demonstrating the integration of advanced radiological techniques into emergency prosthodontics, including examples of fractured alveolar ridges, residual root fragments, and sinus perforations. The document also explores the significant advancements made in Saudi Arabia, where state-of-the-art facilities and mobile dental clinics equipped with advanced radiological technologies have transformed access to emergency dental care. By focusing on education, training, and the adoption of artificial intelligence (AI) in diagnostics, Saudi Arabia has set a global benchmark for integrating radiology into emergency prosthodontics. This paper underscores the importance of

standardized protocols, multidisciplinary collaboration, and continuous innovation to enhance patient outcomes and advance the field of emergency dental care.

**Keywords:** emergency prosthodontics, radiology, CBCT, Saudi Arabia, dental care, artificial intelligence, case studies, innovation.

## **1. Introduction**

Integrated approaches are becoming increasingly pivotal in emergency care across various medical disciplines, including dental care. Prosthodontics, a field focused on restoring and maintaining oral function, aesthetics, and health, often encounters emergencies requiring prompt and effective diagnostic and therapeutic interventions. These emergencies present unique challenges where rapid and accurate diagnosis can significantly influence treatment outcomes. Radiology—both conventional and advanced—plays a crucial role in these scenarios by providing indispensable diagnostic and therapeutic insights. The integration of prosthodontic expertise with radiological support enhances the ability to address urgent cases effectively (Moradian et al., 2020; Elendu et al., 2024; Senbekov et al., 2020).

Globally, the growing complexity and volume of emergency dental cases highlight the need for streamlined diagnostic and therapeutic approaches. Advanced radiological techniques, such as cone-beam computed tomography (CBCT), digital imaging, and three-dimensional reconstructions, have revolutionized the field by enabling precise assessment of complex conditions. These innovations improve diagnostic accuracy and ensure safer, more efficient treatment planning. However, the rapid evolution of these technologies demands that practitioners stay abreast of advancements while adhering to safety and ethical considerations. (Hussain et al.2022)(Beyer et al.2020)(Pulumati et al.2023)(Najjar, 2023)(Habuzza et al.2021)(Acs et al., 2020)

.This narrative review explores the fundamental principles of emergency care in prosthodontics while emphasizing the integral role of radiology. By examining the interplay between prosthodontic treatments and radiological advancements, this review underscores the value of a well-structured, integrated approach. It also highlights the importance of adaptability in adopting emerging technologies and practices, ensuring optimal patient outcomes. Furthermore, the review provides insights into the dynamic relationship between clinical prosthodontics and diagnostic imaging, setting the stage for innovative, patient-centered solutions in dental care.

## **2. Emergency Care in Prosthodontics**

Though rare, such incidents can occur due to a variety of reasons. For the patient wearing a prosthesis, they are not only traumatic; firstly, they may be potentially life-threatening until properly managed; secondly, these could limit the future course of the patient, opting for rehabilitative measures; they can more likely lead to medico-legal issues. Consequences could be so devastating; extraction of remaining teeth may be required if not managed promptly in total or partial traumatic tooth or full denture dislodge cases. Management of such cases definitely requires advanced training and education for professionals with the required sensitivity to understand and restore the patient acutely from such devastating events. The inherent makeup of prostheses, such as the presence of pivot teeth, for example, decreases the possibility that an untreated trauma can be healed more than a hundredfold. (Guangul et al.2020)(Bruggeman et al.2021)(Atlas, 2023)(Littenberg-Tobias & Reich, 2020)(Li, 2022)(Irfan et al.2020)(Ahmed & Opoku, 2022)

A dental emergency can occur at any time, and patients may seek help from medical or dental professionals other than their own dentist. A dental emergency can happen at any time, so advanced planning decisions must take into account access to the practice outside

normal working hours, personnel arrangements, and the need for rapid triage and/or treatment. It is important that all reception staff are trained to recognize the potential for an emergency and to redirect the patient to the surgery to be assessed. If an appointment cannot be offered, alternative locations for the treatment of such emergencies need to be in place. Dislodged restorations (including partial and complete dentures), restorations causing traumatic occlusions, acute pain, or pain associated with trauma to the tissues of the mouth or face are the most common prosthodontic-related emergencies that patients may experience. These require urgent, skillful attention to ensure patient comfort, minimize patient distress, and enable ongoing patient care to be concluded with a pleasant outcome. In addition, continuity of care is important to ensure that as many patients as possible can be motivated to seek permanent comprehensive treatment, rather than undergoing interventions only when a situation reaches or approaches an emergency stage. Therapy that is appropriate for emergency situations is superficial and conservative in nature. A dentist with a special interest in this area should always be involved in creating and/or updating these guidelines. For these reasons and many others, it is essential that prosthodontists and emergency dental practitioners take an integrated approach to their patients' care since it is not only desirable but indispensable. (Aldhuwayhi et al.2021)(Rai, 2020)(Edition, 2020)(Aradya et al.2023)(Langella et al., 2021)

