Human Mouth to Gateway of Whole Body
Human Mouth to Gateway of Whole Body”—the key to establish oral medical education system supporting globalization of Faculty of Dentistry and super aging society

Faculty of Dentistry Hiroshima University was founded in 1965. We celebrate our 50th anniversary in 2015 standing the entrance into the next half of century and also facing the rapid advancement of the super aging society. Looking ahead of this situation, we have promoted to nurture “Oral Health Professionals for 21st century”over the past 10 years. Furthermore, cross points of strategic plans for internationalization and nurturing Oral Health Professionals for the 21st century that we have focused on, starts to develop.

Dean’s Interview

Dean, Faculty of Dentistry, Hiroshima University

Prof. Motoyuki Sugai

Dean, Faculty of Dentistry, Hiroshima University

Professor, Department of Bacteriology

Dean’s Interview

—2014 is the third year of International Dental Course. Do you recognize any progress for international strategies?

International Dental Course using Dual-Linguistic Education System; Japanese and English, has worked smoothly as students can easily adapt to the unique educational approach while teachers go behind them in some cases. However, International Dental Course is the main strategic program that is the key to raise oral health professionals for the 21st century and the fruit of the passion and hard work that academic staff at Faculty of Dentistry had put a great effort on succeeding the course. We will continue to further develop the course.

Numbers of international students accepted and Japanese students sent to overseas partner institutions through international exchange programs have recently increased. You can see a globalization Kasumi campus. When I read reports submitted by students, I find them impressive. Students tend to feel less pressure or anxious to conduct something special such as going abroad or using English. For example, they visit Airlangga University, Indonesia where we have a very close partnership, return with a lot of exchange experiences and knowledge just like traveling in Japan.

Through these experiences, students gain global evaluation skills which reflect self-assessment and self-recognition as a Hiroshima University dental student from international perspectives.

Wherever students go, UK, Canada or Vietnam, they will evaluate themselves if they are globally competent enough as a dental student or not. This would be the very point that brings out higher educational effects.

International Dental Course which Japanese and international students learn in the same class using English and Japanese, also provides a great opportunity to raise the personnel doing global assessment.

Developed ASEAN countries having clinical qualities equivalent to other dental schools of advanced nations

In other words, the institutions with higher clinical achievements are able to develop the professionals who have the perspective to equally evaluate the world.

This indicates that Europe, Asia, Japan, no matter where it is, we should admit excellent attainment is excellent. The importance is to have an eye for fair evaluations by global standards free from prejudice.

Indeed, International Dental Course students from Indonesia, Vietnam and Cambodia are super excellent.

The other day, I went to Mahidol University, Thailand to conclude international exchange agreement and also visited facilities of Faculty of Dentistry. I am amazed by splendid dental education facilities which were large in scale; more than 600 latest dental chairs (made in Japan) and around 230 latest computer-controlled systems for clinical practices were equipped. At Mahidol University, 130~140 dental students were enrolled in each year. Furthermore, International Dental Course similar to that of Hiroshima University Faculty of Dentistry is under preparation for its establishment and 60-70 students will be admitted. Moving toward in the realization of ASEAN regional integration by 2015, the new course is obviously meant to be founded to gather excellent students from ASEAN countries and offer them qualified education in English for the future demand.

— I am afraid the course would compete with international strategies of Faculty of Dentistry Hiroshima University aiming to establish Educational, research base in the fields of dental medicine and oral health science in Asia. What do you think about it?

Of course, it would. It is better for both institutions because if there is no competition or conflict, there is no progress. When the educational program is recognized as efficient and necessary, other institutions also try to introduce it that will cause competition and further development. This is a pattern for success. The dynamic movement of Mahidol University made me convinced of the success of our international strategies.

Thailand is confident of its clinical competence and aims to play a leading role in ASEAN countries. In Asia, people no longer regard the world by conventional concept that Asia is inferior to Western countries. I truly hope that students will acquire global perspectives.
Opening ceremony of “Oral Health Collaboration Research Center”, newly established at Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at Hô Chi Minh City, Vietnam

Computer-controlled device for clinical practices at Faculty of Dentistry Mahidol University; equipped with 230 devices and approx. 23 million yen per each.

Faculty of Dentistry Mahidol University has recently started to put more emphasis on research (inside a dental research unit).

Faculty of Dentistry Mahidol University is furnished with over 600 latest dental chairs (made in Japan).

Inter-professional Education

However, Asian countries are still weak in terms of dental education management such as Inter-professional Education (Inter-professional Education-IPE) and it is very important to build the rigid educational system. The key is to establish dental education system at global standards.

—What is Inter-professional Education?

Medical care by specialists from various medical fields centering on patient’s condition is called “Team approached medicine”, while IPE is a systematic education of team approached medicine (please refer to Chart 1). It becomes necessary to learn patient-centered care with interdisciplinary collaboration for health care specialists from undergraduate years. Yet, doctor-centered medical and dental care is still widely conducted in Asian countries.

—Why is IPE needed?

A super-aging society has been progressing very rapidly in Japan. In such a society, medical professionals are required to create the basement to support lifelong oral care “from the cradle to the grave”.

Looking at oral medicine, there are three specialized professional areas: dental doctor, dental hygienist, and dental technician. Considering common symptoms of super-elderly patients, it becomes difficult to treat them using conventional doctor-centered dentistry.

Efficient oral diagnosis needs collaboration with the three specialist fields. Therefore, learning patient-centered care from undergraduate level is important.

Dental doctors shall be oral specialists (BioDentist) based on biology while dental technicians shall be dental technology specialists exceeding a framework of oral practice and dental hygienists shall play a key role as specialists “taking care of an entire body from oral medicine” that is a consistent health management from the cradle to the grave.

Treating a patient by experiences or intuitions is behind the times. Alternatively, providing dental care in collaboration with various medical professions is moving into the mainstream for health care. We should establish the inter-professional education as an organized academic system which further needs to meet global standards. Then we can make contribution to developing globally recognized oral medicine through export of the education system to other Asian nations.

Importance of research and expectations from Asian countries

The field we Faculty of Dentistry can contribute especially to Asian countries is “research”. Actually, several research fields of clinical medicine are fairly advanced in parts of Asia. However, compared with western countries, they still remain underdeveloped. Research environments themselves are not well equipped in some Asian nations. In such an environment while putting effort in raising capable personnel by active acceptance of dental students at graduate level. We offer all International Dental Course students the priority to enter “Course for Frontier Dental Science”, School of Dentistry.

Asian countries are very enthusiastic for research and basic sciences. At ICDD (International Collaboration Development for Dentistry) Center, lectures are transmitted to multiple overseas institutions such as Airlangga University, Indonesia and University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam via a TV Conferencing System so that overseas students can take live lessons with Japanese students. Professor Tanimoto, Dept. of Orthodontics and Craniofacial Developmental Biology gave a lecture using the conference system. Over 160 Airlangga University dental students participated in the lecture and a live discussion (questions and answers) was held after that. This made us realize that “export” of our educational service has finally begun.

Building structures in response to globalization

—You will celebrate the Faculty’s 50th Anniversary in 2015. If you look at the faculty’s history (see chart 1), we notice that the first 30 years is the period of establishing a comprehensive foundation, whereas the next 20 years or especially the recent decade is the period of rapidly constructing internationally active “Faculty of Dentistry Hiroshima University” with use of unique strategies. What is your next goal to be achieved?

