The Impact of Preemptive Dental Care on Emergency Dental Needs During Military Deployment: Evidence from the 2023 Iron Swords War

Abstract

Background: Dental emergencies present significant operational challenges in military settings, where access to care is limited, and disruptions compromise combat readiness. The Israel Defense Forces Medical Corps (IDFMC) offers a unique model of preemptive dental care for combat-designated soldiers. This study examines the efficacy of this model during the 2023 Iron Swords War, a conflict characterized by the rapid mobilization of reservists without prior dental screening.

Methods: We conducted a retrospective comparative study analyzing 80,991 dental records and 420,109 treatments performed between January 1 and November 11, 2024. Emergency dental appointment rates among mobilized reservists (without preemptive care) were compared to those of enlisted and career soldiers, with access to IDFMC's proactive dental intervention. Risk-based stratification and emergency rates within each category were also analyzed.

Results: Emergency dental appointments were required in 10.6% of reservists versus 5.4% of enlisted and career soldiers ($p < 0.05$). Among combat-designated soldiers, 7.1% of reservists required emergency dental care compared to 4.8% of enlisted soldiers ($p < 0.05$). Within the proactive care group, 4.7% of low-risk and 5.6% of high-risk individuals required emergency appointments ($p < 0.05$).

Conclusion: The preemptive dental care model significantly reduced emergency dental needs, improved combat readiness, and validated the value of systematic, risk-based interventions in military health systems.

Keywords: Preemptive, Military, Readiness, Dental, Prevention.

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To cite this article:

Lvovsky A, Revivo Tuchner N, Shemesh A. The impact of preemptive dental care on emergency dental needs during military deployment: evidence from the 2023 Iron Swords war. J Isr Mil Med June 2024; 21(62): [8-4].

Submitted for publication: June 1, 2023

Approved for publication: March 12, 2024

Disclaimer: The views expressed in the submitted article are the author's own and not an official position of the institution, funder, the IDF, or the IMA.

Introduction

Dental readiness is essential to overall military preparedness. Studies across multiple nations have documented that dental emergencies are common among deployed troops and can have significant operational consequences. A landmark analysis by Mahoney and Coombs (2000) reported emergency rates of 150–200 per 1,000 soldiers annually, and similar findings have been echoed in later U.S. Army reviews (Chaffin & Moss, 2008). Such emergencies often result in lost duty time, evacuation from the theater, and interruptions in unit effectiveness.

More recent evaluations have continued to show elevated rates of dental emergencies in military settings. Gunepin et al. (2015) reported that 15.7% of medical evacuations during French military operations were due to dental emergencies, accounting for

nearly 24% of all non-battle injury medical evacuations. Affected soldiers were absent from their units for an average of 10.5 days, highlighting the operational cost of untreated dental issues. Chaffin et al. (2024) found that dental emergencies still accounted for a large proportion of non-battle injuries requiring medical care at field facilities. Simecek (2008) emphasized that many of these emergencies stem from preexisting, untreated dental conditions that could have been addressed earlier. In total, these findings underscore that despite improvements in care, untreated dental disease remains a persistent vulnerability in military health systems.

A compelling body of work now supports the efficacy of prevention-focused care during recruit training. Simecek et al. (2021) demonstrated that providing comprehensive dental treatment during basic training significantly reduced the incidence of emergency visits later in service. Recruits who received full dental treatment experienced fewer urgent care visits than those with deferred or incomplete care. This aligns with earlier studies (Simecek & Colthirst, 2020; 2025), which identified specific risk indicators, such as caries burden and untreated pulp involvement, that predicted future emergencies. These insights have informed the development of risk-based classification and targeted prevention models in military dental services.

In contrast to civilian health organizations, the Israel Defense Forces Medical Corps (IDFMC) provides free, comprehensive dental care with a proactive approach. Military service is mandatory for all Israeli citizens (unless exempted for medical or other reasons), and those designated for combat roles receive dental screening and treatment shortly after enlistment. The IDFMC employs a dental classification system to triage care based on risk and ensure dental fitness before deployment.

The 2023 Iron Swords War provided an unplanned, natural experimental setting. Following the October 7 attack, over 300,000 reservists were mobilized, many of whom had not received preemptive dental intervention. Their emergency dental care rates could thus be compared with those of a control group of enlisted and career soldiers.

Methods

This retrospective observational study uses electronic health records from the IDFMC to compare emergency dental treatment rates between a study group and a control group from January 1 to November 11, 2024. The study group included reservists mobilized during the 2023 Iron Swords War who had not received preemptive dental care. The control group consisted of enlisted and career soldiers who had received systematic, risk-based preventive care under the IDFMC program. This natural division, arising from the unplanned mass mobilization of reservists, enabled a direct comparison of emergency dental outcomes between those with and without access to pre-deployment care.

Soldiers were categorized into the IDFMC's four risk categories, which are similar to those of other military systems, such as NATO (see Groves, 2008). The IDFMC classifies soldiers using the following categories:

- **Category 1**: No caries, minimal oral hygiene needs.
- Category 2: Up to 5 caries lesions, none deeper than 50% of dentin.
- **Category 3**: 6-10 caries, any lesion affecting more than 50% of dentin, teeth undergoing root canal treatments up to coronal build-up, severe periodontal disease.
- **Category 4**: >10 caries, any lesion impinging on the dental pulp, teeth in need of root canal treatment, hopeless teeth to be extracted, third molars to be extracted.

