



DENTO-ALVEOLAR SURGERY IN MILITARY DEPLOYMENT

STRATEGIES FROM ACUTE THERAPY TO REHABILITATION

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Disclosure of Conflict of Interest

The authors declare no conflicts of interest.

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SCOPING REVIEW: OBJECTIVES AND STUDY SELECTION

Objectives

CORE OBJECTIVE:

Optimize patient care through evidence-based synergies

Pain ↓ Function ↑ Operational readiness ↑ Complications



Study selection (PRISMA-ScR)

Records identified (n = 812)



Title / abstract screening: n = 623



Full text assessed for eligibility: n = 171



Included studies: n = 31
qualitative 18 · quantitative 9 · guidelines 4

**Excluded
n = 452**

Topic / focus irrelevant

**Excluded at full text
n = 140**

no outcome / acute
relevance, context

Epidemiology of Dental Emergencies in Deployment

Combat-related emergencies

- Blast and fragment trauma
- Gunshot wounds
 - > Soft-tissue and bone injuries
 - > Massive bleeding
 - > Airway compromise (fracture, swelling)
 - > **Dental trauma**

46% lodged bullet
22% through-and-through
13% grazing wound
6% shotgun pellet

Key figures

14–30 %

of all medical consultations during deployment are dental

~78 %

considered fundamentally preventable (prevention / pre-deployment care)

Non-combat-related emergencies

- **Dental trauma**
- Caries-related pain
- Wisdom-tooth problems / pericoronitis
- Odontogenic infections / abscesses
- Periodontitis
- Oral mucosal diseases

55.8 %

of emergency procedures: oral surgery (Mendoza 2024, Ukraine)

In the 'Medical Report on the German Army in the World War 1914/1918', 29.1% of all sick reports were attributable to diseases of the mouth ('oral patients').



Clinical case: Combat-related emergency



Damage-Control Algorithm

1

Secure airway

Remove blood / fragments
Fracture stabilization
Surgical airway if obstructed

2

Bleeding control

Compression / packing
Tranexamic-acid swab
Ligation of accessible vessels

3

Primary soft-tissue coverage

Antibiotics
Debridement + fragment removal
Primary wound closure if feasible

4

Assess tooth fragments

Aspiration risk? → remove immediately
Fracture segment stable? → preserve
Occlusion reconstructable? → splint stabilization

5

Secondary reconstruction

Delayed (Role 3–4)

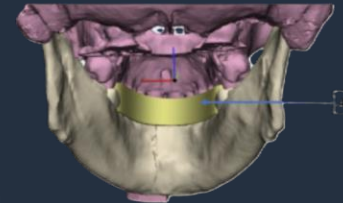
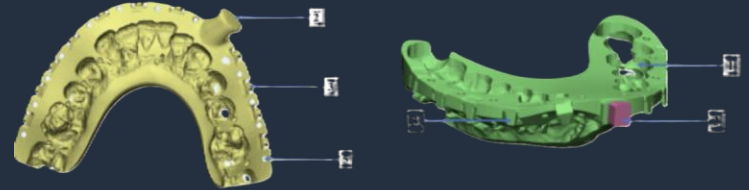
Combat-related emergency



