

Division of Disease Control & Molecular Epidemiology Department of Oral Growth & Development

Welcome to our website of the Division of Disease Control & Molecular Epidemiology, Department of Oral Growth & Development at the School of Dentistry of the Health Sciences University of Hokkaido. I am Hiroko Miura, D.D.S., Ph.D., Professor of this Division.

Faculty Members

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Our Mission

The mainstay of work is providing education to undergraduate students of the School of Dentistry and its adjunct College of Dental Hygienists.

Our researches extend from public health surveys towards social, behavioral, legal, ethical, epidemiological, and biostatistical studies being related to dental medicine.

Herein, priority is given to investigations in microbiology, epidemiology, and research about preventing oral diseases, about health politics and health care conditions in and outside of Japan.

Objectives of Oral Health and Preventive Dentistry

Prevention of dental caries and regular screening of pupils for dental diseases remain important. However, a broader image of oral health is required these days. Oral health correlated strongly with overall well-being and, therefore, prevention of oral diseases must imply health promotion on an extensive scale.

Dental caries, as an example, is an infectious disease, but it is also related to our lifestyles. Smoking, a lifestyle-related factor, exerts health-damaging functions, induces periodontal diseases, oral mucosal lesions, halitosis, or even bronchitis, pneumonia, and lung cancer. And this, of course, implies that in order to preserve oral health, we should avoid smoking.

Brushing one's teeth alone may not suffice to promote oral health. Meanwhile, an adjustment of lifestyle may be a powerful means to prevent oral diseases. Our goal is to elucidate the role of oral health in systemic health. Also, we have approached by motivating and educating people about these issues.

Research Topics

Health services research on Dentistry

Health services research on Dentistry requires multidisciplinary approaches that examine the relationship between social factors, financial systems, medical technology, accessibility to health care, and the quality and cost of oral health care.

Oral epidemiology for the community-dwelling elderly

Epidemiological studies on factors related to the decline of oral function in community-dwelling older adults will significantly impact future dental health measures in Japan. We are developing evaluation methods to identify the decline in oral function and researching effective intervention methods to maintain and improve oral function.

Epidemiological research using receipt data

Oral conditions are very important for systemic conditions, such as the relationship between periodontal disease and diabetes. We are using receipt data as big data to study the influence of oral conditions such as periodontal disease for medical conditions and its economic costs.

Research in behavioral science for oral hygiene and oral conditions

Understanding from the perspective of behavioral science, especially psychological factors, is important in promoting behavior change in patients. We study the role of psychological factors such as self-efficacy for oral hygiene behavior and oral conditions.

Involved in epigenetics in oral diseases

The epigenetic mechanisms in oral health are DNA methylation and histone modification although our understanding of their biology and regulation is incomplete. We are particularly studying the epigenetics of periodontal disease.

Analysis of oral microbiota

Attention is being paid to the relationship between the state of the oral microbiota and systemic diseases such as lifestyle-related diseases and heart failure. We are working on metagenomic analysis using NGS.

Current publications

1. Hara S, **Miura H**, Hita T, Sasaki S, Ito H, Kozaki Y, Kawasaki Y. Relationship between Psychological Status and Health Behaviors during the Coronavirus Disease Pandemic in Japanese Community-Dwelling Older Adults. *Int J Environ Res Public Health*. 2021 Nov 2;18(21):11512. doi: 10.3390/ijerph182111512. PMID: 34770027; PMCID: PMC8583692.
2. Kodama T, Ida Y, Oshima K, **Miura H**. Are Public Oral Care Services Evenly Distributed?-Nation-Wide Assessment of the Provision of Oral Care in Japan Using the National Database of Health Insurance Claims. *Int J Environ Res Public Health*. 2021 Oct 15;18(20):10850. doi: 10.3390/ijerph182010850. PMID: 34682591; PMCID: PMC8536066.
3. Tano R, **Miura H**, Oshima K, Noritake K, Fukuda H. Relationship between career education experience among final-year dental hygiene students and their perspective towards work and profession: A nationwide survey in dental hygiene schools of Japan. *Int J Dent Hyg*. 2021 Jul 14. doi: 10.1111/idh.12535. Epub ahead of print. PMID: 34261194.
4. Khurelchuluun A, **Uehara O**, Paudel D, Morikawa T, Kawano Y, Sakata M, Shibata H, Yoshida K, Sato J, Miura H, Nagayasu H, Abiko Y. Bee Pollen Diet Alters the Bacterial Flora and Antimicrobial Peptides in the Oral Cavities of Mice. *Foods*. 2021 Jun 4;10(6):1282. doi: 10.3390/foods10061282. PMID: 34199731; PMCID: PMC8229366.
5. Oshima K, Kodama T, Ida Y, **Miura H**. Gender Differences in Work Status during Early Career of Dentists: An Analysis of National Survey Cohort Data of 10 Years in Japan. *Int J Environ Res Public Health*. 2021 Feb 27;18(5):2335. doi:10.3390/ijerph18052335. PMID: 33673503; PMCID: PMC7967721.
6. **Miura H**, Tano R, Oshima K, Usui Y. Analysis of Factors Related to Working Status of Dental Hygienists in Japan. *Int J Environ Res Public Health*. 2021 Jan 24;18(3):1025. doi: 10.3390/ijerph18031025. PMID: 33498949; PMCID: PMC7908456.
7. Chujo T, Yoshida K, Takai R, **Uehara O**, **Matsuoka H**, Morikawa T, Sato J, Chiba I, Matsuzaka K, Abiko Y. Analysis of DNA methylation of E-cadherin and p16ink4a in oral lichen planus/oral lichenoid lesions. *Clin Exp Dent Res*. 2021 Apr;7(2):205-210. doi: 10.1002/cre2.355. Epub 2020 Dec 3. PMID:33274608; PMCID: PMC8019760.
8. Kawano Y, Tanaka M, Fujishima M, Okumura E, Takekoshi H, Takada K, **Uehara O**, Abiko Y, Takeda H. *Acanthopanax senticosus* Harms extract causes G0/G1 cell cycle arrest and autophagy via inhibition of Rubicon in human liver cancer cells. *Oncol Rep*. 2021 Mar;45(3):1193-1201. doi: 10.3892/or.2021.7948. Epub 2021 Jan 22. PMID: 33650674; PMCID: PMC7859978.
9. Sultana S, **Uehara O**, Yoshida K, Saito T, Abiko Y. The histone deacetylase inhibitor, entinostat (MS-275), induces the odontogenic differentiation of an odontoblast-like cell line in the absence of an osteoblast mineralization medium. *Odontology*. 2021 Jul;109(3):661-671. doi: 10.1007/s10266-020-00588-8. Epub 2021 Jan 21. PMID: 33475895.
10. Yoshida K, **Uehara O**, Kurashige Y, Paudel D, Onishi A, Neopane P, Hiraki D, Morikawa T, Harada F, Takai R, Sato J, Saitoh M, Abiko Y. Direct reprogramming of epithelial cell rests of malassez into mesenchymal-like cells by epigenetic agents. *Sci Rep*. 2021 Jan 20;11(1):1852. doi: 10.1038/s41598-020-79426-4. PMID: 33473142; PMCID: PMC7817677.
11. Abiko Y, Paudel D, **Matsuoka H**, Moriya M, Toyofuku A. Psychological Backgrounds of Medically Compromised Patients and Its Implication in Dentistry: A Narrative Review. *Int J Environ Res Public Health*. 2021 Aug 20;18(16):8792. doi: 10.3390/ijerph18168792. PMID: 34444548; PMCID: PMC8392062.