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COMPARATIVE ANALYSIS OF DENTAL EMERGENCY VISITS AND DENTAL READINESS CLASSIFICATIONS ON A MAJOR US ARMY INSTALLATION

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The presenter declares that there are no conflicts of interest in this presentation.

Introduction



<https://companyleader.themilitaryleader.com/2019/04/02/call-for-fire/>

- Oral health is integral to service members' physical, psychological, and operational readiness.
- Dentoalveolar pain, myofascial pain, and odontogenic infection can impair mission performance. Severe cases may result in airway compromise, sepsis, or evacuation.
- Dental emergencies (DEs) may result in lost duty time, reduced unit cohesion, and decreased combat effectiveness, particularly during large-scale combat operations (LSCO).

Introduction



<https://www.war.gov/Multimedia/Photos/igphoto/2003011696/>

- Disease and Non-Battle Injuries (DNBIs)
 - 80% to 85% of medical evacuations during operations in Iraq and Afghanistan.
- Dental Disease and Non-Battle Injuries (D-DNBIs)
 - 34,318 intra-theater dental evacuations in Afghanistan, Iraq, and Kuwait from 2009 to 2023.
 - DE rates: 85.77 to 264 per 1,000 personnel per year.

Chaffin et al. Mil Med 2008; Colthirst et al. Mil Med 2012, 2013;
Dunn et al. Mil Med 2004; Mendoza et al. US Army Med Dep J 2025;
Simecek et al. Mil Med 2014; Struthers et al. Mil Med 2025.

Department of War (DoW) Instruction 6025.19

Dental Assessment = 1 of 6 elements of Individual Medical Readiness (IMR)

Command teams use IMR metrics to assess deployability.

Dental Readiness Classification (DRC) system:

- DRC 1: No dental treatment is required
- DRC 2: Non-urgent treatment unlikely to cause a DE in 12 mo
- DRC 3: Urgent or emergent dental treatment needs
- DRC 4: Overdue examination

IMR Categories:

- DRC 1 & DRC 2: Fully medically ready
- DRC 3: Not medically ready
- DRC 4: Partially medically ready



DoW INSTRUCTION 6025.19

INDIVIDUAL MEDICAL READINESS PROGRAM

Originating Component: Office of the Under Secretary of War for Personnel and Readiness

Effective: July 13, 2022

Change 1 Effective: January 21, 2026

Releasability: Cleared for public release. Available on the Directives Division Website at <https://www.esd.whs.mil/DD/>.

Reissues and Cancels: DoD Instruction 6025.19, "Individual Medical Readiness (IMR)," June 9, 2014, as amended

Approved by: Gilbert R. Cisneros, Jr., Under Secretary of Defense for Personnel and Readiness

Change 1 Approved by: Sean O'Keefe, Deputy Under Secretary of War for Personnel and Readiness

Purpose: In accordance with the authority in DoD Directive 5124.02, this issuance:

- Implements requirements in Sections 1074a, 10149, and 10206 of Title 10, United States Code.
- Establishes policy, assigns responsibility, and provides procedures for individual medical readiness (IMR).
- Establishes a total force medical readiness (TFMR) goal of 90 percent or higher for each Military Service and DoW Component.
- Establishes a partially medically ready (PMR) goal of 15 percent or lower for the Active Component (AC) and 25 percent or lower for the Reserve Component (RC).

Introduction



OFFICE OF INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

July 7, 2025

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR PERSONNEL AND
READINESS
ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)
DIRECTOR, DEFENSE HEALTH AGENCY
AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit of the Army's Active Duty Dental Readiness
(Project No. D2025-D000RK-0127.000)

The purpose of this memorandum is to notify you that we are initiating the subject audit. The objective of this audit is to determine the effectiveness of the DoD's Individual Medical Readiness program in achieving and maintaining dental readiness for Army active duty Soldiers. Specifically, we will focus on factors that contribute to Dental Readiness Class 2 and 3 status and the impact on deployability. We may revise the objective as the audit proceeds, and we will also consider suggestions from management for additional or revised objectives. We plan to perform this audit in accordance with the Government Accountability Office's generally accepted government auditing standards.

We will perform the audit at the U.S. Army Medical Command at Fort Sam Houston, Texas. We may identify additional locations during the audit.

We request that you designate two point of contacts for this audit within **5 days** of this memorandum. One point of contact should be a Government employee—a GS-15, pay band equivalent, or military equivalent—who is knowledgeable of the Army's dental readiness. The second point of contact should be a member of the Senior Executive Service or a General/Flag Officer who is familiar with dental readiness and could serve as a point of engagement with DoD Office of Inspector General senior leaders, if necessary. Send the contact's name, title, grade/pay band, phone number, and email address to [REDACTED]

The Inspector General Act of 1978, 5 U.S.C. §§ 401-424, as amended, authorizes us to have access to personnel and materials as we determine necessary to perform our oversight in a timely manner. You can obtain information about the DoD Office of Inspector General from DoD Directive 5106.01, "Inspector General of the Department of Defense (IG DoD)," April 20, 2012, as amended, and DoD Instruction 7050.03, "Office of the Inspector General of the Department of Defense Access to Records and Information," March 22, 2013, as amended. Our website is www.dodig.mil.

If you have any questions, please contact [REDACTED]

- Effectiveness of DRC as a predictor of DEs has not been rigorously evaluated using contemporary Army data.
- DoD Office of Inspector General
 - Initiated audit of Army's AD Dental Readiness - July 2025
 - Evaluate the effectiveness of IMR in maintaining dental readiness.
 - Emphasis on factors contributing to DRC 2 and DRC 3 statuses and their impact on deployability.