Damage-Control Algorithm

1

Fracture stabilization



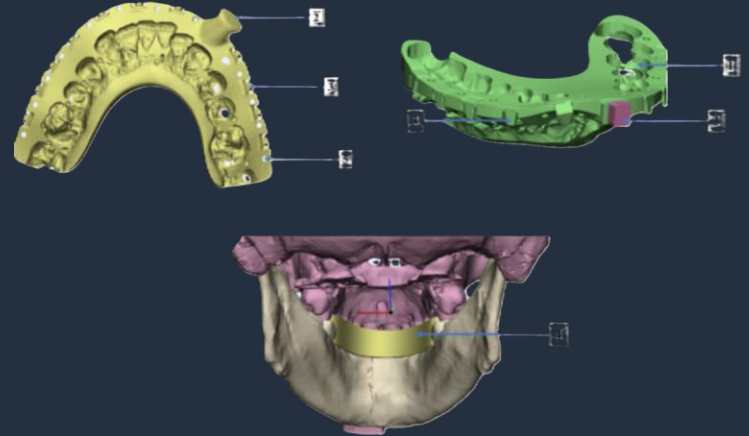
Combat-related emergency



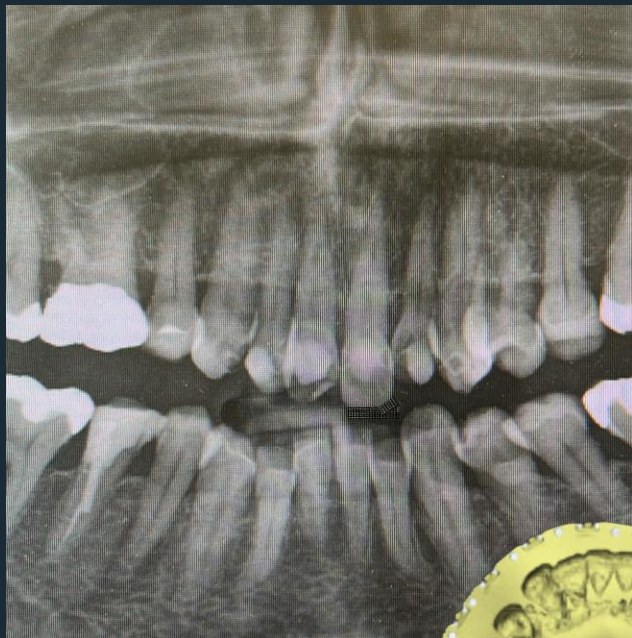
Damage-Control Algorithm

1

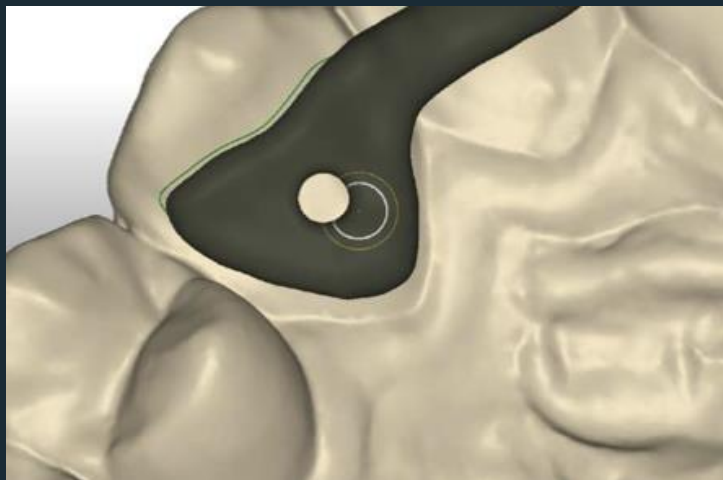
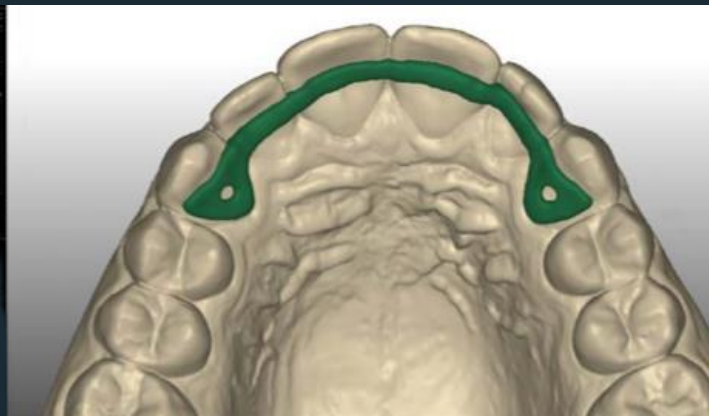
Fracture stabilization













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Non-combat-related emergencies

