SCIENTIFIC RESEARCH REPORT

International Dental Journal

doi: 10.1111/idj.12304

Dental providers and pharmacists: a call for enhanced interprofessional collaboration

Henning Lygre[1,2], Reidun Lisbet Skeide Kjome[3], Hailey Choi[4] and Autumn L. Stewart[5]

[1]*Department of Clinical Dentistry, University of Bergen, Bergen, Norway;* [2]*Oral Health Center of Expertise in Western Norway, Stavanger, Rogaland, Norway;* [3]*Department of Global Public Health and Primary Care, University of Bergen, Bergen, Norway;* [4]*Department of Pharmacy Practice, University of New England College of Pharmacy, Portland, ME, USA;* [5]*Division of Pharmacy Practice, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA, USA.*

Reports concerning medication discrepancies in dental records indicate that the concept of interprofessional collaboration between the dental team and pharmacists should be considered at all educational levels in dentistry and pharmacy. Inclusion of oral health as a therapeutic area in didactic pharmacy curricula is needed. Early exposure of dental students and student pharmacists to collaborative practices through interprofessional educational experiences may create a higher degree of awareness of the role of each profession and the potential to improve patient outcomes. Furthermore, efforts are needed to develop a systematic approach for medication review and reconciliation in dental practice to obtain accurate medication lists, potentially by utilising health information technology.

Key words: *Education, interprofessional collaboration*

In developed countries, prescribing of drugs is the most common form of medical treatment. The incidence of prescribed medication increases with increasing age, especially in persons over 60 years of age.

Globally, general pharmacology and clinical pharmacology is included in both pre- and postgraduate dental education. Prescribing of medications is often part of dental treatment, in addition to regular dental procedures. While rarely a major field of focus for most dentists, patients' medication use is often of great importance in oral health. It has been widely reported that numerous medications have a negative impact on clinical procedures through drug–drug interactions or adverse drug reactions affecting oral health[1]. A common example is medication-induced salivary gland dysfunction, which may result from more than 1000 drugs. Xerostomia has been shown to lead to extra dental treatment and costs[2]. Drug-induced gingival overgrowth (DIGO) may result from using calcium channel blockers (CCBs), and DIGO from CCBs is reported to result in three times higher occurrence of tooth loss and a considerably higher dental treatment cost, than that in patients not using CCBs[3]. Many classes of drug, including anticoagulants, anti-platelets and analgesics, may increase bleeding risk, which may affect dental procedures. Thus, dentists are challenged to continuously be informed and remain up to date on adverse drug reactions, drug interactions, antibiotic resistance and drug dependence.

There is currently discussion worldwide on antimicrobial resistance. Recent changes in antimicrobial guidelines have challenged dental providers to examine more carefully the risk–benefit relationship of antibiotics as prophylaxis, and international data suggest that overprescribing occurs[4–6]. A recent pilot study in the USA suggests trends towards selection of inappropriate antimicrobials in dental practice[7]. The worldwide epidemic of opioid abuse and dependence has prompted reconsideration of existing prescribing patterns of opioid analgesics in the management of dental pain[8].

As medication use is common in patients presenting to dental practices, it is of utmost importance for dental providers to evaluate each medication used by patients, including the potential for drug–drug interactions and oral adverse effects. However, for the dental practitioner

to take necessary precautions regarding medication use, accurate medication lists that reflect actual medication use by patients must be readily available.

Discrepancies in general practitioners' (GPs') medication lists are common, and polypharmacy increases this risk[9]. These findings are consistent with data from the US, which report that medication discrepancies occur at an alarming rate in both inpatient and outpatient settings[10]. While several studies have demonstrated that GPs lack accurate medication records, data related to the accuracy of medication records in dentistry are sparse. However, two independent pilot investigations of interprofessional collaboration between dentists and pharmacists in the US and Norway have recently identified the presence of significant discrepancies between medication lists in the dental record and the medications that the patients are actually taking[11,12]. Choi *et al.*[11] found discrepancies in nearly 90% of medications in the dental record, compared with the medication list gathered by a pharmacist. Medication omission was the most frequent discrepancy (71.7%). Raknes *et al.*[12] reported that only 50% of medications used by dental patients were listed in the dental record. One of the main reasons for these discrepancies is identified by Valle-Oseguera and Boyce[13]: neither dentists or pharmacists are likely to have access to the patient's full medical record, including the complete medication list. In Norway, an electronic short version of patients' full medical records, called 'The core journal', has been introduced for medical personnel, with special focus on emergency situations, to improve patient safety during transitions of care[14]. However, dentists can only access this information after obtaining written consent from the patient. In most dental practices, the documented medication list is obtained through a written or verbal history provided by the patient, a method with inherent limitations. In the studies conducted by Choi *et al.*[11] and Raknes *et al.*[12], omissions of non-prescription therapies and natural medicines were frequent when the history was gathered by the dental provider using a patient report. Additionally, research suggests that patients, despite having knowledge of medication management support tools and methods, are not likely to use these when consulting a dental clinic[15]. While medication discrepancies were prevalent in both studies, Choi *et al.*[16] found, in a follow-up study, that a pharmacist-led intervention resulted in a statistically significant reduction in the frequency of medication discrepancies and medication omissions. This intervention consisted of a pharmacist-designed prompt within the dental record to guide dental providers in conducting a focussed medication reconciliation and was coupled with a pharmacist-led educational session on collecting and updating accurate medication lists during patient encounters.

