**Appendix**

**Dentists’ perceptions of antimicrobial use for dental procedures**

Appendix 1. Baseline Characteristics of the respondents

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| Respondents’ baseline characteristics  |  |
| Age, median (range)  |  36 (24-64) |
| Gender |  |
|  Male | 78 (70.3) |
|  Female | 33 (29.7) |
| Post-graduate year, median (range)  |  11 (1-44) |
| Board certified status (Japanese Society of Oral and Maxillofacial Surgeons) |  |
| None |  27 (24.3) |
| Board certified member |  40 (36.0) |
| Board certified specialist |  33 (29.7) |
| Board certified instructor |  8 (7.2) |
| Others |  3 (2.7) |
| Work place |  |
|  University hospital |  49 (44.1) |
|  Community hospital (number of beds ≥ 400) |  26 (23.4) |
|  Community hospital (number of beds < 400) |  14 (12.6) |
|  Clinic |  21 (18.9) |
|  Others |  1 (0.9) |

NOTE. Values are *n* (%) unless otherwise indicated

Appendix 2. Current antimicrobial prophylaxis practice against infective endocarditis and local infection or complications following selected dental procedures.

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|  | No antimicrobial prophylaxis  | Pre-procedural antimicrobial prophylaxis only  | Pre- and post- procedural antimicrobial prophylaxis(≤ 48 hours post procedure)  | Pre- and post- procedural antimicrobial prophylaxis(> 48 hours post procedure) | Post-procedural antimicrobial prophylaxis only(≤ 48 hours post procedure) | Post-procedural antimicrobial prophylaxis only(> 48 hours post procedure) |
| Antimicrobial prophylaxis against IE in patients with certain medical conditions |
|  Patients with congenital cyanotic heart diseases  | 5 (4.5) | 11 (9.9) | 46 (41.4) | 43 (38.7) | 3 (2.7) | 3 (2.7) |
|  Patients with prosthetic cardiac valve or  prosthetic material used for cardiac valve repair | 1 (0.9) | 8 (7.2) | 53 (47.8) | 47 (42.3) | 0 | 2 (1.8) |
|  Patients with history of IE | 1 (0.9) | 7 (6.3) | 51 (46.0) | 50 (45.1) | 0 | 2 (1.8) |
|  Patients with CIED placement within 1 year | 15 (13.5) | 8 (7.2) | 36 (32.4) | 28 (25.2) | 8 (7.2) | 16 (14.4) |
|  Patients with CIED placement over 1 year | 21 (18.9) | 6 (5.4) | 29 (26.1) | 19 (17.1) | 14 (12.6) | 22 (19.8) |
|  Patients with cardiac stent placement within 1 year | 17 (15.3) | 4 (3.6) | 35 (31.5) | 31 (27.9) | 9 (8.1) | 15 (13.5) |
|  Patients with cardiac stent placement over 1 year  | 24 (21.6) | 3 (2.7) | 32 (28.8) | 21 (18.9) | 14 (12.6) | 17 (15.3) |
|  Patients with prosthetic joint placement within 1 year | 24 (21.6) | 2 (1.8) | 29 (26.1) | 17 (15.3) | 18 (16.2) | 21 (18.9) |
|  Patients with prosthetic joint placement over 1 year  | 28 (25.2) | 2 (1.8) | 26 (23.4) | 13 (11.7) | 18 (16.2) | 24 (21.6) |
| Antimicrobial prophylaxis against local infection or complications following selected dental procedures (for patients without medical condition) |
| Noninvasive procedure | 90 (81.1) | 4 (3.6) | 3 (2.7) | 4 (3.6) | 5 (4.5) | 5 (4.5) |
| Orthodontic premolar tooth extractions | 39 (35.1) | 4 (3.6) | 10 (9.0) | 2 (1.8) | 31 (27.9) | 25 (22.5) |
| Wisdom tooth extraction without pericoronitis | 7 (6.3) | 2 (1.8) | 15 (13.5) | 11 (9.9) | 29 (26.1) | 47 (42.3) |
| Wisdom tooth extraction with pericoronitis | 5 (4.5) | 2 (1.8) | 23 (20.7) | 15 (13.5) | 19 (17.1) | 47 (42.3) |
| Frenotomies | 26 (23.4) | 3 (2.7) | 9 (8.1) | 3 (2.7) | 42 (37.8) | 28 (25.2) |
| Dental implant placement | 5 (4.5) | 4 (3.6) | 13 (11.7) | 18 (16.2) | 24 (21.6) | 47 (42.3) |

NOTE. IE; infective endocarditis, CIED; cardiac implantable electronic device

Appendix 3. Dentists’ perceptions of antimicrobial prophylaxis against infective endocarditis and infection or complications after selected dental procedures by workplace.