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Dental officer on-call

Key figures

14–30 %

of all medical consultations during deployment are dental

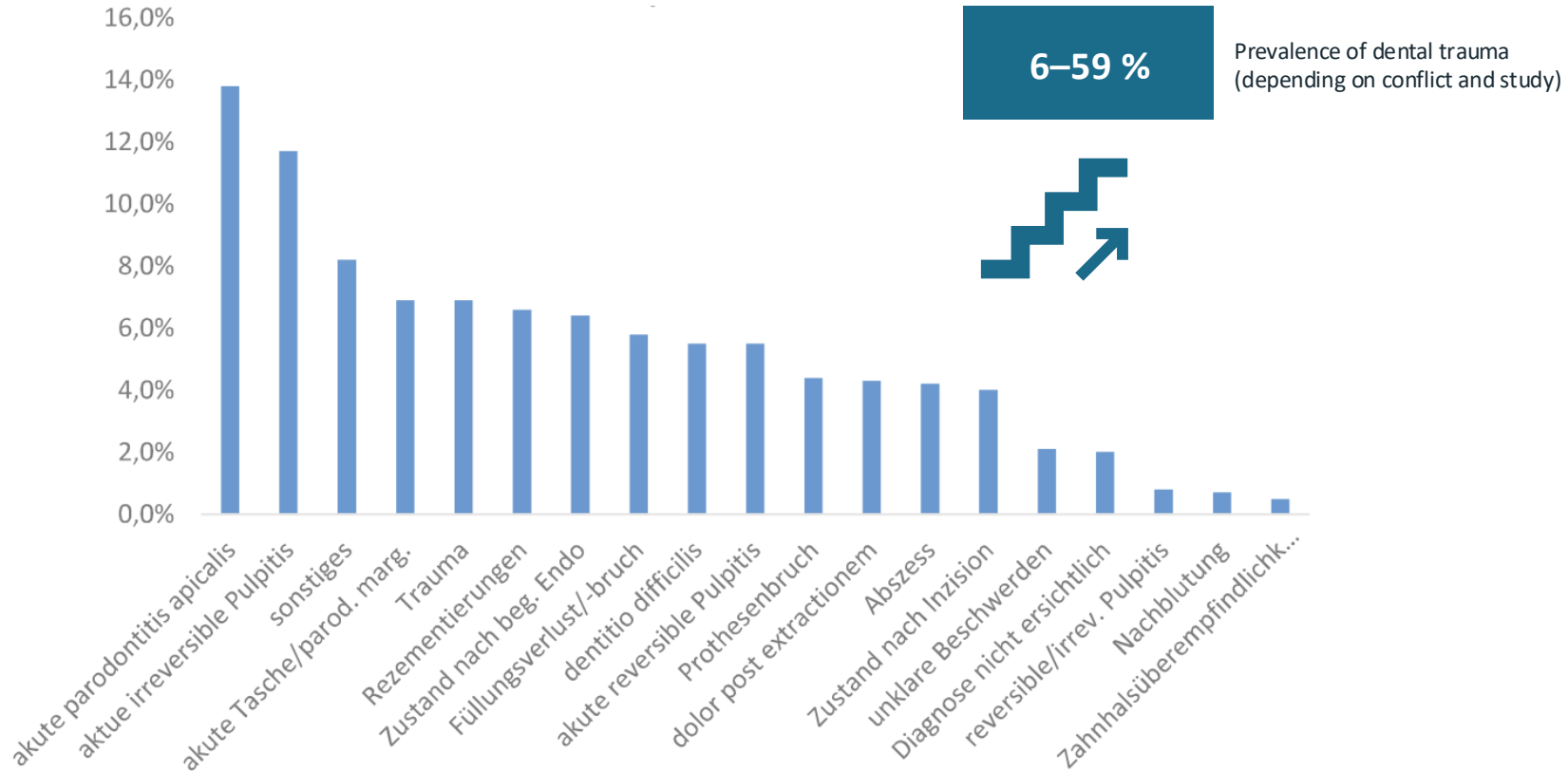
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of emergency procedures: oral surgery (Ukrainian soldiers, Mendoza 2024)