Categories 1-2 were designated low risk; 3-4, high risk.

Data were drawn from the IDFMC centralized electronic dental record system. Automated classification of risk categories based on treatment plans ensured consistency. A total of 80,991 individual records and 420,109 treatments were examined.

Emergency dental appointment frequencies were analyzed using descriptive statistics. T-tests and Fisher's exact test were used to determine statistical significance ($p < 0.05$).

3. Results

The findings showed a statistically significant difference in emergency dental care utilization across different service populations (see Figure 1):

- **Reservists**: 10.6% required emergency dental care.
- **Enlisted and Career Soldiers**: 5.4% ($p < 0.05$).

Among combat-designated personnel:

- **Combat-Designated Reservists**: 7.1%
- **Combat-Designated Enlisted Soldiers**: 4.8% ($p < 0.05$).

Additionally, when stratified by preemptive care risk assessment:

- **Low-Risk Individuals (Preemptive Care)**: 4.7% required emergency appointments.
- **High-Risk Individuals (Preemptive Care)**: 5.6% ($p < 0.05$).

Figure 1 - Emergency Dental Care Rates by Group - Flowchart showing emergency dental appointment rates among 80,991 IDF soldiers. Reservists without preemptive care had higher rates than enlisted soldiers with preventive treatment, both overall and within combat-designated subgroups.

These results illustrate a nearly twofold reduction in emergency dental care needs among enlisted and career soldiers compared to reservists. Notably, even within combat-designated personnel, those who underwent preemptive care experienced significantly fewer emergencies. The internal consistency of lower emergency appointment rates within the low-risk group vs. the high-risk one further validates the predictive strength of the IDFMC's dental classification and intervention model.

This stratification and comparative analysis highlight the benefits of proactive dental care for force readiness, with emergency dental interventions halved in populations that received structured preventive dental care.

Discussion

This study confirms the protective effect of systematic, early dental interventions. Emergency dental needs were significantly lower in the population that received early care. Even within high-risk individuals, proactive treatment resulted in lower emergency rates compared to the untreated reservist group.

Reservists utilized a disproportionately high share of emergency dental services. Their lack of pre-deployment care illustrates the critical role that preventive health infrastructure plays in force readiness. Delays or gaps in oral care can translate into preventable logistical burdens and compromised operations.

A key feature of the IDFMC model is its automation. Once classified, soldiers' dental data follow them across clinics, ensuring continuity without the need for re-evaluation by each practitioner. This system-wide standardization not only streamlines operations but also supports research and policy making.

Several limitations should be acknowledged. First, the reservist population is inherently heterogeneous, and data on time since discharge from regular service were unavailable. Consequently, some reservists may have completed their compulsory service recently, while others may have had prolonged intervals without structured military dental care. This heterogeneity may partially contribute to the observed differences in emergency dental utilization. Future studies incorporating time since discharge and age stratification would further refine the assessment of this effect.

Another consideration is the potential influence of healthcare utilization behavior. Upon mobilization, reservists gain renewed access to military dental services, which may lower barriers to seeking care and increase presentation rates to emergency dental clinics, including for conditions that might not strictly constitute acute emergencies. This utilization effect may partially contribute to the higher emergency appointment rates observed among reservists.

The current analysis lacks detailed categorization regarding the specific clinical reasons for emergency dental visits. While appointments were classified as emergency encounters, the dataset did not uniformly distinguish between acute conditions such as severe pain, infection, or trauma and less urgent presentations. Future studies incorporating standardized diagnostic categorization of emergency encounters would allow for a more nuanced assessment of emergency dental care utilization.

An additional consideration is the ability to distinguish between the effects of preemptive dental intervention and individual characteristics related to dental health. Individuals classified as low-risk may reflect behavioral or lifestyle factors associated with better oral health and lower use of emergency dental care, independent of the preemptive treatment itself. The influence of such individual factors cannot be entirely excluded, and part of the observed reduction in emergency visits may therefore be unrelated to the intervention's direct effect. Future studies comparing dental morbidity before and after preemptive care would allow a clearer assessment of the contribution of preemptive dental treatment.

Conclusion

The Israeli military's proactive dental care system offers a replicable model for armed forces worldwide. The nearly 50% reduction in emergency dental visits among those treated in advance underscores the effectiveness of preventive health strategies in mission-critical environments.

At its core, the intervention aligns three critical objectives: providing systematic proactive dental care, achieving improved combat readiness, and securing a 50% reduction in emergency dental needs.

These outcomes illustrate how structured preventive measures directly contribute to operational readiness. Notably, combat-designated soldiers who underwent this intervention experienced substantially fewer dental emergencies than their untreated counterparts, validating the importance of early dental risk identification and treatment.

This study reinforces that preemptive care is not only medically sound but strategically essential. Future military planning should institutionalize such care for all deployable units, integrating it as a fundamental component of personnel readiness programs.

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