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Integrating the Medical SOAP Model into Dental Patient Records: A Trauma Case Study

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***Corresponding author:** Pat Barrett DDS, USA.**Received Date:** August 20, 2025**Published Date:** September 15, 2025**Abstract**

Dental records and chart notes have traditionally emphasized medical history and procedural detail. With the digital transformation of health care, dynamic electronic records—incorporating patient portals, imaging, insurance documentation, and medico-legal requirements—have become the standard [1]. This article presents a dental trauma case illustrating how integrating the medical SOAP (Subjective, Objective, Assessment, Plan/Procedure) model into dental patient records improves clinical decision-making, continuity of care, and medico-legal defensibility. The case underscores the value of comprehensive pre- and post-injury documentation, particularly when treatment (e.g., full-coverage restoration and adjunctive pharmacologic therapy) must be justified to insurers and in potential legal settings [2, 3].

Keywords: Dental records; SOAP model; Trauma; Documentation; Medico-legal; Electronic health record

Introduction

The evolution from static, paper-based dental charts to integrated electronic record systems has transformed patient management and interprofessional collaboration [1, 2]. Modern dental records function not merely as repositories of procedural data but as longitudinal, interoperable tools that track health status over time, support clinical reasoning, and provide auditable evidence for insurance and legal processes. Applying the medical SOAP framework to dental documentation can standardize the capture of subjective symptoms, objective findings, clinical assessments, and the plan/procedures, thereby strengthening the clarity and completeness of the record. We illustrate these benefits through a case of dental trauma with subsequent complications.

Case Presentation**Incident and Emergency Care**

A lighting technician sustained a traumatic fall while installing overhead fluorescent fixtures on a 10-foot ceiling. Witnesses reported that a co-worker's ladder separation precipitated a sideways fall. The patient struck a marble countertop and experienced loss of consciousness. At emergency department (ED) arrival, the chief concerns included a fractured upper left molar and discomfort in the left anterior teeth. Plain-film radiographs ruled out orbital fractures. Initial ED impressions documented a concussion, a 2-cm laceration in the left periorbital region, and a fractured maxillary left tooth.

ED management included laceration repair with suturing, discharge instructions, and scheduled follow-up.

Dental Follow-up Course

- One week post-injury: Limited dental charting recorded a clinical fracture of the distobuccal cusp of tooth #14. Bitewing radiographs were taken, though no photographic documentation was captured.
- Subsequent visit: Local anesthesia was administered; tooth #14 was prepared for a full-coverage crown. Shortly thereafter, the patient reported left facial pain. Chart notes recorded botulinum toxin (on a botulinum toxin A) injections to the left facial musculature with dosage noted.
- Next day: The patient experienced pain exacerbation; a dosage adjustment was made at re-appointment, with charted moderate improvement.
- Crown placement: The record for the cementation visit did not document the patient's tolerance of the procedure, occlusal evaluation/adjustments, or the patient's immediate response to treatment.

Insurance Determination

Billing for urgent care, full crown on tooth #14, and two sessions of botulinum toxin injections—each linked to the reported injury—was denied for lack of supporting documentation establishing medical necessity and causal relationship to the injury [3].

Discussion

This case highlights three practice-critical lessons for implementing the SOAP model within dental record systems:

1. **Comprehensive documentation:** Dynamic electronic records enable integration of historical and real-time data. Absent or limited pre-injury dental history complicated the attribution of later symptoms and the justification for full-coverage restoration and adjunctive therapy. Thorough baseline, pre- and post-injury documentation can clarify causation, inform treatment sequencing, and support insurance determinations [1, 2].
2. **Interdisciplinary continuity:** Applying medical-style standards in dental charts facilitates a more seamless handoff between ED, primary care, and dental specialists. Clear documentation of diagnosis, imaging, pharmacologic interventions (including product, lot, dose, injection sites), and responses promotes continuity—especially when surgical repair and adjunctive pain management intersect [2, 3].
3. **Medico-legal defensibility:** Precision and completeness are essential when treatment may be scrutinized. Inadequate documentation of indications, alternatives, informed consent, outcomes, and follow-up can jeopardize reimbursement and legal defenses. A SOAP-structured, time-stamped record reduces ambiguity and helps demonstrate standard-of-care decision-making [3].

Applying the SOAP Model to This Case

Below is an example of how a dynamically integrated record, using SOAP, could have supported the care pathway and payer review. (Bracketed items indicate fields commonly provided by modern EHR/EDR systems.)