Classification of oral emergencies



Clinical case: Dental trauma

Knowledge gaps among first responders

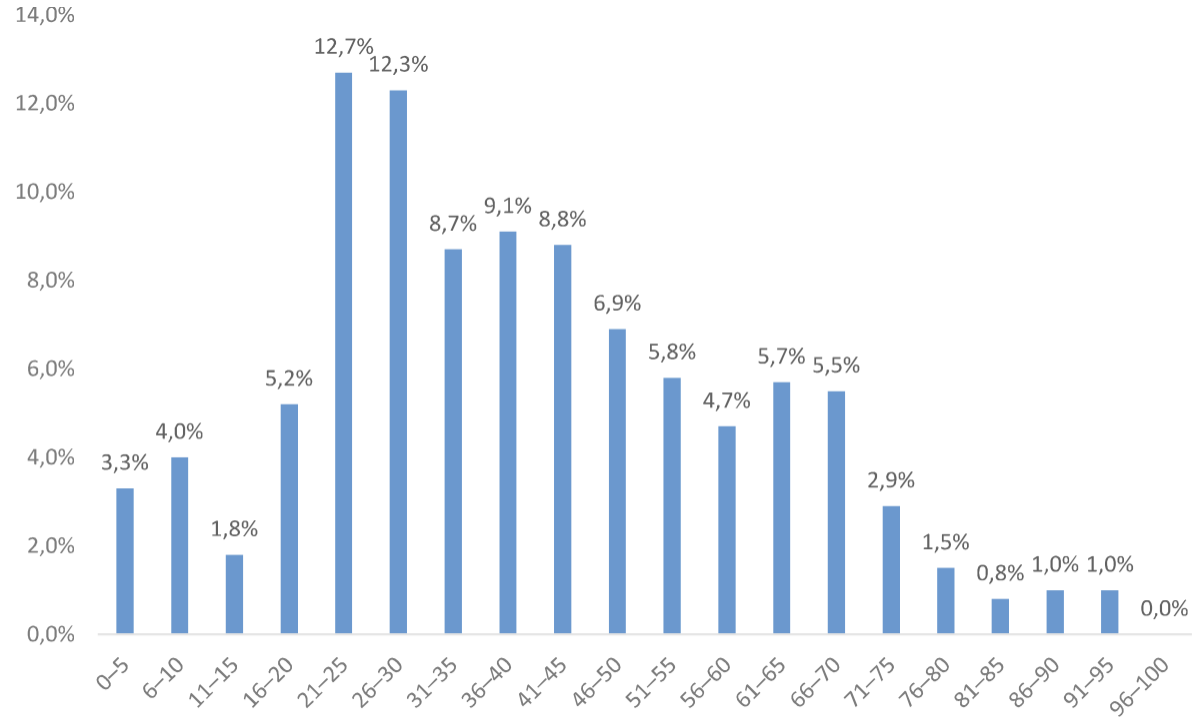
71.1 % of emergency physicians: no practical skills

26.1 % knew the correct storage medium

only 7.3 % knew the correct replantation direction

30.7 % of ambulances carry a tooth-rescue box

Classification of oral emergencies



Clinical case: Odontogenic infection

Management – Infection control

Pain reduction: Ibuprofen 400–600 mg / metamizole | intraligamentary anesthesia

Infection control: Amoxicillin 500 mg 3x/d or clindamycin 300 mg 3x/d (5–7 d) | Incision & drainage

Transport capability: Tranexamic-acid swab for bleeding | Dressing | Evaluation

Strategic tooth preservation: Abscessed tooth: trephination for pressure relief | no extraction without clear field indication

Trade-off: immediate extraction or tooth preservation?

Immediate extraction for:

- Non-salvageable tooth as focus of infection
- Progressive abscess without drainage option
- Tooth fragment as aspiration / foreign-body risk
- Severe mobility with no means of stabilization
- Impairment of airway management / fracture care

Tooth preservation / temporary stabilization for:

- Luxated / avulsed teeth with replantation option
- Dento-alveolar segment injuries
- Strategically important abutment teeth
- Preserved / reconstructable occlusion
- Lack of safe surgical conditions in the field

Clinical case: Stomatologic emergencies

Mucositis, aphthae, ulcers in deployment



Management

Aphthous stomatitis

Topical steroid ointment
Chlorhexidine rinse
Systemic analgesia

Necrotizing gingivitis

H2O2 rinse
Metronidazole 400 mg 3x/d
Urgent: debridement

Deployment-typical risk factors

Stress, poor hygiene,
Immunomodulation, smoking, snus
Malnutrition, sleep deprivation

Red Flags

Inhomogeneous lesions

MILITARY DENTISTRY ORAL SURGERY



SYNERGIES BETWEEN MILITARY DENTAL MEDICINE AND CIVILIAN EMERGENCY CARE

Dr. Lukas Greber