Introduction

A Comparative Analysis of the US Coast Guard Dental Emergency Visits

CDR Joseph Grant, DDS, MPH, MS^{1,2}; LTC John K. Kreider, DMD, MS, ABGD^{1,3};
MAJ Anna Yoo, DMD, MS, ABGD^{1,3}; MAJ Eric Hu, DMD, MS, FACP^{2,3}

ABSTRACT
Introduction: Identifying and analyzing dental emergencies among United States Coast Guard (USCG) personnel is critical, as the USCG is tasked with responding to natural disasters, narcotics interdiction, terrorism, and search-and-rescue missions. Dental Readiness Classifications (DRCs) are used by the USCG to monitor the dental health of personnel and assess force availability for USCG, Department of Homeland Security, and Department of Defense (DoD) missions. The goal of this study was to investigate the nature of dental emergencies in the USCG.

Materials and Methods: A retrospective review was conducted of DEs documented in the USCG’s electronic dental record (MHS GENESIS) between January 1, 2022, and January 31, 2024. A dental emergency encounter was defined as any clinical visit coded with Current Dental Terminology code D9110 (palliative emergency treatment) or W0199 (dental emergency visit). Each dental emergency was assigned to one of nine treatment categories based on procedures rendered. The DRC recorded at the previous dental encounter, along with the time to the dental emergency visit were analyzed. Each DRC (1-3) was assessed to determine whether the diagnosis at the previous appointment was related to the dental emergency visit. Total relative value units and treatment locations were also recorded.

Results: A total of 283 dental emergency encounters were identified across 29 USCG dental clinics. Oral surgery-related emergencies accounted for 53.4%, followed by restorative caries (12.7%), prosthodontic (9.5%), endodontic (7.8%), and periodontic (6.0%) categories. Among these, 82.8% of oral surgery, 60.0% of oral medicine-oral pathology-temporomandibular disorder, 54.5% of endodontic, and 51.9% of prosthodontic emergencies were associated with a previous diagnosis. Oral surgery emergencies most often involved post-operative pain from third molar extractions (85.4%) and had the shortest median time from the previous appointment (5.5 days). Prosthodontic emergencies were primarily due to fractured teeth requiring crowns (33.3%) or fractured temporary crowns (29.6%). Before their emergency visit, patients were most categorized as DRC 2 (41.7%), followed by DRC 1 (33.6%) and DRC 3 (24.7%). Overall, 82% of dental emergencies were treated in a USCG dental treatment facility. The mean RVU for all dental emergencies was 3.17 per visit (on-base: 3.00; off-base: 3.99). Endodontics (63%) and prosthodontics (41%) emergencies accounted for the highest off-base referrals. The most common duty stations for dental emergencies were at Training Center Cape May (37.8%), the USCG Academy (25.1%), and Training Center Yorktown (13.1%).

Conclusions: This study indicates that oral surgery, restorat in the USCG. Service members with DRC 2 developing DEs within four months of their 1 additional staffing, training, and resources to capability, DRC 3 status alone is not a reliab

INTRODUCTION
Dental readiness is a critical component of missio and any dental emergency (DE) that occurs durin

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Dental Readiness Classification and Treatment Provided for Dental Emergencies of Deployed Army Personnel

MAJ Martin Smallidge, DMD, MPH, MS, John W. Simecek, DDS, MPH, Timothy A. Mitchener, DMD, MPH

ABSTRACT
For nearly 30 years, the U.S. Department of Defense has used the Dental Readiness Classification (DRC) system to prioritize dental treatment to reduce dental emergencies during military operations. The first objective of this study was to determine the proportion of Dental Readiness Classification (DRC) categories of Army service members (SMs) who present for a dental emergency (DE) during military operations. The study then describes the categories of treatment conducted for the dental emergencies to understand the severity of treatment requirements by DRC. This study used existing deidentified data that were captured in the Army Corporate Dental System (CDS) during Army (combat and operational) deployments, training missions, and exercises from 2009-23. The data set included 2,914 dental emergencies. Of the dental emergencies observed, 31% were DRC 1, 39% were DRC 2, 8% were DRC 3, and 22% were DRC 4. Categories of treatment revealed statistical differences between the categories with DRC3 requiring more oral surgery and endodontic (root canal) procedures compared to DRC 1 and DRC2. The conclusion is that 70% of soldiers who present for a DE are currently categorized as DRC 1 or 2. Further research is needed to investigate the criteria to determine Dental Readiness Classification to improve dental readiness and reduce dental emergencies.

INTRODUCTION

During large-scale combat operations (LSCO), medical organizations must concentrate resources on returning soldiers to duty and minimizing medical evacuations.¹ Additionally, the Military Health System (MHS) must focus on Force Health Protection as a way of preventing disease and non-battle injuries (DNBI) through prevention, surveillance, and pre-deployment treatment that will reduce the demand for health service support in theater. To do so, the Department of Defense (DoD) must have effective tools to predict preventable DNBI and treat those conditions before deployment.