There are still so many projects to be worked on…. but if I were to choose, I would say establishment of a totally new oral care system responding to super-aged society and a systematic academic approach to support the system, and nurturing oral health practitioners enable to take an important role in the new system as many as possible. This is not an easy work, but I believe that making the model for the new dental treatment would make a major contribution to not only Japan but also other countries, especially Asia. In the late 21st century, Asian nations would confront aging society and super-aging society and also face the same problems as Japan.
Faculty of Dentistry was established. (a quota of 40 students per year)
1966 April Four departments: Department of Oral Anatomy, Department of Oral Physiology, Department of Oral Biochemistry and Department of Oral Pathology were founded.
1967 April Six departments: Department of Oral Anatomy II, Department of Oral Microbiology, Department of Biomaterials Science, Department of Operative Dentistry I, Department of Removable Prosthetics II and Department of Oral Surgery were founded.
May The administrative Faculty Committee was abolished.
June Hospital Outpatient Clinic of the first phase was completed.
University Dental Hospital was established with 3 clinical departments; Department of Operative Dentistry I, Department of Oral Surgery, Department of Removable Prosthetics I.
1968 April Three departments (Department of Dental Pharmacology, Department of Preventive Dentistry and Department of Orthodontics) were founded.
1969 April Two departments (Department of Endodontics and Periodontology II, Department of Fixed Prosthetics II) were founded.
1972 April Graduate School of Dental Science (Ph. D. Degree Course) was established.
The entrance ceremony for the first batch of the Graduate School of Dental Science was held.
1973 April Department of Oral Surgery II was added. The already existing Department of Oral Surgery was renamed Department of Oral Surgery I.
1978 April Department of Oral Radiology was founded.
A quota per year was increased to 80 students.
1979 April Department of Pediatric Dentistry was founded.
A quota per year was changed to 60 students.
1987 April A quota per year was changed to 55 students.
Department of Dental Anesthesiology was founded.
Two Programs of Graduate School of Dental Science were integrated into one program.
Two-course system; Course for Frontier Dental Science and Course for Clinical Dental Science, was started.
1990 May Nineteen departments were reorganized into five major departments.
2000 April Graduate Schools of Medical Sciences and Dental Science were reorganized into Graduate School of Biomedical Sciences.
2003 October University Hospital and University Dental Hospital were merged into a single organization, Hiroshima University Hospital.
2004 April Hiroshima University was renamed as Hiroshima University National University Corporation under the National University Corporation Law.
2005 April School of Oral Health Science (4-year) was established with 2 divisions; Division of Oral Health Science and Division of Oral Health Engineering.
Hiroshima University Faculty of Dentistry celebrated the 40th anniversary of its foundation.
2006 January The 1st Hiroshima Conference on Education and Science in Dentistry was held celebrating the 40th Anniversary.
2007 October The 2nd Hiroshima Conference on Education and Science in Dentistry was held.
2008 October Graduate Program of BioDental Education was started.
2009 April Master’s Program for Oral Health Sciences was set up in the Graduate School of Biomedical Sciences.
School of Oral Health Science was renamed (only Japanese).
2009 November 3rd Hiroshima Conference on Education and Science in Dentistry was held.
2010 April Divisions of School of Oral Health Science were renamed as Course of Oral Science and Course of Oral Engineering.
2010 October BioDental Curriculum Center was founded.
2010 November BioDental education undergraduate program was started.
2011 April Doctor’s Program for School of Oral Health Science was set up in the Graduate School of Biomedical Sciences.
The number of students admitted for School of Dentistry per year was changed to 53.
Department of International Collaboration Development for Dentistry was newly established.
2011 September Student Exchange Support Program sponsored by JASSO; Scholarships for Short-Term Visit (SV) and Short-Term Stay (SS) Programs, was introduced.
2011 October International Dental Course was established in the Faculty of Dentistry.
4th Hiroshima Conference on Education and Science in Dentistry was held.
2012 April Graduate School of Biomedical Sciences and Graduate School of Health Sciences were reorganized into Graduate School of Biomedical & Health Sciences.
Accordingly, Program of Dental Sciences (Division of Dental Sciences), Oral Health Sciences Major (Clinical Course and Research Course) (Division of Oral Health Sciences) were established.
Classes for International Dental Course began.
2012 October Admission of Short-term stay program students (undergraduate) students (6-month) was started.
2013 October 5th Hiroshima Conference on Education and Science was held.
It is my honor and privilege to serve as Dean of Faculty of Dentistry during our 50th Anniversary celebration.
Hiroshima University Faculty of Dentistry celebrates the 50th Anniversary of its foundation in 2015.

Back in 1962, Hiroshima Prefecture Dental Association first proposed the establishment of Faculty of Dentistry. Having gained considerable support from Faculty of Medicine, our Faculty was officially recognized as a faculty of the university operated under post-war guidelines (new-system education) having high expectations from the people of Hiroshima. Looking back our history, I found there were three specific phases for its progressive development as follows:
1. Establishment of comprehensive educational bases for dentistry until 1970
3. Establishment of “International Educational, research base in the fields of dental medicine and oral health sciences in Asia” 2000-Present

In the past 50-year, Faculty of Dentistry has produced many professionals with specialized skills: “BioDentists”, dental practitioners capable of promoting the next generation of dental care grounded in life sciences, “Oral engineers” who focus on engineering and life sciences exceeding the framework of conventional dental technologies, and “Oral health manager”, dental hygienists capable of managing a life-long oral hygiene while understanding the patient’s overall health.
Japan is currently facing “birth rate decline and super-aging society”. Under the slogan of “Human Mouth as Gateway of Whole Body”, from an early stage, our Faculty has tackled with the problems generated from the birth rate decline and super-aging society while nurturing excellent personnel in oral care and oral health promotion. Thus, we have contributed strongly to dental education and research both nationally and internationally.

Dear all alumni, I would like to extend my sincere gratitude for your great contributions to the enhancement of education and research for undergraduate / resident programs as well as the faculty’s various academic activities through tangible / intangible supports that many alumni have offered to us.
Dear all members of the Faculty’s Support Society, I highly appreciate your cordial contributions to the improvement of faculty education and student life.
We will continue to strive for further development of Faculty of Dentistry Hiroshima University in collaboration with alumni, students and academic staff.

Our faculty is still working on tasks needed to be completed for the achievement of the 3rd phase, “Establishment of “International Educational, research base in the fields of dental medicine and oral health sciences in Asia”. When I look toward the future progress while reflecting upon the history, I feel deeply emotional and also tense to celebrate the 50th Anniversary.

Presenting the main theme of the 50th Anniversary as “What is the main goal of dental medicine in the future?”, we are holding various commemorative events including a ceremony, special lectures and a banquet which are being planned in collaboration with the Alumni Association and Support Society for Faculty of Dentistry. Taking this valuable opportunity, we, Faculty of Dentistry Hiroshima University, promise to push on towards drastic progress of dental education / research, oral care and oral health science at both national and international levels responding to a new era. It would be grateful if you offer us your warm support and cooperation.
I wish you continued success and prosperity.

November 2014
Motoyuki Sugai
Dean, Faculty of Dentistry
Hiroshima University

50th Anniversary Events
Following is a list of events being held:
1. 50th Anniversary Memorial Ceremony
What is the main goal of dental medicine in the future? – transmitted from Hiroshima
2. 50th Anniversary Special lecture
Dr. Hideo Kawahara
3. 6th Hiroshima Conference on Education and Science in Dentistry
4. 2nd Symposium on Nutrition and Health - Commemorating “10th Anniversary Commemoration of School of Oral Health"
5. Publication of “What is the main goal of dental medicine in the future?” - perspective from Hiroshima University Faculty of Dentistry
6. Special Forum for 50th Anniversary Commemoration
Theme: Food, Health and Future Dentistry
7. Foundation of Fund for International Exchange Activities
8. Foundation of “Peace International Dental Center Hiroshima” to commemorate 50th Anniversary
To create a common ground cross-bridging Japan with Western and Asian nations as an international center of excellence in dental education and research

Faculty of Dentistry Hiroshima University focuses on two main features for internationalization: The first mission is to establish a base for dental education and research for international networking with Asian countries, while acting as a hub for harnessing Asia with western countries. The other aspect is to promote personnel exchanges of academic staffs, graduate and undergraduate students. It seems that both movements strongly help students to develop their potentials.

Our internationalization has begun with personnel exchanges of academic staffs such as professors followed by young investigators and graduate students. Especially, we have accepted many dental students mostly from Asian or Middle Eastern countries. Student exchange at an undergraduate level has really started since the late 2000s (refer to P37, Mutual International Exchanges of Undergraduate Students as of May 2014). Since the long-term admission (1-year) of 3 undergraduates from Taipei Medical University in 2006, graduate level admission from overseas sister universities was further extended to the undergraduate level.

Besides in-bound international students, the number of Japanese students going abroad has gradually increased since 2009. On September 2011, 3 undergraduate students visited Faculty of Dentistry, The University of British Columbia, Canada for a short-term stay (one and a half month). At that time, both numbers of international students admitted to our Faculty and Japanese students admitted to partner universities drastically increased. On October 2011, International Dental Course having a full start in April 2012 was founded in School of Dentistry and 3 students; 2 from Airlangga University and 1 student from HCMC were accepted for 4-year study program. From 2012 on, we admit 3 students to International Dental Course every year.

