




Proceeding Paper

Engaging the Global Dental Profession to Help Tackle Antibiotic Resistance †

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Abstract: In the pre-antibiotic era, deaths from dental infections were common. Dentists are responsible for prescribing around 10% of antibiotics across healthcare globally. During 2020, dental antibiotic prescribing increased dramatically due to COVID-19 pandemic restrictions on dental procedures, which are vital for preventing and managing dental infections. FDI World Dental Federation responded with a framework about the essential role of dental teams in tackling antibiotic resistance, setting out a program to engage the global dental profession. Three exemplars include an open online course (with >2300 learners enrolled from >100 countries), a pledge for national dental organizations, and an early career researcher network.

Keywords: dental care; oral health; antibiotic; antimicrobial; resistance; engagement; communication



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1. Project Overview

“Rotten teeth are rarely life-threatening, thanks to antibiotics” [1]. In the pre-antibiotic era, however, death from oral and dental infections were common [2]. Dentists are responsible for around 10% of antibiotic prescribing across human healthcare globally [3].

During 2020, dental antibiotic prescribing increased dramatically due to COVID-19 pandemic restrictions on dental procedures to prevent and manage dental infections [4]. In response, FDI World Dental Federation (Geneva, Switzerland) published a framework about the essential role of dental teams in tackling antibiotic resistance [3]. Aligned with the World Health Organization (WHO) (Geneva, Switzerland) Global Action Plan’s objectives [5], its recommendations aim to raise awareness, prevent infections, and optimise the use of antibiotics in dentistry, including by building the capacity of the global research base for dental antibiotic prescribing, resistance, and stewardship. To accompany its launch, an online library of resources which can be tailored to the local context was published [6], along with an open online course [7].

FDI is the main representative body for more than one million dentists worldwide. Its membership comprises some 200 national member associations and specialist groups in over 130 countries. In addition to the exemplar projects described in the following sections, FDI continues to engage and communicate about dental antibiotics globally, including through professional webinars [8], courses [7], and conferences [9], as well as with the wider public through media releases [10] and online videos [11] via World Dental Congress [9], AMR Youth Summit, International Association for Dental Research [12], and FDI’s Oral Health Campus [8].

Three exemplars are presented to demonstrate the impact so far of FDI's framework and how it has been embedded across the dental community globally: at the clinical (dental team and patient) level via national dental associations, and with academia. These include an open online course [7], a pledge for national dental organisations [13], and a network for early career researchers [14].

2. Outcomes and Impact

2.1. Engaging with Individuals

Accompanying the FDI white paper [3] is an open online course developed collaboratively with Future Learn and the British Society for Antimicrobial Chemotherapy (BSAC) [7]. Since its launch during World Antimicrobial Awareness Week (WAAW) 2020, more than 2300 learners have enrolled from more than 100 countries, including 61 Global South countries. Designed to provide something for everyone whilst recognising the breadth of experience and differences in local contexts, FDI is delighted with the course's popularity among dental students (from Afghanistan, Bolivia, Mongolia, and many more countries), aspiring dental students, and the wider public.

2.2. Commitment of National Organizations

FDI's white paper [3] encourages National Dental Associations (NDAs) and other organisations to commit to tackling antibiotic resistance, to advocate for dentistry within national action plans on antimicrobial resistance (AMR), and to support members of the profession to use antibiotics responsibly. To support delivery of this goal, FDI produced a pledge for them to tackle antibiotic resistance by implementing local activities, such as raising awareness, preventing dental infections and optimising antibiotic prescribing [13]. Launched during WAAW 2021, more than 60 NDAs and 50 other dental organisations/individuals have signed so far.

2.3. Capacity of Researchers

At the International Association for Dental Research (IADR) 2021, FDI launched its Global Antimicrobial Research in Dentistry (GARD) early career researcher network. Its aim is to build capacity for research on dental antimicrobial prescribing, resistance, and stewardship, and it already has over 100 members from around the world, including pharmacists, infectious disease specialists, and, of course, dentists. Details of its monthly online journal club are advertised via its LinkedIn forum. At these lively Zoom events, volunteers present their recent research (with 20 presentations so far) and ideas for future collaborations are generated. The results of one such study reviewing guidelines in Latin America were presented at IADR 2022 [12]. Another study involved co-developing international consensus on a core outcome set for dental antibiotic stewardship with patients, clinicians, and academics participating in the study [15].

3. Future Development

3.1. Engaging the Public

Responding to feedback from the online course, a set of resources highlighting the benefits of managing dental pain and infection without antibiotics will aim to reduce professional intention to prescribe, and public desire for, antibiotics by tackling the erroneous yet widespread perception that antibiotics are necessary and appropriate for treating acute dental problems [16]. FDI intends to produce awareness-raising posters, leaflets and videos which can be used globally. Template resources for member National Dental Associations and other partners will also be provided, which can be adapted to address local problems, such as over-the-counter access to antibiotics [17].

3.2. National and International Action

FDI will continue to use its influence to encourage the inclusion of dentistry within national action plans on AMR and vice versa (AMR within oral health plans). FDI is

particularly pleased that the WHO recently incorporated AMR into its global oral health action plan, and more recently its Global Oral Health Status Report 2022 [18].

World Dental Congress Sydney 2023 will be the first in-person event since the white paper's publication. A celebratory event for signatories of FDI's pledge is planned to publicly share their successes and encourage a wider range of signatories, including from South America, Africa, businesses, and charities involved with dentistry.

3.3. Collaborative Research and Mentoring

International collaborative research through the GARD network will be our future focus for active engagement with academic stakeholders. Network members will be involved with disseminating the results of our studies, including the review of Latin American guidelines [12] and the international consensus on a core outcome set for dental antibiotic stewardship [15] once they are published. Collaboration has also commenced on an international survey to identify patterns of practice and attitudes towards antibiotic prophylaxis for surgical site infections following dental procedures. This will be the first project to benefit from the network's mentoring programme.

In addition, an IADR symposium proposal on noma was conceived during a GARD journal club. This life-threatening tropical disease starts as an oral infection in severely malnourished children, and without effective antibiotic treatment is fatal in 90% of cases. The noma symposium has been accepted for the IADR General Session 2023, Bogota, Colombia.

Supplementary Materials: A poster to showcase how FDI's antibiotic stewardship program engaged the global dental profession is presented as Supplementary Material. The poster is available at <https://www.mdpi.com/article/10.3390/msf2022015013/s1>, Poster: Engaging the global dental profession to help tackle antibiotic resistance.

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