Interprofessional collaboration between pharmacists and dentists may provide solutions to these problems. In addition to being a specialist in oral health, dentists share an interest in improving the general health of their patients. Pharmacists may be a helpful partner in this work by providing dentists with updated information on changes in evidence-based guidelines and advice on potential side effects and interactions. A closer interprofessional relationship between these two groups may also encourage pharmacists working in community pharmacies to take a more active role as promoters of oral health, by assisting in self-care and over-the-counter medication use and referring people to dentists for both emergent and routine care[17]. We have found that the pharmacist–dentist partnership gives new and broader views on research and believe that this interprofessional alliance may lead to better practice and research, with the ultimate goal of increasing patient safety and improving care.

These preliminary reports concerning medication discrepancies in dental records indicate that interprofessional collaboration between the dental team and pharmacists should be initiated at all educational levels in dentistry and pharmacy. Inclusion of oral health as a therapeutic area in didactic pharmacy curricula is needed. Early exposure of dental students and student pharmacists to collaborative practices through interprofessional educational experiences may create a higher degree of awareness of each profession's role and the potential to improve patient outcomes. It may also be beneficial to include medical students in these experiences because of their pivotal role in prescribing. Furthermore, efforts are needed to develop a systematic approach for medication review and reconciliation in dental practice to obtain accurate medication lists, potentially by utilising health information technology.

Acknowledgement

None.

Conflict of interest

None.

Funding

None.

REFERENCES

1. Brindley MJ, Longman LP, Randall C *et al.* Oral side-effects and potential interactions with dentally prescribed medication. *Prim Dent Care* 2003 10: 113–118.
2. Han P, Suarez-Duall P, Mulligan R. Dry mouth: a critical topic for older adult patients. *J Prosthodont Res* 2015 59: 6–19.

3. Fardal Ø, Lygre H. Management of periodontal disease in patients using calcium channel blockers – gingival overgrowth, prescribed medications, treatment responses and added treatment costs. *J Clin Periodontol* 2015 42: 640–646.
4. Wilson W, Taubert K, Gewitz M *et al.* Prevention of infective endocarditis: guidelines from the American Heart Association: a guideline from the American Heart Association Rheumatic Fever, Endocarditis, and Kawasaki Disease Committee, Council on Cardiovascular Disease in the Young, and the Council on Clinical Cardiology, Council on Cardiovascular Surgery and Anesthesia, and the Quality of Care and Outcomes Research Interdisciplinary Working Group. *Circulation* 2007 116: 1736–1754.
5. Watters W III, Rethman MP, Hanson NB *et al.* Prevention of orthopaedic implant infection in patients undergoing dental procedures. Executive summary on the AAOS/ADA Clinical Practice Guideline. *J Am Acad Orthop Surg* 2013 21: 180–189.
6. Dar-Odeh NS, Abu-Hammad OA, Al-Omiri MK *et al.* Antibiotic prescribing practices by dentists: a review. *Ther Clin Risk Manag* 2010 6: 301–306.
7. Kokta N, Stewart A. Appropriate antimicrobial selection in dental practice. *J Am Pharm Assoc* 2016 56: e18.
8. Dionne RA, Gordon SM, Moore PA. Prescribing opioid analgesics for acute dental pain: time to change clinical practices in response to evidence and misperceptions. *Compend Contin Educ Dent* 2016 37: 372–378.
9. Ekedahl A, Brosius H, Jonsson J *et al.* Discrepancies between the electronic medical record, the prescription in the Swedish national prescription repository and the current medication reported by patients. *Pharmacoepidemiol Drug Saf* 2011 20: 1177–1183.
10. Stewart AL, Lynch KJ. Pharmacist conducted medication review to identify medication record discrepancies in the electronic medical record in a primary care setting. *J Am Pharm Assoc* 2012 52: 59–66.
11. Choi H, Stewart A, Rosenfeld B *et al.* Medication discrepancies in the dental record: implications on oral health. *J Am Pharm Assoc* 2015 55: e169.
12. Raknes RB, Lygre H, Klock K *et al.* Registration of drug use in dental records. *Norw Dent J* 2015 125: 626–632.
13. Valle-Oseguera C, Boyce EG. Dentists and pharmacists: paradigm shifts and interprofessional collaborative practice models. *J Calif Dent Assoc* 2015 43: 591–595.
14. Haffner J. The core journal as a work tool? *Tidsskr Nor Laegeforen* 2015 135: 112.
15. Ressem SLA, Klock KS, Lygre H *et al.* Are the patients a reliable source when dentists hear about drug use? *Norw Dent J* 2016 126: 626–632.
16. Choi H, Stewart A, Tu C. Impact of a pharmacist-led intervention on medication reconciliation processes in a dental practice. *J Am Pharm Assoc* 2016 56: e65.
17. Cohen LA. Enhancing pharmacists' role as oral health advisors. *J Am Pharm Assoc* 2013 53: 316–321.

Correspondence to:
Henning Lygre,
Department of Clinical Dentistry,
Faculty of Medicine and Dentistry,
University of Bergen,
Postboks 7804,
N-5020 Bergen, Norway.
Email: henning.lygre@uib.no