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| Questions  | University hospital (n=49) | Non-university hospital (n=62) | P |
| Proportion of strongly agree or agree |
| **Antimicrobial prophylaxis for infective endocarditis**  |  |  |  |
|  I understand the indications for antimicrobial prophylaxis against IE (e.g., the AHA guidelines) | 39 (79.6) | 55 (88.7) | 0.19 |
|  I ask patients if they have any medical conditions normally requiring antimicrobial prophylaxis against IE prior to  performing a dental procedure. (e.g., history of IE, prosthetic valve placement, congenital heart disease)  | 43 (87.8) | 59 (95.2) | 0.16 |
| **Perceptions of pre-procedural antimicrobial prophylaxis only for IE prevention**  |  |  |  |
|  I believe that administering pre-procedural antimicrobial prophylaxis only is adequate to prevent IE.  | 17 (34.7) | 16 (25.8) | 0.31 |
|  I was taught that pre-procedural antimicrobial prophylaxis only is adequate to prevent IE. | 12 (24.5) | 10 (16.1) | 0.27 |
|  Administering pre-procedural antimicrobial prophylaxis only is common at my current workplace.  |  9 (18.4) |  8 (12.9) | 0.43 |
|  I administer pre-procedural antimicrobial prophylaxis only (without post-procedural antimicrobials) because I am  concerned about the emergence of antimicrobial resistance.  | 24 (49.0) | 39 (62.9) | 0.14 |
|  I administer pre-procedural antimicrobial prophylaxis only (without post-procedural antimicrobial administration)  because I am concerned about antimicrobial side effects.  | 25 (51.0) | 21 (33.9) | 0.07 |
|  I administer pre-procedural antimicrobial prophylaxis only (without post-procedural antimicrobial administration)  because the development of *Clostridium difficile* infection is worrisome.  | 16 (32.7) | 20 (32.3) | 0.97 |
| **Perceptions of post-procedural antimicrobial prophylaxis for IE prevention** |  |  |  |
|  I believe continuing antimicrobial prophylaxis after a dental procedure is important to prevent IE. | 33 (67.4) | 48 (77.4) | 0.24 |
|  I continue to prescribe antimicrobials post-procedurally because I believe that antimicrobials can further reduce IE incidence.  | 26 (53.1) | 43 (69.4) | 0.08 |
|  I continue to prescribe antimicrobials post-procedurally because I believe antimicrobials can further reduce the severity of pain.  |  5 (10.2) | 10 (16.1) | 0.37 |
|  I continue to prescribe antimicrobials post-procedurally because I believe antimicrobials can reduce the duration of pain.  |  7 (14.3) | 12 (19.4) | 0.48 |
|  I continue to prescribe antimicrobials post-procedurally because my workplace has a culture of prescribing post-procedural  antimicrobials.  | 30 (61.2) | 30 (48.4) | 0.18 |
|  I continue to prescribe antimicrobials post-procedurally due to my fear of lawsuits  (if IE occurs in the absence of post- procedural antimicrobials).  | 34 (69.4) | 38 (61.3) | 0.38 |
|  I continue to prescribe antimicrobials post-procedurally because patients ask for them. | 19 (38.8) | 13 (21.0) | 0.04 |
|  I continue to prescribe antimicrobials post-procedurally because patients’ families ask for them. | 16 (32.7) | 13 (21.0) | 0.16 |
|  I continue to prescribe antimicrobials post-procedurally just to be safe.  | 24 (49.0) | 24 (38.7) | 0.28 |
|  I continue to prescribe antimicrobials post-procedurally because other dentists do so.  | 20 (40.8) | 15 (24.2) | 0.06 |
| **Perception of antimicrobial prophylaxis for tooth extraction**  |  |  |  |
|  Pre-procedural antimicrobial administration is more important than post-procedural antimicrobial administration.  | 34 (69.4) | 46 (74.2) | 0.58 |
|  Both pre- and post-procedural antimicrobial administrations are important. | 32 (65.3) | 36 (58.1) | 0.44 |
|  Post-procedural antimicrobial administration is more important than pre-procedural antimicrobial administration.  | 10 (20.4) | 16 (25.8) | 0.51 |
|  Risk of infection and complications is different after wisdom tooth extraction than after first premolar tooth extraction.  |  |  |  |
| **Perception of antimicrobial prophylaxis for dental implants** |  |  |  |
|  Pre-procedural antimicrobial administration is more important than post-procedural antimicrobial administration.  | 32 (65.3) | 42 (67.7) | 0.79 |
|  Both pre- and post-procedural antimicrobial administrations are important. | 30 (61.2) | 35 (56.5) | 0.61 |
|  Post-procedural antimicrobial administration is more important than pre-procedural antimicrobial administration.  | 11 (22.5) | 19 (30.7) | 0.33 |
| **Perceptions of antimicrobial resistance**  |  |  |  |
|  I am aware of the Japanese government’s antimicrobial resistance action plan of 2016.  | 20 (40.8) | 33 (53.2) | 0.19 |
|  I am aware that the Ministry of Health, Labour and Welfare published guidelines for antimicrobial stewardship in 2017.  | 35 (71.4) | 33 (53.2) | 0.05 |
|  I believe that antimicrobial prescription practices in dentistry should be improved.  | 42 (85.7) | 55 (88.7) | 0.64 |

NOTE. IE; infective endocarditis, CIED; cardiac implantable electronic device