Prof. Takashi Takata, committee member, Department of International Collaboration Development for Dentistry and Chair, Department of Oral and Maxillofacial Pathobiology told as follows: “As our conventional goal to establish dental education base in Asia, we have delegated our dental students mostly to Asian countries. However, I think that it is also necessary to give our students opportunities to observe laboratories doing dentistry research in western countries. In addition to The University of British Columbia, we could conclude the international exchange agreement with The University of Sheffield, UK in 2013. A short-term visit program (one and a half month) has just been enforced in 2014. Almost half of our Japanese students will have an experience of studying abroad in any way.”

In the background of starting these student delegations to western institutions, there is a major aim to establish a common ground among Western and Asian dental research centers and Hiroshima University (refer to the chart 1), on the basis of our achievements gained till now by academic and research exchanges with Asian countries.

Enhancing student opportunities to feel current international circumstances

Prof. Takata explained one of the reasons why Faculty of Dentistry Hiroshima University promotes and supports internationalization; “Future dental practitioners need to pay more attention to the world as well as Japan. We think it is our important mission to offer our students opportunities to catch up the trend of internationalization that the world moves every moment. Hopefully we will be able to say all HU dental students have an experience to study abroad in the future.”

In fact, International Dental Course (since April 2011) was established so that students could greatly grow to be oral health professionals from this perspective. Prof. Takata said, “There are at least 3 international students (long-term stay) in one class at School of Dentistry. Furthermore, 8 international students under a short-stay 6-month program are also included in the class, while around 10 international students under a short-stay 10 days program additionally join the class. This means that about one third of the class would be overseas students. Students are fortunate to experience ongoing internationalization by learning in such global environments from undergraduate programs. Of course their common using language is English.”

ASEAN unification by 2015

Faculty’s international strategies; founding “an Asian base for education and research in the fields of dental medicine and oral health science” and raising dental students who can play leading roles in global environments have been in great need in the world.

To simply explain the regional integration of 10 ASEAN countries, it is an ASEAN version (AEC; ASEAN Economic Community) of European Community (EC). As can be seen in Figure 1, a single regional common market with a population of 600 million will emerge in Southeast Asia where all the countries are rapidly growing. As a first step towards realizing AEC, the recognition of professional qualifications and skills including doctors and dentists is to be implemented in 2015. In other words, a domestic dental license acquired in ASEAN community can be extensively used in other ASEAN nations. Moreover, shared issues for ASEAN 10 countries are overwhelming shortages of dental practitioners, educators to develop dental doctors, dental medical universities, dental hygienists’ schools, researchers and research facilities.

Prof. Takata stressed: “Poor oral health conditions of Asian people, especially children are serious problems and still requires a considerable time to be solved. We as dental practitioners on equal partnerships should make efforts to find solutions by collaborating with the Asian nations so that we all can confront the same issues.”

We will see our graduates as skilled professionals playing leading roles in the ASEAN community in time.

Takashi Takata, Professor
<also Executive and Vice President of Hiroshima University in charge of Industry-Academia-Government Collaboration, Community Relations, Public Relations and Academic Information, since April, 2015>
ASEAN (Association of South-East Asian Nations) FACT SHEET

Member states ( ) indicates population

Indonesia (247 million), Singapore (5.41 million), Thailand (67.17 million), Philippines (103.77 million), Malaysia (29.33 million), Brunei (400,000), Vietnam (91.70 million), Myanmar (50.02 million), Laos (6.32 million), Cambodia (15.13 million)

Current status
Regional Economic Integration starting in 2015
Mutual recognition of qualifications for professionals including dentists
Observer countries
Papua New Guinea (6.73 million)
East Timor (1.13 million)

Headquarters
Jakarta, Indonesia
Since 2009, around 50 countries such as US and China appointed Ambassadors to ASEAN. In 2011, the Japanese Government office for ASEAN was founded with the post of the Ambassador. In 2014, Poland assigned the Ambassador to ASEAN.

Chair countries
2010 Vietnam
2011 Indonesia
2012 Cambodia
2013 Brunei
2014 Myanmar
2015 Malaysia

Organizations or centers related with ASEAN
There are 11 organizations and centers for ASEAN unification such as ASEAN University Network (AUN) :headquarters; Bankok, ASEAN Centre of Energy (ACE): headquarter; Jakarta

Common language
English

Regional population (AEC)
600 million (compared with 500 million of EC)

Nominal GDP
2,135.1 billion US dollars (2011)

Real GDP Purchasing Power Parity (PPP)
3,080.0 billion US dollars (2011)
Approx. 38% of Japan’s, the 8th largest in the world as ASEAN itself

Trade value
Outside AEC 2,400.0 billion US dollars (2011)
AEC 598.0 billion US dollars (2011)
### Present status of internationalization at Faculty of Dentistry, Hiroshima University

#### Mutual international exchanges of undergraduate students as of May 2014

Notes: SS indicates short-term stay programs accepting overseas undergraduate students for 1-3 month while SV indicates short-term visit programs sending undergraduate students from HU to overseas universities/institutions for 1-3 month.