S — Subjective

- Chief complaint (patient's words): "My upper left back tooth (#14) has sharp pain when I chew; my left face hurts when I bite down."
- History of present illness: Onset immediately post-fall; pain 7/10, sharp with chewing, relieved by avoiding left-side mastication; reports transient headache and facial soreness post-ED repair.
- Associated symptoms: Sensitivity to cold on #14; left masseter tenderness with chewing. Denies paresthesia or visual changes since ED discharge.
- Pertinent history: [Baseline occlusal issues/bruxism? pre-injury restorations? parafunction? prior TMD?]

O — Objective

- Extraoral: Left periorbital healing laceration; no ecchymosis progression; facial symmetry intact; TMJ excursion within limits; mild tenderness of left masseter on palpation.
- Intraoral: Fracture of distobuccal cusp, tooth #14; no vertical mobility; percussion mildly positive on #14; probing within normal limits; no pulpal exposure.
- Occlusion: Premature contact on #14 in MIP; fremitus absent; wear facets present.
- Imaging: Bitewing and periapical radiographs—no periapical pathology; cusp fracture line visible; [photographs captured: occlusal/BUC views].
- Diagnostics: Pulp vitality tests WNL; cold test transient; bite test reproduces pain on #14 DB cusp.

A — Assessment

- Primary diagnosis: Fracture of distobuccal cusp, tooth #14, consistent with traumatic occlusal contact following fall.
- Secondary considerations: Post-traumatic myofascial pain of left masseter. Concussion (managed in ED).
- Causation statement: Findings, chronology, and objective tests support a causal nexus between the fall and the #14 cusp fracture; occlusal interference likely exacerbated symptoms. Differential includes pre-existing crack/occlusal dysfunction; no prior documentation found in chart to confirm.

P — Plan/Procedure

- Informed consent: Discussed risks/benefits/alternatives (onlay vs full-coverage crown; occlusal guard; adjunctive therapy). Patient consented [4].

- Anesthesia: [Agent, concentration, total volume, lot/expiry].
- Tooth preparation: Full-coverage crown #14; interim restoration placed; occlusion adjusted and documented; post-op instructions provided.
- Adjunctive therapy: Botulinum toxin for myofascial pain—indication (refractory myalgia), product and lot, total dose (units), dilution, injection sites, technique, complications (none), patient tolerance, and post-injection instructions.
- Follow-up/outcomes: Pain scale recorded at each visit; response to therapy documented; occlusion re-evaluated at cementation; consider night guard if parafunction suspected.
- Interdisciplinary communication: Summary letters sent to ED/PCP regarding dental findings and treatment course; imaging shared via interoperable record.

Practical Documentation Checklist (for similar cases)

- Chief complaint in patient's words; HPI with timing, severity, aggravating/relieving factors.
- Comprehensive extra- and intraoral exam; occlusal analysis; photographs.
- Radiographs with justification; diagnostic test results.
- Clear diagnosis and causal statement linking findings to the inciting event.
- Detailed procedure notes: anesthesia, materials, techniques, lot numbers.
- Patient tolerance/outcomes; pain scores; complications; post-op instructions.
- Informed consent and discussion of alternatives.
- Communication with other providers; referrals; shared imaging.
- Coding and payer-required elements for medical necessity.

Conclusion

Integrating the medical SOAP model into dental records enhances clarity, continuity, and defensibility. In trauma cases,

meticulous pre- and post-injury documentation—capturing subjective symptoms, objective findings, clinical reasoning, and procedural detail—supports optimal care and strengthens both reimbursement and legal positions. As dental practices continue adopting interoperable electronic records, embedding SOAP-structured workflows can elevate documentation quality and outcomes [1-3].

Appendix: Example SOAP Note Template (Reusable)

S: Chief complaint (verbatim); HPI (onset, duration, character, location, aggravating/relieving factors); associated symptoms; relevant history.

O: EO/IO exam; occlusion; periodontal charting; diagnostic tests; radiographs/photographs; measurements.

A: Diagnoses (primary/secondary); differential; causal nexus statement; risk assessment.

P: Consent; anesthesia (agent/volume/lot); procedure details; materials; outcomes; patient tolerance; complications; instructions; follow-up; interprofessional communication.

Acknowledgement

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Conflict of Interest

No Conflict of Interest.

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