**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