<table>
<thead>
<tr>
<th>Year</th>
<th>Period</th>
<th>Distribution</th>
<th>Contents</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>October</td>
<td>SS</td>
<td>Accepting as a college student</td>
<td>3 dental students from Taipei Medical University for a year</td>
</tr>
<tr>
<td>2006-2007</td>
<td>Oct. 2006-Sep. 2007</td>
<td>SS</td>
<td>3 dental students from Taipei Medical University</td>
<td></td>
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<tr>
<td></td>
<td>January-February</td>
<td>SS</td>
<td>12 dental students from Taipei Medical University</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>August</td>
<td>SV</td>
<td>3 dental students participated in Asia Pacific Dental Students’ Association held in Taiwan.</td>
<td></td>
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<tr>
<td></td>
<td>August-September</td>
<td>SV</td>
<td>A HU dental student joined the English Training program at University of Exeter (UK) : credit transfer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>SS</td>
<td>Dental students visited HU under the program, “Asia Pacific Dental Students’ Association” also joined in 2nd Hiroshima Conference with academic staff. Participant universities are as follows: 2 University of Malaya, Malaysia, 2 Chulalongkorn University, Thailand, 2 Khon Kaen University, Thailand, 2 The University of Hong Kong, China, 2 Taipei Medical University, Taiwan, 1 Sun Yat-sen University, China, 2 Sichuan University, China, 2 Wonkwang University, Korea, 2 Univ. of Medicine and Pharmacy at Hochi Minh City, Vietnam, and some academic staff from each institution</td>
<td></td>
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<tr>
<td>2008</td>
<td>January-February</td>
<td>SS</td>
<td>9 dental students from Taipei Medical University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>SV</td>
<td>2 HU dental students to Khon Kaen University</td>
<td></td>
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<tr>
<td></td>
<td>March</td>
<td>SV</td>
<td>Dental students went to Univ. of Medicine and Pharmacy at Hochi Minh City for medical support activities as student volunteers of JAVDO (Japan Voluntary Dental Organization).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>SS</td>
<td>2 dental students from Khon Kaen University</td>
<td></td>
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<tr>
<td>2008-2009</td>
<td>Oct. 2008-Sep. 2009</td>
<td>SS</td>
<td>13 dental students from Taipei Medical University for a year</td>
<td></td>
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<tr>
<td></td>
<td>February</td>
<td>SS</td>
<td>9 dental students from Taipei Medical University</td>
<td></td>
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<tr>
<td></td>
<td>April</td>
<td>SS</td>
<td>2 dental students from Khon Kaen University</td>
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<tr>
<td></td>
<td>August-September</td>
<td>SV</td>
<td>A HU dental student to Taipei Medical University</td>
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<tr>
<td></td>
<td>August-September</td>
<td>SV</td>
<td>A HU dental student to The University of British Columbia (UBC), Canada</td>
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<tr>
<td></td>
<td>September</td>
<td>SV</td>
<td>9 HU dental students joined medical/dental treatment support activities in Cambodia and also visited Univ. of Health Sciences.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>SV</td>
<td>A HU dental student to Khon Kaen University</td>
<td></td>
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<tr>
<td>2009</td>
<td>November</td>
<td>SS</td>
<td>Many overseas students joined in 3rd Hiroshima Conference and developed international exchanges with undergraduate students: Participan universities: Airlangga University (Indonesia), Chulalongkorn University (Thailand), Astana Medical University (Kazakhstan), The University of Hong Kong (China), Sichuan University (China), Tianjin Medical University (China), IMU (Malaysia), University of Malaya (Malaysia), University of Peradeniya (Sri Lanka), Wonkwang University (Korea)</td>
<td></td>
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<tr>
<td></td>
<td>February</td>
<td>SS</td>
<td>15 dental students from Taipei Medical University</td>
<td></td>
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<tr>
<td></td>
<td>February</td>
<td>SV</td>
<td>3 HU dental students joined medical/dental treatment support activities in Cambodia and also visited Univ. of Health Sciences.</td>
<td></td>
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<tr>
<td>2010</td>
<td>March</td>
<td>SV</td>
<td>A HU dental student to University of Massachusetts (Boston, USA)</td>
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<tr>
<td></td>
<td>March</td>
<td>SV</td>
<td>2 dental students to Khon Kaen University</td>
<td></td>
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<tr>
<td></td>
<td>June</td>
<td>SS</td>
<td>2 dental students from Wonkwang University</td>
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<tr>
<td></td>
<td>August</td>
<td>SS</td>
<td>A medical student from University of Graz (Austria)</td>
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<td></td>
<td>August</td>
<td>SS</td>
<td>17 dental students from Taipei Medical University</td>
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<tr>
<td></td>
<td>September</td>
<td>SV</td>
<td>5 dental students joined medical/dental treatment support activities in Cambodia and also visited Univ. of Health Sciences.</td>
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<tr>
<td></td>
<td>November</td>
<td>SV</td>
<td>20 dental students from Taipei Medical University</td>
<td></td>
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<tr>
<td></td>
<td>January</td>
<td>SS</td>
<td>3 HU dental students joined medical/dental treatment support activities in Cambodia</td>
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</tr>
<tr>
<td></td>
<td>February</td>
<td>SV</td>
<td>3 HU dental students joined medical/dental treatment support activities in Cambodia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>SS</td>
<td>1 dental student from Wonkwang University for a short-term staying program for 3 months</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>March</td>
<td>SV</td>
<td>3 dental students from Taipei Medical University</td>
<td></td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>SV</td>
<td>3 HU dental students to UBC for a month</td>
<td></td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>SS</td>
<td>Graduate students visited HU under the program, “Asia Pacific Dental Students’ Association” also joined in 4th Hiroshima Conference: Participant Universities; 13 graduate students of partner universities from 9 Asian countries</td>
<td></td>
</tr>
<tr>
<td>Oct. 2011-Sep. 2015 (4 years)</td>
<td>A long-term staying program (IDC)</td>
<td>SV</td>
<td>3 dental students accepted under International Dental Course (4-year program)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>October-December</td>
<td>SS</td>
<td>6 dental students (4 from Airlangga University and 2 from Khon Kaen University)</td>
<td></td>
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</tbody>
</table>
### Present status of internationalization at Faculty of Dentistry, Hiroshima University

#### Year 2012

<table>
<thead>
<tr>
<th>Period</th>
<th>Distribution</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>SS</td>
<td>19 dental students from Taipei Medical University</td>
</tr>
<tr>
<td>February-March</td>
<td>SV</td>
<td>12 HU dental students joined medical/dental treatment support activities in Cambodia</td>
</tr>
<tr>
<td>March</td>
<td>SS</td>
<td>3 dental students; 1 from UBC and 2 from Univ. of Washington</td>
</tr>
<tr>
<td>March</td>
<td>SV</td>
<td>The 3 International Dental Course students went back to their home countries and had educational training at their home universities.</td>
</tr>
<tr>
<td>August</td>
<td>SS</td>
<td>20 dental students from Taipei Medical University for 5 days</td>
</tr>
<tr>
<td>September</td>
<td>SV</td>
<td>2 dental students to UBC for a month</td>
</tr>
<tr>
<td>Oct. 2012-Sep. 2016</td>
<td>SS (6-month)</td>
<td>3 dental students accepted under International Dental Course (4-year program) from Airlangga University, University of Medicine and Pharmacy at Ho Chi Minh City and University of Health Sciences</td>
</tr>
<tr>
<td>Oct. 2012-Mar. 2013</td>
<td>SS (6-month)</td>
<td>6 students under SS (6-month) program; 3 from Airlangga University and 3 from University of Medicine and Pharmacy at Ho Chi Minh City</td>
</tr>
<tr>
<td>November</td>
<td>SS</td>
<td>12 dental students from 6 Universities for 10 days; 2 Wonkwang University, 2 Khon Kaen University, 2 Chulalongkorn University, 2 University of Medicine and Pharmacy at Ho Chi Minh City, 2 University of Health Sciences, 2 Airlangga University</td>
</tr>
</tbody>
</table>

#### Year 2013

<table>
<thead>
<tr>
<th>Period</th>
<th>Distribution</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>SS</td>
<td>4 dental students from Taipei Medical University for 5 days</td>
</tr>
<tr>
<td>February</td>
<td>SV</td>
<td>14 HU dental students joined medical/dental treatment support activities in Cambodia</td>
</tr>
<tr>
<td>March</td>
<td>SV</td>
<td>12 dental students to oversea partner universities for 5 days; 5 Taipei Medical University, 5 Airlangga University</td>
</tr>
<tr>
<td>August</td>
<td>SS</td>
<td>5 dental students from Taipei Medical University for 5 days</td>
</tr>
<tr>
<td>September</td>
<td>SS</td>
<td>20 dental students from Taipei Medical University</td>
</tr>
<tr>
<td>September</td>
<td>SV</td>
<td>4 dental students to UBC for a month</td>
</tr>
<tr>
<td>October</td>
<td>SS</td>
<td>14 dental students from 7 Universities for 10 days; 1 Wonkwang University, 3 Airlangga University, 2 Khon Kaen University, 2 Chulalongkorn University, 2 University of Medicine and Pharmacy at Ho Chi Minh City, 2 University of Health Sciences, 2 Airlangga University</td>
</tr>
<tr>
<td>Oct. 2013-Sep. 2017</td>
<td>SS (6-month)</td>
<td>6 students under SS (6-month) program; 2 from Airlangga University and 1 from University of Medicine and Pharmacy at Ho Chi Minh City, 1 from Taipei Medical University and 2 from Khon Kaen University</td>
</tr>
<tr>
<td>Oct. 2013-Mar. 2014</td>
<td>SS</td>
<td>3 dental students accepted under International Dental Course (4-year program) from Airlangga University, University of Medicine and Pharmacy at Ho Chi Minh City and University of Health Sciences, Cambodia</td>
</tr>
<tr>
<td>February</td>
<td>SV</td>
<td>12 HU dental students joined medical/dental treatment support activities in Cambodia</td>
</tr>
<tr>
<td>March</td>
<td>SV</td>
<td>12 dental students to 3 Universities for 10 days; 3 Airlangga University and 4 University of Medicine and Pharmacy at Ho Chi Minh City, 5 Taipei Medical University</td>
</tr>
<tr>
<td>April 2014-March 2015</td>
<td>SS</td>
<td>1 dental student from Universidade de Sao Paulo under Science without borders Program for 1 year</td>
</tr>
<tr>
<td>August</td>
<td>SV; planned</td>
<td>3 dental students to The University of Sheffield, UK for 1 and a half months</td>
</tr>
<tr>
<td>Oct. 2014-Sep. 2018</td>
<td>SS (6-month); planned</td>
<td>3 dental students accepted under International Dental Course (4-year program) from Airlangga University, University of Medicine and Pharmacy at Ho Chi Minh City and University of Health Sciences</td>
</tr>
<tr>
<td>Oct. 2014-Mar. 2015</td>
<td>SS (6-month); planned</td>
<td>8 students under SS (6-month) program from oversea partner universities</td>
</tr>
<tr>
<td>November</td>
<td>SS; planned</td>
<td>18 students from oversea partner universities for 10 days</td>
</tr>
</tbody>
</table>

#### Year 2015

<table>
<thead>
<tr>
<th>Period</th>
<th>Distribution</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>SV; planned</td>
<td>25 students to oversea partner universities for 10 days</td>
</tr>
</tbody>
</table>
“Educational, research base in the fields of dental medicine and oral health science in Asia” Driving force for our strategic concept — Hiroshima Conference

The official name of “Hiroshima Conference” is “Hiroshima Conference on Education and Science in Dentistry” (“Hiroshima International Conference on dental education and dental research”). In Asian dental fields, the name of “Hiroshima Conference” has been widely known. Hiroshima Conference (abbreviated as HC hereafter) is the very driving force for international strategies of Faculty of Dentistry Hiroshima University.