The DoD Dental Readiness Classification (DRC) system is a tool to prioritize surveillance (a dental examination) and dental treatment by severity based on the assessment of whether current disease or condition will cause the SMs to have a DE within 12 months. The definitions of the DRC categories are as follows: DRC 3 is defined as a SM having a condition that will likely cause a DE within 12 months with the SM being considered non-deployable; DRC 2 is defined as a SM having dental conditions that are not likely to cause a DE within 12 months; and DRC 1 is defined as a SM having no dental treatment needed. Dental Readiness Classification 4 (DRC 4) is defined as a SM who has not received a dental examination in the last 12 months.² The objective is to maintain 95% medical readiness, DRC 1 and 2, across the force and, ideally, to reach 100% medical readiness when a unit is deployed.^{3,4}

Despite high levels of dental readiness, decades of literature demonstrate the actual experience of DEs in deployed SMs is approximately 12% with a median of 15% and range from 26 to 437 per 1,000 personnel per year.^{5,6} Dental emergencies, also referred to as dental DNBI, cause 10-19% of visits in deployed medical treatment facilities.^{7,8} If a dental team is not present at the military treatment facility, often the SM must be evacuated. Dental emergencies account for 3.2% to 16.0% of all such evacuations in military populations.⁹ These observations bring into question the effectiveness of the DRC system to predict and treat DEs prior to deployment to reduce incidence of DEs, maximize return to duty, and reduce evacuations.

The effectiveness of the DRC system has been evaluated. Comparisons of DE rates by DRC have been reported as: 530-749 per 1,000 for DRC3, 145-192 per 1,000 for DRC 2, and 67-85 per 1,000 for DRC 1.^{10, 11} The DRC system is effective at categorizing higher risk of DEs. However, previous studies have demonstrated that the majority of DEs do not occur in the DRC 3 population. Teweles and King reported that 41% of dental emergencies occurred in a population with “high potential for DE within one year.”¹¹ More recent, reports observed the 11-32% of DEs are from the DRC 3 population.^{12, 13} The DRC system has not demonstrated the sensitivity, high predictive value, and accuracy needed to identify potential dental emergencies to drive down DE rates, dental DNBI, to the level expected by commanders.^{13,14}

Current literature:

- Focusing solely on DRC 3 conditions may be insufficient to achieve dental readiness.
- 70% of deployed Soldiers over 14 years presented with a DE classified as DRC 1 or DRC 2 before deployment or training missions; 8% classified as DRC 3.
- Smallidge et al. US Army Med Dep J 2025
- >75% of U.S. Coast Guard service members presenting with a DE were classified as DRC 1 or DRC 2.
- Grant et al. Mil Med 2025

Purpose

To identify and characterize Dental Emergency (DE) visits at a major U.S. Army installation supporting high readiness, deployable units

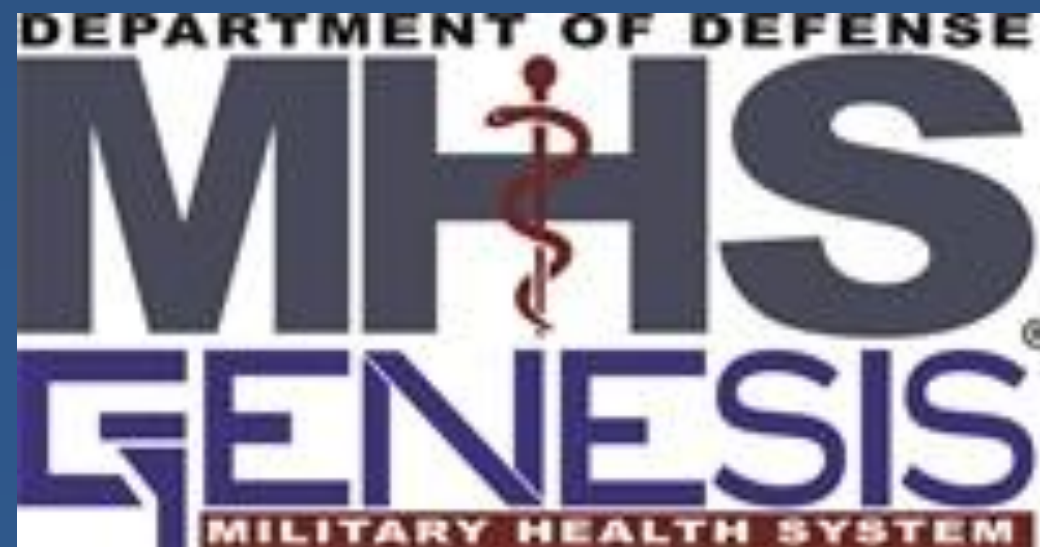
Objectives

1. Categorize DEs by diagnosis and required procedures
2. Determine whether DEs were associated with prior diagnosis, planned treatment, or recent treatment
3. Evaluate timing to DE from the most recent dental examination
4. Compare DRC status before and after the DE encounter
5. Determine time to resolution for post-encounter DRC 3 conditions
6. Quantify Active Duty Dental Program (ADDP) referrals

Material and Methods

Methods - Data Collection

- Retrospective study - exempt by the Carl R. Darnall Army Medical Center Human Research Protections Program (CRDAMC.25-45).
- De-identified data - MHS Genesis (Dentrix) electronic dental record
 - DE visits from January 1 - March 31, 2025 across 8 Dental Treatment Facilities (DTFs) on Fort Hood, TX (~38,000 active duty personnel).
 - DE visit defined as any encounter documented with Current Dental Terminology (CDT) codes:
 - W0199 (Dental emergency visit) and/or D9110 (Palliative emergency treatment)
 - DXONE reporting tool (RVU production summary) used to generate a list of DE visits.
- Inclusion criteria:
 - Active duty service members with current annual dental examination (within 15 months of DE visit)



Methods - Analysis

- Chart review by the primary investigator - Army Dental Corps Officer with 10 years of clinical experience.
- Variables collected:
 - Dates: DE visit, most recent annual exam & associated dental visit.
 - DE diagnoses: determine primary & sub-DE categories.
 - DRC statuses: before and after the DE visit.
 - Procedures: on- and off-post referrals (Active Duty Dental Program) required to resolve DE.
 - Dates: when DRC 3 DE is resolved or returns to DRC 1 or 2.
- Associated visit = DE associated with prior diagnosis, planned treatment, or recently completed treatment. Unassociated visit = no association.
- Descriptive statistics summarized DE categories. Continuous variables are reported as median days with interquartile ranges (IQR).