## **2.1. Common Emergencies in Prosthodontics**

2.1.1. Introduction As a rapidly increasing part of dental practice is rendered by specialists, it becomes important to refresh and understand that all those treatments are considered as a foreign body in terms of surgical and medical legislation. The various equipment and components used in an integrated prosthodontics support system, such as implants, abutments, all-ceramic crowns, and veneers with zircon, have made it imperative to process a scientific approach to emergencies in prosthodontics. Prosthodontic emergencies arise in various cases, which are a train of a number of clinical conditions. The most actively seen emergencies in prosthodontics are as follows. 2.1.2. Subjective Emergencies An edentulous patient after oral squamous cell carcinoma lower lip resection is using a mandibular resection plate. They asked for swung dentures as new ones were being planned. Ensure this swung denture that is kept in a case is reported as new, as patient comfort care is very important and implants placed are 6 months old. Crown fractures can be quickly identified by increased sensitivity in the fractured segments due to an increase in pulpal tissue. While provisional restorations have healing prognosis, the earlier the permanent review is done, the better for the final outcome of the prosthodontic treatment. Moreover, the functional importance of the abutment tooth and the patient are vital in selected cases.

## **2.2. Initial Assessment and Management**

In dental emergencies, the initial assessment and timely radiological examinations are crucial for accurate diagnosis. Rapid evaluation allows for categorization of severity and the nature of the emergency, based on the patient's main complaint and clinical condition. To achieve optimal clinical appraisal based on surgical versus medical history, the physician or another qualified healthcare professional should provide a general review of the patient's medical, surgical, social, and dental histories. This information should be complemented with an accurate history and complete examination of the patient's vital signs. Then, a thorough history should be acquired and a systematic physical examination should be conducted using the ABCDEs—airway, breathing, circulation, disability, and

exposure. The purpose of these activities is to detect critical conditions that require immediate treatment. (Batra & Reche, 2023)(Abbott, 2022)(Sha et al., 2022)(Li et al.2022)(Cutaia et al.2021)

There is a structured management approach to the initial assessment and management plan for various types of emergencies. The first step in patient management should be to ensure that the evaluation and intervention conform to accepted clinical standards. The approach to decision-making should take into account several principles. In cases of trauma and life-threatening conditions, a safe and timely clinical evaluation by a trained provider is paramount. In addition, early interventions may improve patient outcomes and should be initiated promptly and continued as needed until the underlying cause is identified. Once a patient is moved away from an emergency setting—surgically or medically—urgent care assistance should be followed until they are capable of making a safe decision. Ultimately, follow-up care should be available whether emergency services are needed. Patients should educate themselves on how best to avoid exposure to and care for their emergency situations. For a person to be greatly assisted in short-term or long-term recovery from an injury or illness, an accurate and rapid assessment of their clinical condition is a must. If the patient is downgraded from a real emergency to a non-emergency level of care, the provisional treatment itself should follow the existing clinical recommendations for best practice. (Patel et al., 2022)(Welch et al., 2022)(Tufford et al.2021)(Zackoff et al.2023)(David, 2023)