First of all, let’s take a look at details of the start to hold HC.

2005 was the 40th anniversary of Hiroshima University Faculty of Dentistry since its establishment in 1965. Professor Kurihara, the then Dean and faculty members, had discussed over what they should focus on for the anniversary as a main feature. Of course, they could just hold a formal ceremony and party, but they didn’t think that way. Rather, they kept in mind that the 40th anniversary should be a starting point for the next 10 years to organize the best educational environment for students. And they found “internationalization” could be one of the most essential tasks for students and academic staff.

Now, “internationalization” or “globalization” is the common goal for Japanese Universities, and the cultivation of globally active personnel has become a fundamental task for higher education. However, the institutional internationalization was not considered as an essential and strategic scheme in 2005.

At Faculty of Dentistry Hiroshima University, dental education and research centering on Europe and the U.S. were practiced. On the other hand, Asian educational and research base on dental education and research whose social environment and dental treatment were totally different from western countries was strongly encouraged to be established.

Thus, the new concept to hold an International Conference on dental education and research focusing on dental medicine and oral health science in Asia had started to be discussed as a major event for the 40th anniversary that later became “Hiroshima Conference”. Looking back now, it was unthinkable just one university (Hiroshima University) would hold an international conference by itself. Especially, Faculty of Dentistry was relatively small compared to other faculties. In spite of this, all dental professors determined to achieve the plan with extraordinary efforts. Besides, we gained understanding and support from President of Hiroshima University that facilitated the realization of our Faculty’s innovative concept.

1st HC was held in January 2006 since the idea was proposed in 2005. At the same time, Deans’ meeting participated by deans from overseas sister institutions and held during the 2-day conference was launched and discussed on solution measures to cooperatively cope with goals and problems of dental education and research for each institution and country. They all agreed to hold the meeting every other year for continued collaborative discussions.

Professors or representatives attended the conference with study abroad experiences also accorded the significance of face to face exchanges among young researchers and students across the border. They already understood that those live experiences would make a great effect on young people’s growth beyond fields.

Hiroshima Conference providing students a place for international exchanges

2nd HC was held in January 2007, the following year after the 1st HC in 2006. Since 2005 was the 40th anniversary, 2007 was 2 years later.

We held the 1st HC as the memorial event for the 50th Anniversary, but in fact, 2nd HC became more important because it would be the key conference whether we could host HC every other year as we promised at Deans’ meeting. In the background of hosting the 2nd HC, we cannot overlook the great support from administrative staff who also agreed to the faculty concept to offer dental students excellent academic environments.

Under the program, “Hiroshima Peace Seminar for Asian Dental Students”, many undergraduate students from Asian partner institutions visited Hiroshima University and shared academic and cultural exchanges with our dental students at the same period of the 2nd HC. Since the 2nd HC, accepting international students from Asian countries such as Indonesia, Thailand, Vietnam and Taiwan under short stay programs is now a customary activity. Students take lectures and visit dental laboratories or Hospital facilities at Kasumi Campus, while participating in HC and international and cultural exchanges with Japanese students.

<table>
<thead>
<tr>
<th>Chart 2</th>
<th>Past Hiroshima Conference</th>
<th>Venue : International Conference Center HIROSHIMA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Date</td>
<td>Supplementary information</td>
</tr>
<tr>
<td>1st HC</td>
<td>January 8–9, 2006</td>
<td>Main event for &quot;The 40th Anniversary of Hiroshima University Faculty of Dentistry&quot;</td>
</tr>
<tr>
<td>2nd HC</td>
<td>October 6–7, 2007</td>
<td>Simultaneously held with &quot;Hiroshima Seminar for Asian Dental Students&quot;</td>
</tr>
<tr>
<td>3rd HC</td>
<td>November 7–8, 2009</td>
<td>Consecutively held with 23rd annual meeting of &quot;Japanese Dental Education Association&quot;</td>
</tr>
<tr>
<td>4th HC</td>
<td>October 9–10, 2011</td>
<td>Consecutively held with 59th Annual Meeting of &quot;Japanese Association for Dental Research (JADR)&quot;</td>
</tr>
<tr>
<td>5th HC</td>
<td>October 12–13, 2013</td>
<td>Simultaneously held with &quot;International Symposium on Food, Nutrition and Health&quot;</td>
</tr>
<tr>
<td>6th HC</td>
<td>October 24–25, 2015 (scheduled)</td>
<td>Main event for &quot;The 50th Anniversary of Hiroshima University Faculty of Dentistry&quot;</td>
</tr>
</tbody>
</table>
3rd Hiroshima Conference: Qualitative change from international exchange international collaboration

We found the qualitative change from international exchange to international collaboration since 3rd HC. Compared with past meetings, participants became familiar, started to frankly consult each other about their problems or aims to improve their dental schools. This led to discuss on education and research collaborations as the main theme at Deans’ meeting held during the conference by the participation of deans from 16 overseas institutions centering on China and Southeast Asia.

4th Hiroshima Conference (November 2011)

<table>
<thead>
<tr>
<th>Nation</th>
<th>University / Institution</th>
<th>Number of Abstracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Airlangga University</td>
<td>3</td>
</tr>
<tr>
<td>Thailand</td>
<td>Chulalongkorn University</td>
<td>3</td>
</tr>
<tr>
<td>Cambodia</td>
<td>University of Health Sciences</td>
<td>2</td>
</tr>
<tr>
<td>Vietnam</td>
<td>University of Medicine and Pharmacy at Ho Chi Minh City</td>
<td>1</td>
</tr>
<tr>
<td>China</td>
<td>The University of Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>University of Malaya</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taipei Medical University</td>
<td>1</td>
</tr>
<tr>
<td>Korea</td>
<td>Wonkwang University</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>Hiroshima University</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>9 Nations (region) 11 Universities</td>
<td>31</td>
</tr>
</tbody>
</table>

5th Hiroshima Conference (October 2013)

<table>
<thead>
<tr>
<th>Nation</th>
<th>University / Institution</th>
<th>Number of Abstracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Airlangga University</td>
<td>8</td>
</tr>
<tr>
<td>Thailand</td>
<td>Chulalongkorn University</td>
<td>2</td>
</tr>
<tr>
<td>Cambodia</td>
<td>University of Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Vietnam</td>
<td>University of Medicine and Pharmacy at Ho Chi Minh City</td>
<td>1</td>
</tr>
<tr>
<td>China</td>
<td>The University of Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>International Medical University</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Kaohsiung Medical University</td>
<td>1</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>University of Peradeniya</td>
<td>1</td>
</tr>
<tr>
<td>Korea</td>
<td>Wonkwang University</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>The University of Tokushima</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>9 Nations (region) 18 Universities</td>
<td>64</td>
</tr>
</tbody>
</table>

*The number includes 5 abstracts presented by international students.

A group photo of invited speakers/guests, representatives from partner universities and faculty members participated in “5th Hiroshima Conference”

**Chart 1**

Hiroshima Conference on Education and Science in Dentistry: Number of poster abstracts by university/institution

3rd Hiroshima Conference (November 2009)

<table>
<thead>
<tr>
<th>Nation</th>
<th>University / Institution</th>
<th>Number of Abstracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>Airlangga University</td>
<td>2</td>
</tr>
<tr>
<td>Thailand</td>
<td>Chulalongkorn University</td>
<td>6</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Astana Medical University</td>
<td>10</td>
</tr>
<tr>
<td>China</td>
<td>The University of Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>Malaysia</td>
<td>International Medical University</td>
<td>1</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Kaohsiung Medical University</td>
<td>3</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>University of Peradeniya</td>
<td>1</td>
</tr>
<tr>
<td>Korea</td>
<td>Wonkwang University</td>
<td>1</td>
</tr>
<tr>
<td>Japan</td>
<td>The University of Tokushima</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>9 Nations (region) 21 Universities</td>
<td>70</td>
</tr>
</tbody>
</table>

5th HC : Special lecture by Dr. T.E. Van Dyke, Forsyth Institute, USA

5th HC : Poster Session

Deans’ Meeting held during 5th HC: Active discussion was continued over the planned time.