Results

Results

- 828 dental records reviewed, 791 records met inclusion criteria

Categories of DEs	# of DEs (%)
Oral Surgery	253 (31.9%)
Restorative Non-Caries	116 (14.6%)
Endodontics	99 (12.5%)
Prosthodontics	68 (8.5%)
Oral Medicine, Oral Pathology & Temporomandibular Joint Disorder (TMD)	60 (7.5%)
Restorative Caries	59 (7.4%)
Periodontics	42 (5.3%)
Tooth Sensitivity Not Related to Caries	38 (4.8%)
Miscellaneous	35 (4.4%)
Trauma	21 (2.6%)
Total	791

Results

Categories of DEs	# of DEs (%)	% of DE Sub-Categories	Common Procedures to Resolve DEs
Oral Surgery	253 (31.9%)	•43.8% - Third molar eruption pain •12.6% - Post-extraction pain (No infection) •11.8% - Pericoronitis •9.8% - Post-extraction pain (Infection, alveolar osteitis, spicule) •6.7% - Non-restorable tooth (Non-third molar) •6.3% - Non-restorable third molars •3.9% - No pain (Came to schedule OMS or EXT appointment) •3.1% - Subperiosteal infection, cellulitis, canine space infection •1.5% - Other (Contact dermatitis, nasal drainage)	•Extraction, erupted / partial bony •Incision and drainage (I&D) of abscess - intraoral •Gingival irrigation with a medicinal agent •Alveoloplasty •Referral to Oral Surgeon for extractions under intravenous (IV) sedation
Restorative Non-Caries	116 (14.6%)	•32.7% - Fractured / Defective restoration •25.8% - Fractured / Worn teeth •19.8% - Hyperocclusion from previous restoration •16.3% - Missing restoration •6.8% - Post-op discomfort or tooth sensitivity / Esthetic concern	•Occlusal adjustment – limited •Odontoplasty •Resin-based composite – 1-5 surfaces •Protective restoration
Endodontics	99 (12.5%)	•62.6% - Pulpal diagnosis requiring treatment (Molar) •17.1% - Pulpal diagnosis requiring treatment (Non-molar) •11.1% - Reversible pulpitis •5.0% - Inconclusive sensibility testing / Normal pulp •2.0% - Internal or external resorption •2.0% - Post-NSRCT flare up	•Pulpal debridement •Interim restoration or Core •Endodontic therapy •Cone Beam CT •I&D; Rx: Antibiotics / NSAIDs •Referral to Endodontist

Results

Categories of DEs	# of DEs (%)	% of DE Sub-Categories	Common Procedures to Resolve DEs
Prosthodontics	68 (8.5%)	•26.4% - Debonded / Missing permanent crown •23.5% - Fractured tooth or core build up •14.7% - Defective crown (fracture, open contact, caries) •11.7% - Debonded / Fractured temporary crown •10.2% - Hyperocclusion / Occlusal interference •5.8% - Loose implant crown / Unrestored implant •4.4% - Required night guard / Interim removable partial denture •2.9% - Non-restorable tooth / Referral for Implants	•Provisional crown •Re-cement crown •Ceramic crown •Occlusal adjustment – limited •Impression for NG or IRPD •Referral to restorative dentist or Prosthodontist
Oral Medicine, Oral Pathology & Temporomandibular Joint Disorder	60 (7.5%)	•58.3% - Myofascial pain / Myalgia / Bruxism •28.3% - Oral pathology (e.g. mucocele, irritation fibroma) •6.6% - Locked jaw / TMJ issue •5.0% - Sinusitis / Tonsillar / Viral / Candida infection •1.6% - Inconclusive jaw pain	•Impression for night guard •Palliative treatment for jaw / muscular pain •Referral to Oral Surgeon / Oral Pathologist
Restorative Caries	59 (7.4%)	•57.6% - Defective restoration with recurrent caries •30.5% - Primary / incipient caries •11.8% - Missing restoration with recurrent caries	•Resin-based composite – 1-4 surfaces •Interim restoration
Periodontics	42 (5.3%)	•45.2% - Plaque induced gingivitis / Bleeding gums / Overgrowth •21.4% - Periodontal abscess •9.5% - Ulcerated gingiva •9.5% - Post-surgical complication (GBR, GTR, implant placement) •7.1% - Mobile teeth •7.1% - Loose healing abutment, implant referral, residual root tips	•Gingivectomy •Gingival irrigation •I&D •Extraction, erupted / partial bony •Rx: Antibiotics / Antiviral •Referral to Periodontist