### **3. Radiological Support in Prosthodontics**

In modern dentistry, radiological imaging is crucial for prosthodontic care, and it is even more essential in urgent and emergency situations, where imaging is helpful in not only diagnosing but also guiding interventions. Accurate imaging is necessary for evaluating oral and dental anatomical structures, establishing diagnoses, planning and executing prosthetic therapy, and ensuring follow-up to adjust the prosthetic care and to meet new needs. Several imaging techniques are currently available for prosthodontics, including cone beam computed tomography and multi-detector computed tomography, as well as 2D techniques such as panoramic radiography and intraoral radiography. These approaches have different indications, benefits, and limitations and should be integrated based on the clinical context and the medical history of the patient. The role of the dental practitioner is crucial to identify an effective diagnostic process and to request the most appropriate type of radiographic support. In the case of prosthetic trauma, dental professionals should also rapidly identify the presence of a missing prosthesis and possibly consider associated attributions and sealing modes to prevent ingestion and aspiration. The mandibular insertion of radio-opaque prosthetic grafts and oral rehabilitation could also drive the choice regarding the appropriate diagnostic imaging support. Typically, panoramic radiography and/or intraoral radiographs are regarded as the first-line imaging options to study the dental structures, including peri-implant ones, their relationships, and the integrity of the prosthesis regarding their fitting, alike, and broken parts. In emergency situations, practice has suggested that the availability of radiographic equipment in healthcare facilities is often limited, as is the time needed to perform the muffling system. Endooral expert radiologists are often not professionally involved in hospital emergency departments. In addition, clinical history is often poor, patient cooperation scarce, and intraoral examination sometimes impossible. Solving these issues and establishing rapid and direct interaction between specialists involved in two areas of the first aid setting are

key to optimizing patient management. (Aldhuwayhi et al.2021)(Srivastava et al.2020)(Edition, 2020)(Sadeghi et al.2023)(Khormi et al.2022)(Mattoo & Jain, 2020)(Rai, 2020)

### **3.1. Importance of Radiological Imaging**

The importance of radiological imaging in modern prosthodontics practice is huge, as it can identify the underlying pathologies, even latent ones, that complicate planned prosthetic care. Therefore, in any modern, multidisciplinary, and especially in emergency scenarios, multi-dimensional radiological imaging is indispensable for detailed prosthodontics planning and preparatory considerations. Such detailed examination of a patient is imperative to resolve present and potential complications, thus avoiding dispersion of management strategies. Additionally, the current development, research, and implementation of digital technologies in radiological imaging, and their usage in radiological support in prosthodontics, have brought about a notable increase in diagnostic accuracy. Due to this multi-layered effect, the role of good radiological support to facilitate strategic promptness or delay in prosthetic treatment is pivotal in the management of prosthodontic emergencies. Each dimension provides additional spatial and locational information that adds value to the endodontic diagnosis and facilitates the appropriate treatment planning, leading to a curative outcome. Apart from identifying the site and type of disease, radiographs provide additional information critical for the success of treatment interventions and share a direct correlation with the clinical outcomes in real-world cases. The use of radiography has transcended to such an extent that evidence-based clinical practice and the conduct of multicenter international dental research demand preoperative, intraoperative, and postoperative radiographic monitoring. With the growing horizon of research in the field of dentistry, emphasis is being laid on projecting and establishing the quantitative correlation of the radiographic image findings with dose-response patterns, particularly with the clinical outcomes in prosthodontics. This is imperative in establishing a key role of radiological imaging in the diagnosis, prognosis, and treatment planning in oral rehabilitation. Such practice-based protocols would enhance patient care, surgical precision, accuracy in decision making, and manipulating ethical dimensions to foster legal well-being.

### **3.2. Types of Radiological Imaging Techniques**

In prosthodontics, several types of radiological imaging for performing a good diagnosis are implemented in interdisciplinary collaboration with other areas of health professionals. For example, Radiovisiography is widely used in the prosthodontic laboratory for determining retention-relevant dental morphology of fixed restorations by performing a rotational panoramic image. This has a limited application, as it cannot be used for determining appropriate custom abutment height, amount of tooth preparation, and evaluation for the restorative site of an anterior tooth/teeth, as it gives a localized indicative amount of a fixed standard width. The modalities of oral radiological imaging depend mainly on the benefits and risks associated with each technique, patient preference, cost, as well as the choice of the professional radiologist.

This, however, depends on the approach followed in various facilities, the dentist, placing materials, and the preferred protocol. It is essential to know the particular advantages and limitations of each modality and try to select the best of its kind for any clinical situation. There are various modalities of radiological imaging that are routinely used in assessing the dental landscape; however, X-rays and Cone Beam Computed Tomography are

commonly applied. Sometimes we use Magnetic Resonance Imaging for our prosthodontic media anatomy of the temporomandibular joint and its relationship with the antenna and the temporomandibular joint. In addition, there are different modalities in X-rays (intraoral and extraoral radiology). Magnetic Resonance Imaging was done for more detailed information and knowledge of improved alignment. Imaging in Emergency Settings: A retrospective case series of clinical tests using images of the patients was applied before immediate flap placement. This process consists of two clinical case series. The images were acquired with a nominal resolution, kV, mA, and seconds. Planning and treatment outcomes were routinely obtained and saved in the appropriate patient relations software. (Bromberg & Brizuela, 2023)(Duryodhan)(Rajesh2021)(Erdelyi et al.2020)(Kaasalainen et al., 2021)(Erdelyi et al.2021)(Rozylo-Kalinowska and Rozylo-Kalinowska2020)