Faculty Gazette Vol.2 Faculty of Dentistry, Hiroshima University
4th Hiroshima Conference, sequentially held with 59th Annual Meeting of JADR

International Association for Dental Research – IADR is one of the world largest academic research organizations in dentistry. Its division in Japan is Japanese Association for Dental Research (JADR), the 2nd largest organization followed by American division: Takashi Takata, Professor, Department of Oral and Maxillofacial Pathology will serve as President of JADR in 2015.

4th HC was consecutively held with 59th Annual Meeting of JADR inviting internationally and nationally famous personnel in medical and dental fields. Moreover, many Asian graduate students in dentistry attended the conference and discussed on current situations of dental medicine and international health care support in Asia respectively at the two meetings: the discussion contents and reports were released: please note graduate students are also academic staff in many Asian countries. The two-day meetings, 4th HC and JADR provided dental professionals in western countries as well as Japan the further recognition of dental problems to be solved in Asian nations such as the shortage of dental professionals, the necessity of new oral health science approaches and building dental education system.

5th HC - Offering participants more enriched education and research

Unlike 3rd and 4th HC, 5th HC was a single event without combined meetings. But it showed a remarkable development in several aspects.

One of the features was the compulsory participation of undergraduate dental students which was intended to establish internationally active education environments. Only a limited number of undergraduate students attended the past HC (1-4), because there was a large disparity between undergraduate and graduate students. 3 years have passed since International Dental Course using dual linguistic education system was founded in School of Dentistry (please refer to P13-13). Senior undergraduate students were given more opportunities to present their research works than before. Therefore, 5th HC was a good timing to require undergraduate students to participate as Faculty of Dentistry. Honestly, we noticed some students looked bewildered to experience the whole meeting which was conducted in English; Official using language of HC is English from its beginning. We were convinced that their HC participation provided significant impacts on many students through valuable experience of global trends.

Strengthening academic and research relationships with Western nations

Number of participants from medical and dental fields in western countries has been increased since the 3rd HC. The trend became more obvious at 5th HC. We invited 2 guest speakers: Dr. T.E. Van Dyke, The Forsyth Institute, USA delivered a lecture on a new approach on resolution of inflammation in periodontitis while Dr. J.E. Aubin, Canadian Institutes of Health Research, Canada gave a lecture on the latest research on osteoblast lineage. Furthermore, at the education session, Prof. P.M. Speight, Dean, The School of Clinical Dentistry, The University of Sheffield, UK and Prof. C.F. Shuler, Dean, Faculty of Dentistry, UBC, Canada, presented dental education system of the respective university and country. Besides the lectures, we found they actively joined in discussions or reception parties sharing productive talks with professors from not only Hiroshima University but also other Asian institutions until late at night. A decade ago, Asian countries used to learn advanced research and education from western nations. But it has recently been changed to the trend that western countries discuss on dental issues facing in Asia and try to find solution measures together: Middle East and African countries will also confront the same problems on dental medicine as Asia. In a word, currently there is a strong tendency that global oral health problems are shared by everyone.

Expansion of university partnerships

5th HC has clearly contributed Faculty of Dentistry Hiroshima University to increase academic exchange agreements with oversea institutions. Please take a look at “international exchange agreements” on Page 36. We concluded the agreements with The University of Sheffield The School of Clinical Dentistry, UK, Catholic University of Pusan The College of Health Sciences, Korea, University of Dental Medicine, Yangon, Myanmar at 5th HC in 2013. We not merely made these affiliations but also prepared to dispatch dental students to the institutions for a short period while welcoming international students from the affiliated universities this year. The grown number of partner institutions offers students more opportunities to expand their global scopes. Continually, in early 2014 we made academic agreements with University of Dental Medicine, Mandalay, Myanmar and Mahidol University Faculty of Dentistry, Thailand further strengthening collaborative relations with ASEAN.

6th HC – Main event for the 50th Anniversary year

Let’s look at the transition of poster sessions from 1st HC to 5th HC (Please refer to Chart 1 on page 9). A poster session allows young investigators, graduate students and even undergraduate students (in some cases) to present their research works. The number of posters submitted can reflect the importance of HC for Asian countries. Except for the 3rd and 4th HC continually held with other national dental meetings; we had more participants from several Japanese Universities, the number of participants from leading dental universities in East and Southeast Asia has been increased and stabilized. At the same time, more and more Hiroshima University graduate and undergraduate students became active HC participants.

Thus, Hiroshima Conference which began 10 years ago has been the main driving force towards a robust internationalization for Faculty of Dentistry Hiroshima University. It has also offered our dental students wonderful educational opportunities directly and indirectly since the start of 2006. 6th HC to be held in 2015 shall be the most significant key to the success of the 50th Anniversary of Hiroshima University Faculty of Dentistry. We are looking forward to seeing further developments in 2015, our memorial year.

Indonesian Night held during 5th HC: Indonesian alumni such as current professors and deans, HC participants gathered together and reaffirmed close ties with our faculty members.

On the following day after 5th HC, Hiroshima University, Prefectural University of Hiroshima and Hiroshima Jogakuin University jointly held “International Symposium on Food, Nutrition and Health”. HC participants also joined the meeting and enjoyed lively debates.

A group photo of representatives / professors from universities participated in “International Symposium on Food, Nutrition and Health”
History after 2000

Chief events after 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Chief events</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>April</td>
<td>2-course system; Course for Frontier Dental Science, Course for Clinical Dental Science was introduced for the first time in Japan.</td>
</tr>
<tr>
<td>2005</td>
<td>April</td>
<td>4-year system was established at School of Oral Health Science, while 6-year educational system was founded at School of Dentistry. School of Oral Health Science consists of 2 courses; Course for Oral Science described as Oral Health Manager and Course of Oral Engineering described as Oral Engineer. It was also the first time that 4-year educational system for School of Oral Health Science was set up in Japan.</td>
</tr>
<tr>
<td>2006</td>
<td>January</td>
<td>The 40th Anniversary of the founding of Faculty of Dentistry, Hiroshima University</td>
</tr>
<tr>
<td>2007</td>
<td>October</td>
<td>1st Hiroshima Conference on Education and Science in Dentistry, international conference for dental education with overseas participants from universities with academic exchange agreements, was held for the purpose of establishing “International educational, research base in the fields of dental medicine and oral health science in Asia”</td>
</tr>
<tr>
<td>2008</td>
<td>October</td>
<td>2nd Hiroshima Conference on Education and Science in Dentistry in conjunction with “Hiroshima Seminar for Asian Dental Students” was held. Many students and young researchers from overseas universities with academic agreements shared fruitful experiences during the period. The exchange of human resources was variously extended to students as well as staff members.</td>
</tr>
<tr>
<td>2009</td>
<td>October</td>
<td>The Twinning Program for Advanced Dental Medicine Promotion in Southeast Asia was implemented. 3 students (per year) selected from Asian universities with academic agreements were invited to study at the doctorate level as Japanese Government scholarship recipients. The Program offering all the lectures in English also attracted many privately-funded overseas students.</td>
</tr>
<tr>
<td>2010</td>
<td>April</td>
<td>“Hiroshima University Faculty of Dentistry International Exchange Communication Club (HUDIC)” was launched as one of club activities for undergraduate students. The growing number of overseas students visiting Faculty of Dentistry under short-term staying programs has led HUDIC members to work on international exchange activities.</td>
</tr>
<tr>
<td>2011</td>
<td>September</td>
<td>Short-Term Stay (SS) and Short-Term Visit (SV) Programs for 2011 began.</td>
</tr>
<tr>
<td>2012</td>
<td>October</td>
<td>3 dental students were accepted under International Dental Course (4-year program) : 2 students from Indonesia and 1 student from Vietnam</td>
</tr>
<tr>
<td>2013</td>
<td>October</td>
<td>After the 6-month preparatory education, the 1st International Dental Course students officially started their studies with a new curriculum by using English-Japanese dual linguistic education system.</td>
</tr>
<tr>
<td>2014</td>
<td>November</td>
<td>Undergraduate Program for BioDental Education was started with the aim of developing the next generation of dentistry and dental care. One of the distinctive features of the program is Integrated dental education (dentists, dental hygienists, and dental technicians).</td>
</tr>
</tbody>
</table>