Results

Categories of DEs	# of DEs (%)	% of DE Sub-Categories	Common Procedures to Resolve DEs
Tooth Sensitivity Not Related to Caries	38 (4.8%)	•65.7% - Sensitivity related to exposed dentin or gingival recession •23.6% - Unspecified/inconclusive sensitivity •5.2% - Sensitivity after recent restoration / Active ortho treatment •2.6% - Enamel dysplasia	•Application of desensitizing medicament •Application of fluoride varnish •Referral to specialist
Miscellaneous	35 (4.4%)	•42.8% - Orthodontic complication (Defective fixed retainer, debonded bracket, loose powerchain, lost essix retainer) •31.4% - Inconclusive dental pain •11.4% - Requesting specialty referral (ortho, perio) •8.5% - Update annual exam or temporary profile •5.7% - Non-dental discomfort (GI upset, lymphadenopathy, sinus)	•Re-bond or remove ortho bracket / Fixed retainer •Impression for essix retainer •Referral to primary care manager
Trauma	21 (2.6%)	•80.9% - Ellis Class I-II fractured teeth •23.8% - Ellis Class III fractured teeth •19.0% - Widened/Injured periodontal ligament •9.5% - Concussed / Avulsed teeth •4.7% - Jaw pain / Soft tissue injury	•Occlusal adjustment •Resin-based composites •Pulpal debridement / Pulp cap •Suture of wounds / Splint of teeth •Protective restoration

	Before DE Visit						After DE Visit						
Categories of DE	# DRC 1 (%)	# (%) of DRC 1 Related to Prior Diagnosis or Treatment	# DRC 2 (%)	# (%) of DRC 2 Related to Prior Diagnosis or Treatment	# DRC 3 (%)	# (%) of DRC 3 Related to Prior Diagnosis or Treatment	# DRC 1 (%)	# (%) of DRC 1 requiring off-post referral	# DRC 2 (%)	# (%) of DRC 2 requiring off-post referral	# DRC 3 (%)	# (%) of DRC 3 requiring off-post referral	If DRC3, Median # Days (IQR) to Resolve DE or Return to DRC1/2
Oral Surgery	43 (16.9%)	21 (48.8%)	182 (71.9%)	86 (47.2%)	28 (11.0%)	21 (75.0%)	36 (14.2%)	1 (2.7%)	134 (52.9%)	14 (10.4%)	83 (32.8%)	34 (40.9%)	21.5 (8 - 48)
Restorative Non-Caries	47 (40.5%)	11 (23.4%)	63 (54.3%)	18 (28.5%)	6 (5.1%)	4 (66.6%)	33 (28.4%)	1 (3.0%)	76 (65.5%)	3 (3.9%)	7 (6.0%)	0	4 (4 - 5)
Endodontics	22 (22.2%)	7 (31.8%)	56 (56.5%)	27 (48.2%)	21 (21.2%)	16 (76.1%)	9 (9.0%)	0	35 (35.3%)	2 (5.7%)	55 (55.5%)	19 (34.5%)	13 (5 - 33)
Prosthodontics	23 (33.8%)	4 (17.3%)	41 (60.2%)	18 (43.9%)	4 (5.8%)	3 (75.0%)	11 (16.1%)	2 (18.1%)	45 (66.1%)	6 (13.3%)	12 (17.6%)	6 (50.0%)	14 (10 - 25)
Oral Medicine, Oral Pathology & TMD	26 (43.3%)	2 (7.6%)	31 (51.6%)	7 (22.5%)	3 (5.0%)	1 (33.3%)	22 (36.6%)	0	36 (60.0%)	0	2 (3.3%)	0	42 (42)
Restorative Caries	17 (28.8%)	1 (5.8%)	37 (62.7%)	8 (21.6%)	5 (8.4%)	5 (100%)	11 (18.6%)	0	35 (59.2%)	0	13 (22.0%)	3 (23.0%)	19 (11 - 24)
Periodontics	11 (26.1%)	3 (27.2%)	30 (71.4%)	10 (33.3%)	1 (2.3%)	1 (100%)	10 (23.8%)	0	30 (71.4%)	1 (3.3%)	2 (4.7%)	0	133 (133)
Tooth Sensitivity Not Related to Caries	20 (52.6%)	3 (15.0%)	17 (44.7%)	2 (11.7%)	1 (2.6%)	0	17 (44.7%)	0	20 (52.6%)	0	1 (2.6%)	0	N/A
Miscellaneous	15 (42.8%)	1 (6.6%)	18 (51.4%)	0	2 (5.7%)	0	14 (40.0%)	0	19 (54.2%)	0	2 (5.7%)	0	N/A
Trauma	5 (23.8%)	0	15 (71.4%)	0	1 (4.7%)	1 (100%)	1 (4.7%)	0	16 (76.1%)	0	4 (19.0%)	1 (25.0%)	13 (7 -19)
Total (%)	229 (28.9%)	53 (23.1%)	490 (61.9%)	176 (35.9%)	72 (9.1%)	52 (72.2%)	164 (20.7%)	4 (2.4%)	446 (56.3%)	26 (5.8%)	181 (22.8%)	63 (34.8%)	16.5 Days (6 – 37)

Results

- 90.8% presented with DE previously categorized as fully-medical ready to deploy (DRC 1 or 2).
- Overall 35.5% of DE were associated with a prior diagnosis, planned or completed treatment:
 - DRC 3: 72.2%; DRC 2: 35.9%; DRC 1: 23.1%.
 - DRC 1 DEs - largely attributable to post-operative or post-surgical complications.
 - Most DRC 1 & 2 DEs - not associated and occurred spontaneously.
- After the DE visit, DRC 3 patients increased from 9.1% to 22.8%.
- Overall, 11.7% of DEs required off-post referral via ADDP to resolve the DE.
 - 34.8% of DRC 3 DEs required off-post referral
 - All oral surgery referrals - 3rd molar extractions under intra-venous (IV) sedation
 - All endodontic referrals - molar non-surgical root canals or re-treatment
 - Most prosthodontic referrals - crowns
- DRC 3 DEs required 16.5 median days to resolve or return to DRC 1 or 2

Results

Median Days (IQR) from the Associated Appointment to the DE visit.