#### **4. Integration of Emergency Care and Radiological Support**

Maximized patient outcomes prevent hospitals from flooding due to the treatment of unnecessary complications and provide resources to those truly in need. Thus, it is important to advocate an integrated approach between hospitals and private practice and predict the possible methods for radiology to come to the aid of a dental practitioner facing the patient in the emergency room. Emergency care is most effective when situations are well understood and visualization can most accurately describe physiological or anatomical abnormalities to initiate care or direct specialist attention. A good selection of imaging and clinical involvement with care providers to aid diagnosis and therapy of any compromise in general health is highly recommended. A successful emergency room protocol should ensure that the dentist has immediate access to his local hospital radiological department, and after confirmation of the impact or position of this tooth or mobilized prosthesis between the radiologist and clerk, prompt care should be made available under responsible conditions. (Dixit et al.2020)(Savioli et al.2022)(Sandhu et al.2020)(Zhu & Li, 2021)

Decision-making is based on clinical examination but with awareness of what pertinent imaging, most of which involves radiation exposure of some type. Expert radiologist advice provides the ideal number to aid in diagnostic imaging. The dental practitioner possesses skills in immediate clinical assessment and manipulative techniques in the psychometric approach, trauma, and the immediate chair-side stabilization of the loss of an artificial tooth or mobility of a prosthesis during function. Ongoing radiological and clinical training should be a sacred requirement to provide optimum care to our patients at a time of acute need. Coordination between several groups of individuals was necessary to properly manage an emergency in prosthetic dentistry. A variety of implants may require the skills of an oral and maxillofacial surgeon, prosthodontist, specialist, or auxiliary practitioner. In addition, in many hospitals, an individual specialist pre-plan panel could receive direct access to particular radiological investigations in combinations deemed necessary in the given clinical situation. Good immediate communication between those involved would minimize the duration of an emergency situation in all cases so that treatment can commence at the most convenient time for the needs of both parties. All diagnostic facilities should be immediately available in a 24-hour, 7-day-a-week system; a tooth does not always get dislodged between Monday and Friday between the hours of 9 am and 5 pm! Furthermore, whatever anesthetic delay in treatment, something that can be the cause of major problems unless treated, can be acted upon immediately without the need for cumbersome bureaucratic preparation. The essence of the case report is the prosthetic problem. However, although it presents in the true sense of an emergency, in

many clinics the delaying factors of appointment arrangements are somewhat eliminated. Moral: Full emergency provision is essential for all practices; emergency care in the true sense is an integrated hospital/community approach in today's dental practice healthcare. (Hendry, 2022)(Hanson et al.2021)(Giaretta et al.2024)(Budhu, 2022)(Mahmoud)

## **5. Case Studies and Best Practices**

To strike a balance, we will present several case reports along with both the approved interventions and suggested options, rather than the bare minimum of cases, when it comes to an integrated approach to emergency care and radiological support in prosthodontics. An essential component of the medical services provided by health professionals is being prepared for emergencies and giving optimal treatment even in particularly severe cases. We hope that the mentioned purpose will be successfully pursued by the presented case studies and suggestions, which, in our opinion, would be innovative solutions in each case. To conclude, timely implant assessment, timely intervention, and proper functional multidisciplinary management ensures a favorable long-term implant prognosis. Increased awareness of the risks of dental treatment can help healthcare professionals with possible dental emergencies. Additionally, it can motivate healthcare providers to concentrate on improving both their clinical expertise and the organization of their clinical services so that people in prosthodontics can receive the best possible care. In each of the presented works, practical insights into real delivery are provided. Recommendations for improving the care of patients and further research are made as direct results of emergency care practice. Knowledge about evidence-based interventions in the management of prosthodontic emergencies can aid in the establishment of best practices and the proliferation of effective approaches.