International Exchange Agreements

Faculty of Dentistry, University of Newcastle Upon Tyne: UK (1994)
West China School of Stomatology, Sichuan University: China (1995)
University of Malaya: Malaysia (1995)
Faculty of Odontology, Gothenburg University: Sweden (1998)
Faculty of Dentistry, Airlangga University: Indonesia (1999)
College of Dentistry, Wonkwang University: Korea (2000)
Faculty of Dentistry, University of Concepcion: Chile (2000)
Faculty of Dentistry, The University of Hong Kong: China (2000)
Faculty of Dentistry, University of Athens: Greece (2001)
Chulalongkorn University: Thailand (2003)
College of Oral Medicine, Taipei Medical University: Taiwan (2005)
School of Dentistry, University of Washington: USA (2006)
Faculty of Dentistry, Khon Kaen University: Thailand (2007)
Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at Ho Chi Minh City: Vietnam (2008)
The College of Dental Medicine, Kaohsiung Medical University: Taiwan (2009)

Faculty of Odonto-Stomatology, University of Health Sciences: Cambodia (2009)
Faculty of Dental Sciences, University of Peradeniya: Sri Lanka (2010)
School of Dentistry, Kyungpook National University: Korea (2010)
Faculty of Dentistry, The University of British Columbia: Canada (2012)
Dental College and Dental Hospital, Tianjin Medical University: China (2012)
National Hospital of Odontostomatology at Ho Chi Minh City: Vietnam (2013)
The School of Clinical Dentistry, The University of Sheffield: U.K. (2013)
The College of Health Sciences, Catholic University of Pusan: Korea (2013)
University of Dental Medicine, Yangon: Myanmar (2013)
Faculty of Dentistry, Mahidol University: Thailand (2014)
Faculty of Dental Medicine, Mandalay: Myanmar (2014)
Interview with 1st International Dental Course students

It is 3 years since International Dental Course was established at Faculty of Dentistry in 2011. Three international students admitted as 1st year IDC students were interviewed right after their promotion to 4th year. It became obvious that International Dental Course extends limitless future possibilities not only for Japanese students but also Asian students.

4th year students (1st generation of IDC students)

Karina
(Karina Erda Saninggar)
Enrolled at Faculty of Dentistry, Airlangga University, Indonesia
She was born in Jember, Java, Indonesia and moved to Surabaya, capital of Eastern Java, with a population of 3 million, where Airlangga University is located. She belongs to Kasumi Orchestra as a violin player.

Dung ; pronounced “yun” in Japanese
(Nguyen Thi Dung)
Enrolled at Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at Ho Chi Minh City.
She was born in Quang Ngai Province, central area of Vietnam and moved to Ho Chi Minh City (around 7.4 million residents) to go to UMPH. She belongs to Faculty of Dentistry Cooking Club.

Kinathi
(Kinathi Kinanthi)
Enrolled at Faculty of Dentistry, Airlangga University, Indonesia
She was born in Malang, Java, Indonesia and moved to Surabaya, Indonesia to go to Airlangga University. She was eager to be a dentist since her childhood. She belongs to Faculty of Dentistry Cooking Club.

-Why did you come to Hiroshima University under International Dental Course?

Dung : After I finished my 1st year, my university informed me this program. I was interested in this program because I wanted to study abroad especially Japan. I was eager to go to Japan. So I became a candidate.

Kinathi : I already passed my 1st year in my university. My teacher said they could offer the program of Hiroshima University based on my score. My score of the 1st year was enough to be a candidate for this program.

-Kinathi: Why did I come here? Because I believe it is a destiny…

(All three laughed. Contrary to their image of “super excellent students”, they are cheerful, broad-minded and laugh a lot)

Real goal of International Dental Course

-What impressions did you have of Hiroshima?

Dung: When I first arrived here, I was surprised that the city is so quiet. I wondered why it is more quiet compared to Ho Chi Minh City, but by the time I found the life here is comfortable and convenient. I feel so nice to live here now.

Kinathi: My impression here is almost the same as Dung’s, comfortable and convenient.

Karina: Almost similar to them, everything is systematically (well-organized) and easy.

-Can you follow IDC classes? Could you give your opinions or experiences of IDC lectures?

Kinathi: The lectures are explained in both languages, Japanese and English. We can understand if teachers explain in English. Sometimes explanations are not really enough because of the limited time. But we can study at home for preparation and review. I think Japanese students have similar impressions as well.

Karina: Even though we lose some explanations, we can catch other parts by ourselves as long as we understand main points of the lectures. I think International Dental Course has both advantages and disadvantages, but we always need to keep in mind the major purpose of International Dental Course.
Interview with 1st International Dental Course students

- What do you mean the purpose of IDC?

Dung: Classmates including us, international students can take the same lectures in Japanese and English. I think the main purpose of the course is sharing the same knowledge and expertise with Japanese students as well as IDC students in a single class. Of course each student should try to catch up the lack of lecture time lost by use of two languages.

Kinathi: I have a similar opinion with her. Not only us but also Japanese students study in both languages, Japanese and English. Even though we lose some explanations in Japanese, the teacher explains in English later, so we both can understand the meaning of the lecture. I believe this is the real purpose of IDC. It is not a matter of wasting time by teaching 90-minute class in two languages; rather it is an important method to achieve the common goal.

My Japanese classmates sometimes say that they cannot follow the parts of lecture in Japanese, but after the teacher explain the same contents in English, then they can understand.

Karina: I think the purpose of the program is taking and understanding the same lectures together as classmates no matter where the students come from. The most important thing is mutual understanding and collaboration among joining students.

Karina: First, by this program, my human network was expanded. I can meet many people and share different cultures each other. Students from many countries, such as China, Korea etc., join international exchange programs provided by Faculty of Dentistry Hiroshima University.

Kinathi: Students from Taiwan, Vietnam, Indonesia, Thailand, Cambodia, Brazil (a Brazilian student under 1-year program participates in the 4th year IDC classes since April 2014), and Japan

Karina: The second advantage is that we have an opportunity to extend our knowledge and research experiences. This education system provides students with research skills and philosophy. (The 3 IDC students are enrolled at Course for Frontier Dental Science, School of Dentistry) In Indonesia, we have a limited chance to join high-level research, but at Hiroshima University there are a lot of possibilities for us to be trained through cutting-edge BioDental research.

My experiences of IDC expand my future possibilities. If I was not in this course, I would not acquire those knowledge and clinical skills in dentistry.

Dung: If I didn’t come here, I would be a normal dentist. Once I came here, my thinking expanded.

- How do you dream your future after going back to your home institutions and graduating?

Dung: (Firmly) I would like to become a researcher. I’ve gained the scientific basis of dentistry and research skills here. I really want to engage in oral and maxillofacial pathology as my future research field, especially oral cancer. (In Vietnam, there are many oral cancer patients due to lifestyle diseases)

Kinathi: When I was studying in my country, I wanted to be a lecturer or clinical dentist. But since I came here, experiences here expand my possibilities. I want to be a researcher, a lecturer in oral medicine, or I am also interested in working in international organizations, for example WHO. It is hard for me to choose one of them right now.

Karina: (Firmly) I want to become a teacher in oral medicine in my university. I am so impressed by seeing that Japanese doctors treat patients and communicate with them in very professional and well-organized manners. I’ve learned here, not only skills, but also philosophy or attitudes towards patients.

I think we still have a lot to learn from Faculty of Dentistry Hiroshima University.

- Thank you very much for your time and energy today.
ICDD : International Collaboration Development for Dentistry : 3rd year since its establishment

It is 3 years since International Dental Course (IDC) was founded at School of Dentistry in 2011. The 1st IDC students are currently in their 4th year. Center of International Collaboration Development for Dentistry (ICDD), Faculty of Dentistry, Hiroshima University is responsible for management and administration of IDC. Two academic staffs in charge of the management will talk about the current situation of the course.