- 35.5% of 791 DEs were associated with a prior diagnosis, planned, or recently completed treatment.

Categories of DE	Overall	DRC 1	DRC 2	DRC 3
Oral Surgery	11 (5 – 73)	7.5 (5 – 21)	14 (6 – 127)	5 (3 – 52)
Restorative Non-Caries	20 (3 – 54)	46 (17 – 187)	10 (2 – 30)	10.5 (1 – 61)
Endodontics	24.5 (9 – 59)	33 (19 – 111)	29 (16 – 63)	1 (1 – 4)
Prosthodontics	23 (6 – 140)	71.5 (18 – 126)	26 (9 – 156)	10.5 (6 – 34)
Oral Medicine, Oral Pathology & TMD	21.5 (6 – 32)	34 (19 – 49)	16 (6 – 31)	27 (27)
Restorative Caries	102 (33 – 197)	260 (260)	185.5 (105 – 225)	28 (7 – 58)
Periodontics	90 (11 - 132)	93 (47 – 95)	90 (12 – 189)	1 (1)
Tooth Sensitivity Not Related to Caries	21 (10 - 22)	21 (16 – 22)	94 (48 – 141)	None
Miscellaneous	7 (7)	7 (7)	None	None
Trauma	2 (2)	None	None	2 (2)
Cumulative	18.5 (5 – 91)	21 (7 – 106)	21 (7 – 125)	7 (2 – 41)

Median Days (IQR) from previous comprehensive / periodic annual exam to the DE visit.

•35.5% of 791 DEs were associated with a prior diagnosis, planned, or recently completed treatment.

	Associated with previous diagnosis or recent treatment				Not associated with previous diagnosis or recent treatment				
Categories of DE	Overall	DRC 1	DRC 2	DRC 3	Overall	DRC 1	DRC 2	DRC 3	Both Categories Combined
Oral Surgery	146 (58 – 245)	142 (90 – 256)	170 (77 – 247)	56 (20 - 193)	176 (100 – 250)	190 (171 – 261)	155 (98 – 250)	137 (73 - 169)	167.5 (88 – 247)
Restorative Non-Caries	147 (32 - 224)	192 (164 – 273)	115.5 (22 – 177)	34.5 (19 – 98)	171 (70 - 279)	198 (109 - 288)	158 (37 - 274)	100.5 (78 – 123)	159 (60 – 274)
Endodontics	81.5 (44 – 150)	213.5 (85 – 282)	81.5 (43 – 110)	66 (43 – 116)	138 (89 - 257)	172 (82 - 303)	118 (92 - 211)	299 (110 - 322)	108 (56 – 214)
Prosthodontics	188 (98 - 264)	328.5 (218 – 384)	148.5 (94 – 245)	207 (198 - 214)	188 (87 - 257)	185 (119 - 255)	212 (60 – 279)	2 (2)	133.5 (91 – 268)
Oral Medicine, Oral Pathology & TMD	125 (125)	334.5 (317 – 352)	111 (76 - 159)	27 (27)	108 (57 – 190)	100.5 (64 – 196)	106 (31 - 106)	306 (296 – 317)	111 (55 – 196)
Restorative Caries	128 (33 – 206)	260 (260)	196.5 (144 - 233)	28 (7 - 58)	166 (101 - 290)	168.5 (136 – 289)	152 (69 - 312)	None	166 (77 – 289)
Periodontics	132 (90 - 251)	97 (95 – 187)	150 (90 - 251)	56 (56)	177 (96 - 273)	231 (157 – 328)	152 (88 - 238)	None	156 (91 – 271)
Tooth Sensitivity Not Related to Caries	231 (94 - 239)	94 (69 – 218)	235 (233 - 237)	None	148 (84 - 242)	236 (162 - 291)	88 (23 - 138)	4 (4)	153 (85 – 242)
Miscellaneous	7 (7)	7 (7)	None	None	142 (84 - 260)	164 (107 - 260)	129 (84 – 279)	51.5 (29 – 74)	142 (84 – 255)
Trauma	125 (125)	None	None	125 (125)	112 (41 – 229)	84 (59 - 104)	123 (37 - 230)	None	120 (43 – 227)
Cumulative	131 (51 – 237)	180 (94 – 297)	138.5 (56 – 237)	57.5 (28- 287)	152 (85 - 263)	179 (102 – 277)	137 (78 – 250)	123.5 (55 – 262)	145.5 (73 – 251)

Discussion

Discussion

- **Prior published studies** identified caries, defective restorations, fractured teeth, pulpal disease, pericoronitis, and third molar pain as common DE etiologies.
- Oral surgery - most common DE
 - >50%: Third molar eruption pain & pericoronitis.
 - Only 30.5% of oral surgery DEs were previously diagnosed or planned for intervention.
 - Unassociated oral surgery DEs occurred a median of 176 days (<6mo) after most recent exam.
 - Improved diagnosis, monitoring, and selective extraction policies may reduce complex surgical requirements in austere environments.
- Restorative caries and dental trauma accounted for only 7.4% and 2.6% of DEs
 - Caries and trauma likely higher in austere environments.
 - Trauma-related DEs likely under-captured. Cases managed in the hospital emergency department likely not documented in the MHS Genesis-Dentrix using W0199 or D9110.