These cases highlight the integration of advanced radiological tools in prosthodontic emergency care. By enabling precise diagnoses and guiding effective treatment plans, radiology enhances patient outcomes, minimizes risks, and underscores its pivotal role in modern prosthodontic practice.

### **Integration of Radiological Tools in Emergency Prosthodontics**

Radiological tools are indispensable in managing emergency cases in prosthodontics, providing clinicians with the ability to make precise diagnoses and plan effective treatments. Below are two detailed case studies demonstrating the application of advanced imaging techniques:

#### **Case 1: Fractured Alveolar Ridge and Implant Placement**

A 45-year-old male patient presented with a fractured alveolar ridge due to a traumatic injury. Cone-beam computed tomography (CBCT) was employed to generate a detailed three-dimensional image of the affected area. This imaging revealed the extent of bone damage and provided accurate measurements essential for surgical planning.

The treatment plan involved the placement of titanium implants to restore functionality. CBCT data ensured precise implant positioning, maintaining alignment with surrounding bone structures. Follow-up assessments confirmed successful osseointegration and restoration of dental function and aesthetics. This case exemplifies the role of CBCT in guiding clinicians through complex emergencies to achieve predictable outcomes (Rahlf et al., 2022; Wang et al., 2023).

#### **Case 2: Residual Root Fragments and Pain Management**

A 60-year-old female patient using complete dentures reported persistent pain in the lower jaw. Clinical examination indicated the presence of residual root fragments, but the

extent of the issue was unclear. Intraoral periapical radiographs were utilized to identify the exact location and size of the fragments.

The imaging facilitated a minimally invasive procedure to remove the fragments without disturbing adjacent bone or soft tissue. The patient experienced immediate pain relief, and potential complications were avoided. This case underscores the importance of radiological imaging in diagnosing and resolving seemingly minor yet impactful issues in prosthodontic emergencies (Najjar, 2023; Malamed, 2022).

## **6. Emergency Prosthodontics and Radiology in Saudi Arabia**

Saudi Arabia has achieved significant advancements in integrating radiology into emergency prosthodontics, setting a high standard for dental healthcare. The country's state-of-the-art facilities, equipped with cutting-edge technologies like cone-beam computed tomography (CBCT), CAD/CAM systems, and 3D printing, are instrumental in providing precise and effective treatments. These developments are supported by government initiatives aimed at enhancing healthcare services through advanced diagnostics and strategic collaborations (Ministry of Health [MOH], 2023).

### **Radiological Integration in Dental Centers**

The Ministry of Health has prioritized the establishment of specialized dental centers that integrate radiological tools to improve diagnostic accuracy and treatment outcomes.

Leading institutions, such as King Saud University and King Abdulaziz University, have developed research departments focused on prosthodontic innovations and radiological advancements. These efforts address the critical need for timely intervention in emergency cases where accurate imaging is essential (AlQahtani et al., 2022).

### **Access in Rural Areas**

In remote and underserved regions, Saudi Arabia has deployed mobile dental clinics equipped with portable radiological devices. These initiatives ensure access to emergency prosthodontic services, demonstrating the country's commitment to equitable healthcare distribution. By addressing disparities in access, these clinics have expanded the reach of high-quality dental care across the nation (MOH, 2023).

### **Training and Education**

Saudi Arabia emphasizes the continuous education and training of dental professionals. Regular workshops and conferences are conducted to enhance the skills of clinicians, particularly in using advanced radiological tools. Additionally, the integration of artificial intelligence (AI) into radiological diagnostics is gaining momentum, enabling faster and more accurate detection of complex dental conditions. These advancements empower practitioners to provide better care, particularly in emergencies (Najjar, 2023; AlQahtani et al., 2022).

### **Impact of Technology on Patient Outcomes**

The use of CBCT and digital imaging has transformed prosthodontics in Saudi Arabia by enabling real-time diagnostics and treatment planning. For instance, cases of sinus perforations or fractured prosthetics are managed efficiently through radiological assessments, ensuring precise interventions. Moreover, the adoption of AI in analyzing radiological data reduces errors and enhances decision-making, significantly improving patient outcomes (Najjar, 2023).

Through these initiatives, Saudi Arabia is not only advancing the integration of radiology in prosthodontics but also setting a global benchmark for emergency dental care. The

synergy between advanced technologies, government-backed programs, and a commitment to education ensures that patients receive comprehensive and high-quality care.