Discussion

To Conserve Fighting Strength in Large-Scale Combat Operations

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As the U.S. Army considers near-peer threats associated with multidomain operations (MDO) and large-scale combat operations (LSCO), it must assess medical implications on overall combat effectiveness and mission success. Estimates for LSCO suggest casualty rates the likes not seen since World War II, requiring the joint force and the Military Health System to reimagine triage, combat casualty care, medical evacuation, force health protection (FHP), and prolonged casualty care to minimize the risk to force. Additionally, if the U.S. military does not gain and maintain air superiority to readily evacuate

casualties from the battlefield, the inability to resuscitate, rehabilitate, and reconstitute soldiers will increase risk to mission and to strategic victory. Ultimately mission success will be driven by Army medicine's ability to clear the battlefield for commander's freedom of movement and maximizing return to duty of high-performing service members to enhance lethality.

Over the last twenty years, lethality from battle injuries (BI) has reached historic lows that are not anticipated to be achievable during LSCO. During Operations Iraqi Freedom and Enduring Freedom (OIF/OEF), 4,042 personnel were killed in action

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- Dental emergencies remain a relevant threat to force readiness.
- Many DEs in this study may have manifested as D-DNBIs on deployment.
- U.S. military adapts to LSCO against near-peer adversaries in irregular warfare environments.
 - Operational dentistry must anticipate delayed evacuation, limited resupply, and constrained access to definitive specialty care.



<https://www.reuters.com/pictures/drones-war-uavs-frontlines-ukraine-2024-01-30>

Discussion

- 35.5% of DEs associated with a prior diagnosis, planned or completed treatment.
 - Many DEs may be mitigated through timely treatment and re-evaluation before deployment to lessen burden on operational dentistry.
- 64.5% DEs unassociated with prior diagnosis, planned treatment, or recent treatment.
 - Occurred median of 152 days (IQR, 85 – 263 days) after the previous annual dental exam.
 - Not all DEs are predictable or preventable through improved classification alone.

Discussion

Recommendations:

- I. Re-define DRC and Improve Calibration of Providers
- II. Leverage Graduate Dental Education (GDE) and Retain Provider Critical Skills
- III. Address the Root Causes of Dental Diseases Through Improved Prevention

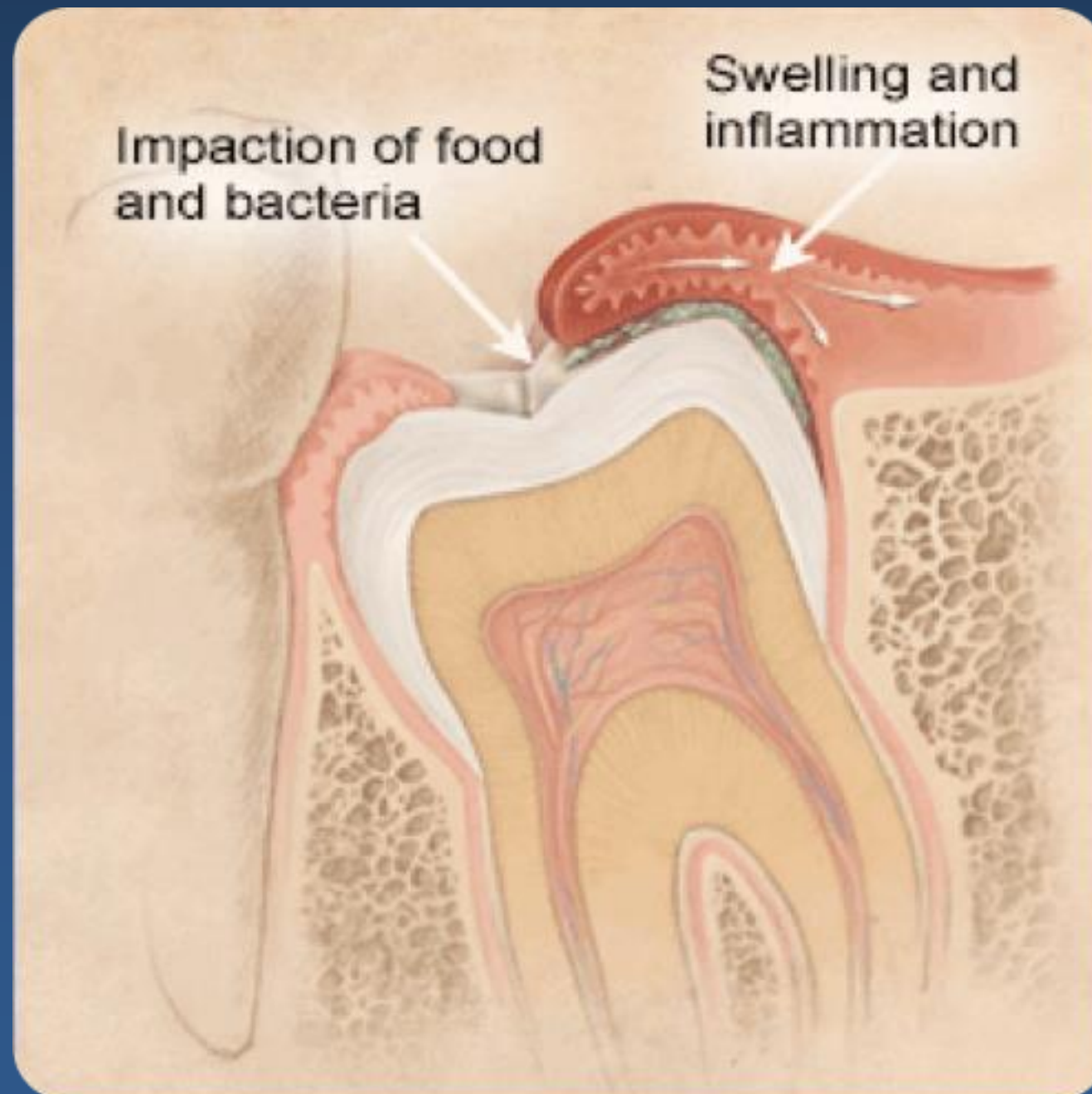
Programs and Partnerships

I. Re-define DRC and Improve Calibration of Providers			
Current DRC Definitions	Current IMR Categories	Proposed DRC Definitions	Proposed IMR Categories
DRC 1 - Service members with a current dental exam who do not require dental treatment or reevaluation. Worldwide-deployable.	Fully Medically Ready	No change	No change
DRC 2 - Service members with a current dental exam who require non-urgent dental treatment or reevaluation for oral conditions that are unlikely to result in dental emergencies within 12 months. Worldwide-deployable.	Fully Medically Ready	DRC 2A - Service members with a current dental exam who require non-urgent dental treatment or reevaluation for oral conditions that are unlikely to result in dental emergencies within 12 months. Worldwide-deployable. Examples: prophylaxis, dental implants, orthodontic treatment, cosmetic treatment, occlusal guards	Fully Medically Ready
		DRC 2B - Service members with a current dental exam who require non-urgent dental treatment or reevaluation for high-risk oral conditions that are likely to result in dental emergencies within 12 months. Worldwide-deployable. Examples: asymptomatic caries, fractured teeth, teeth requiring crowns, teeth indicated for extractions	Partially Medically Ready
DRC 3 - Service members who require urgent or emergency dental treatment. Normally are not considered to be worldwide-deployable.	Not Medically Ready	No change	No change

I. Re-define DRC and Improve Calibration of Providers

Conditions inconsistently categorized as DRC 2 or DRC 3:

1. Pericoronitis
2. Partially erupted 3rd molars / eruption pain referred to Oral Surgery
3. Molars with non-surgical root canal treatment requiring a crown



Discussion

II. Leverage Graduate Dental Education and Retain Provider Critical Skills

GDE / Residency Programs	Associated Critical Skills for DE Resolution
Oral and Maxillofacial Surgery	Complex surgical extractions (third molars); administration of intravenous (IV) sedation; management of orofacial infections, myofascial pain, and advanced trauma.
Periodontics	Complex surgical extractions (third molars); administration of IV sedation; management of orofacial infections and periodontal diseases.
Endodontics	Advanced molar non-surgical root canal therapy and retreatment. Management of orofacial infections.
Comprehensive Dentistry (AEGD-2)	Surgical extractions; molar root canal therapy; prosthodontics (crowns); management of orofacial infections and trauma; initial evaluation of myofascial pain. Pilot program: IV sedation.
Prosthodontics	Advanced prosthodontics (crowns, implants, dentures) and dental laboratory technology; evaluation of myofascial pain and management of temporomandibular disorders.
1-Year Advanced Education in General Dentistry (AEGD-1)	Surgical extractions; molar root canal therapy; crowns; management of orofacial infections; comprehensive diagnostic workflows.
Exodontia	Surgical and non-surgical extractions.

Discussion

III. Address the Root Causes of Dental Diseases Through Improved Prevention Programs and Partnerships

- Dental caries remains highly prevalent & preventable.
 - Regular exams, timely intervention, optimized oral hygiene, low-cariogenic nutrition, nicotine cessation, and protection against deleterious occlusal forces.
- Addressing root causes early reduces complex treatment needs, cut costs, and prevents DEs.
- Staffing models must improve to enhance capacity and efficiency.
- DoW must ensure that new accessions meet dental readiness standards before entry.
 - Disqualifying conditions such as 8 or more active carious lesions, severe malocclusion, or symptomatic third molars (DoW Instruction 6130.03).

Discussion

III. Address the Root Causes of Dental Diseases Through Improved Prevention Programs and Partnerships



<https://h2f.army.mil/>

- MHS should move from a reactive, symptom-driven model toward a prevention-centered readiness model.
- Integrate oral health into Soldier performance initiatives, including the Holistic Health and Fitness (H2F) program with similar goals:
 - Nutrition counseling
 - Tobacco / nicotine cessation referral
 - Oral hygiene instructions
 - Sleep-related breathing disorder screening
 - Bruxism prevention

Limitations

- 3-month observation period at a single U.S. Army installation.
- Retrospective chart review by a single investigator - potential interpretation bias.
- Case identification depended on CDT codes W0199 and/or D9110.
 - Many DEs likely not captured.
- Limited to active-duty personnel with a annual dental examination within the 15-month window.
 - No service members in DRC 4 status or those without a qualifying examination.
 - No Army National Guard or U.S. Army Reserve personnel.
 - Access-to-care, readiness challenges, and DE etiologies may differ.

Conclusions

1. Top DE categories: Oral surgery, restorative dentistry, endodontics, and prosthodontics.
2. High proportion of DEs classified as fully medically ready to deploy before the DE visit.
3. Conditions classified as DRC 3 are prioritized and treated promptly. DRC 2 treatments often delayed and likely to progress into a DE within six months of an annual dental exam.
4. Refining DRC 2 category, improving provider calibration, and prioritizing timely treatment of high-risk conditions - can strengthen IMR reporting and give commanders a more accurate assessment of deployability risk.
5. Maintaining organic capability through GDE, provider retention, adequate staffing, and prevention-centered care may reduce DEs, and improve readiness for LSCO environments where evacuation, resupply, and civilian referral networks may be limited or unavailable.



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Questions?



Thank you!

References