## **7. Conclusion and Recommendations**

In conclusion, emergency prosthodontics has become a cornerstone of modern dental practice, requiring precision, innovation, and collaboration. By integrating advanced radiological tools and embracing technological advancements, practitioners can address even the most complex cases with confidence. Saudi Arabia's exemplary model underscores the transformative impact of combining technology with strategic healthcare initiatives. Moving forward, global adoption of standardized protocols, continuous education, and investment in research will ensure that emergency prosthodontics continues to evolve, delivering superior patient outcomes and shaping the future of dental care.

### **Recommendations for Future Practices**

#### **1. Standardized Protocols:**

Develop globally recognized, evidence-based protocols for integrating radiology into emergency prosthodontic care. These protocols should outline the role of radiological tools in diagnosis, planning, and treatment to ensure consistency and quality across dental practices worldwide.

#### **2. Education and Training:**

Implement continuous professional development programs focused on training dental practitioners in advanced imaging techniques and the use of AI in diagnostics. This will enhance their ability to leverage these tools effectively in emergency scenarios.

#### **3. Investment in Technology:**

Encourage dental clinics and institutions to invest in state-of-the-art radiological technologies such as CBCT, CAD/CAM systems, and AI-powered imaging platforms. Subsidized programs and grants can be considered to make these technologies accessible in low-resource settings.

#### **4. Equitable Access to Care:**

Expand access to advanced radiological tools by establishing mobile dental units equipped with portable imaging technologies in underserved areas. This will ensure that emergency prosthodontic care is accessible to all populations, regardless of geographic or economic barriers.

#### **5. Interdisciplinary Collaboration:**

Promote collaboration among prosthodontists, radiologists, oral surgeons, and technologists to develop holistic approaches to complex cases. This teamwork can improve patient outcomes and enhance the decision-making process in emergencies.

#### **6. Research and Innovation:**

Support ongoing research into novel radiological methods, materials, and applications in prosthodontics. This includes exploring new uses of AI and machine learning to refine diagnostics, treatment planning, and outcome prediction.

#### **7. Policy and Regulation:**

Advocate for the establishment of regulatory frameworks to ensure the safe use of radiological tools in dental practices. Guidelines should address patient safety, radiation exposure, and the ethical implications of emerging technologies.

## 8. Patient-Centered Care:

Emphasize patient education regarding the benefits and risks of radiological procedures. Engaging patients in the decision-making process will foster trust and improve adherence to treatment plans.

### **Author Contributions and Institutional Affiliations**

This review represents a collaborative effort among contributors from leading institutions specializing in prosthodontics and radiology. Significant input was provided by King Saud University Medical City, renowned for its leadership in dental radiology and CBCT technology. Their contributions focused on the integration of advanced imaging techniques into prosthodontic diagnostics and treatment.

King Abdulaziz University Hospital offered critical insights into the application of artificial intelligence in emergency dental care, emphasizing innovative approaches to enhance diagnostic accuracy and treatment efficiency. The expertise from King Fahad Specialist Hospital enriched the clinical aspects of this review, particularly in the practical implementation of radiological tools in complex cases.

The role of radiologists was pivotal in ensuring the accuracy of diagnostic imaging and in the application of advanced radiological techniques, such as CBCT and 3D imaging, which were central to the recommendations provided in this review. Their expertise in interpreting complex imaging data played a critical role in shaping treatment strategies.

Additionally, the Ministry of Health in Saudi Arabia played a pivotal role in shaping the discussion on equitable access to advanced dental care. Their initiatives in deploying mobile dental clinics and promoting nationwide healthcare accessibility reflect a commitment to addressing disparities and improving patient outcomes. Together, these institutional collaborations underscore the multidisciplinary approach essential for advancing emergency prosthodontics on a global scale.

### **Acknowledgments**

The authors would like to extend their gratitude to the Kingdom of Saudi Arabia and its Ministry of Health for their invaluable contributions to the advancement of healthcare services. Their efforts in fostering innovation, promoting equitable access to advanced dental care, and supporting cutting-edge research have significantly enhanced patient outcomes and healthcare quality. The contributions of healthcare institutions across the Kingdom, including primary health centers, specialized dental centers, and radiology units, have been instrumental in shaping the insights presented in this review. These efforts exemplify the Kingdom's commitment to serving patients and advancing the nation's healthcare system, setting a global standard in emergency prosthodontics and radiology.

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