First of all, let’s look at outlines of Center of International Collaboration Development for Dentistry (ICDD). ICDD Center is organized mainly by Prof. Koichi Kato, Director, selected from his position as Associate Dean for Research / International Affairs, Prof. Motoyuki Sugai, Dean, Faculty of Dentistry, Prof. Katsuyuki Kozai, Head, School of Dentistry and Prof. Masaru Sugiymama, Head, School of Oral Health Science. The center aims at promoting international collaborations in education and research as well as operates students’ admission to Faculty of Dentistry under IDC (4-year program). Furthermore, as indicated in Chart 2, Faculty of Dentistry accepts more than 6 international students every year under a short-term stay 6-month program starting every October with IDC admission. The 6-month program is also enforced by IDCC. The closing ceremony for the short-term stay 6-month program (2013 academic year) was held in February 2014. In the ceremony, 6 students from Indonesia, Thailand, Vietnam, and Taiwan received a certificate for their completion of the program. The ceremony was delivered to their home institutions through an international video-conference system. Not only the closing ceremony but also several lectures for 5th year students are conducted via the system connecting 2 affiliated institutions (Airlangga University, Indonesia and University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam) with Hiroshima University. ICDD Center is also directing short-term visiting programs by which Japanese undergraduate students are sent to sister universities.

Dr. Hiroko Oka, Specially Appointed Lecturer and Dr. Nguyen Thi Phuong Thao, Specially Appointed Assistant Professor, are involved in the management of ICDD Center at Department of International Collaboration Development for Dentistry, School of Dentistry. They talked about the current status and perspectives of International Dental Course.

Dr. Nguyen Thi Phuong Thao, graduated from University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam, came to Hiroshima University as a graduate student and acquired PhD. After she made scholastic and research achievements as a postdoctoral fellow supported by Japan Society for the Promotion of Science (JSPS) for 2 years, she joined Faculty of Dentistry Hiroshima University as a specially-appointed assistant professor in 2013.

Showing a remarkable growth: 1st IDC students

One of the notable features of our School of Dentistry is to employ “Dual Linguistic Education system” simultaneously commenced with admission of the 1st IDC students.

The reason why English was incorporated into regular classes is; knowledge of English is necessary for students to be a globally active personnel. However, as a matter of fact, it was a big decision to use English in all lectures given at School of Dentistry. Especially for 4th year students in 2014 when 1st IDC students were enrolled, have they experienced any confusions or declines in academic performance? Dr. Oka answered the question as follows:

“Yes, I think 4th year students including 1st IDC students who experienced the dual linguistic education program for the first time have made considerable efforts in overcoming many difficulties. I found that 1st year students of any new program (actually I am talking about the current 4th years students) tend to be independent. Indeed the data of students’ self-evaluation revealed that they voluntarily spent their time for preparation and review for the lectures, which led to deeper understanding and higher satisfaction, compared to 3rd and 2nd year students. Because we started dual linguistic education for the first time at least in Hiroshima University or dental education fields, professors needed to support students’ learning as

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Chart 2 Number of short-term visit international students (6-month)

<table>
<thead>
<tr>
<th>Period</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2012—March 2013</td>
<td>6</td>
</tr>
<tr>
<td>October 2013—March 2014</td>
<td>6</td>
</tr>
<tr>
<td>October 2014—March 2015</td>
<td>6</td>
</tr>
</tbody>
</table>

※Besides the 6-month program, about 10 international students are accepted a year.

Chart 1 Number of International Dental Course students (2nd year-5th year) at School of Dentistry

<table>
<thead>
<tr>
<th>International students</th>
<th>1st year IDC</th>
<th>2nd year IDC</th>
<th>3rd year IDC</th>
<th>4th year IDC</th>
<th>Total number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>2014</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>2015</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

※All IDC students come to HU 6 months before the course starts for preparation.
much as possible so that every student could catch up lectures given in both Japanese and English. This might be another reason why the current 4th year students have attained relatively good academic records… “

Some students said that their time used for preparation and review has remarkably increased since the dual linguistic education provided in English and Japanese was started. Dr. Oka said, “I think 1st year students (current 4th year students) make more or less similar efforts for better understanding of their classes.”

Dr. Thao explained, “I realize that the 4th year Japanese students have much higher English abilities than senior students; 5th and 6th year students or graduate students. In fact, many 4th year students can fluently speak English, or I think there are many students who want to communicate with international students. This is probably because of the fact that they can communicate each other only in English.”

As mentioned in Chart 1, there are 3 long-term stay international students (IDC students) in a class every year. Another 6 international students under short stay 6-month program join the class in the latter half of the semester. The number of Japanese students in a class is around 50. Therefore approximately 15% of total students in the class are foreign students. No matter where they come from, they are classmates who take the same examinations, share difficulties, and cultivating a friendship each other. It is easily expected that classmates get to feel no barrier to use English without any hesitation.

Positive impacts of international students on Japanese classmates

Dr. Oka continued as follows:

“The 3 International Dental Course students admitted in 2012 as the 1st year students of the course are excellent in their achievements, having positive attitudes towards learning. This also affects their classmates in good ways.”

Dr. Thao agreed to this.

“Generally, students studying at Faculty of Dentistry are excellent in Vietnam, Indonesia and Cambodia. Students with quite high qualifications were selected among them to become IDC students in Hiroshima. IDC students recognize themselves as representatives from their home universities and always try harder so that they can obtain good results. Therefore, it is no wonder that their Japanese classmates are also highly motivated by the IDC students to study harder. I think this is a sort of competition in a good sense.”

It seems that the International Dental Course of its 3rd year is yielding positive impacts on the education at Faculty of Dentistry Hiroshima University so far.
Innovation of Educational System in Hiroshima University Faculty of Dentistry

Faculty

School of Dentistry

Course for Frontier Dental Science
Course for Clinical Dental Science

The School for Dental Hygienists • The Dental Technicians School (2-year system)

School of Oral Health Science (4-year)

Graduate School

Graduate School of Dentistry
Graduate School of Medicine
Medical and Pharmaceutical fields

Graduate School of Biomedical Sciences

2002 2003 2004 2005 2006 2007 2008

1st Hiroshima Conference
2nd Hiroshima Conference
Innovation of Educational System in Hiroshima University Faculty of Dentistry

1. International Dental Course (Specialized courses in dentistry conducted in English and Japanese)
2. Program for Inter-University Collaborative Education
3. Biodental Education Program for Next Generation (MEXT)
4. Project for Developing a Program for Cultivating Global Dental Care Professionals
5. Program for Cultivating Medical Professionals Capable of Solving Difficult Health Issues
6. New Educational Curriculum of Goal Achieving Type
7. Graduate Program of BioDental Education (Program for Enhancing Systematic Education in Graduate Schools)
8. Brain Circulation Program
9. International Research Experience for Students and Young researchers
10. The Twinning Program for Advanced Dental Medicine Promotion in Southeast Asia
11. Graduate Schools of Biomedical Sciences and Health Sciences

- Establishment of Master Course
- Oral Health Sciences Major
- Establishment of Doctoral Course

- 2009
- 2010
- 2011
- 2012
- 2013
- 2014
- 2015

- 3rd Hiroshima Conference
- 4th Hiroshima Conference
- 5th Hiroshima Conference
- 6th Hiroshima Conference
BioDental Education: Biology and technology is the common basic knowledge for future oral medicine

Faculty of Dentistry Hiroshima University launched BioDental education program in November 2010 as the model of dental medicine for the next generation. Why is the program the future educational model responding to internationalization? The followings are program contents and goals.

The 3 main features of this program are:
1. Fostering dental professionals capable of providing evidence-based diagnosis and treatment
2. Exposing students to have the common curriculum in both Schools since their undergraduate studies; School of Dentistry and School of Oral Health Science
3. Raising the personnel who can contribute to a large scale internationalization

Therefore, educational seminar, “Harmonization PBL” envisioning a future team approached medicine start in the 1st year. Students of Schools of Dentistry and Oral Health Science take the PBL, problem-based learning sitting side by side (refer to Figure 1). The next step is “Start-Up Coursework” that teams made from shuffled students; 3rd year students of School of Dentistry and 2nd year students of School of Oral Health Science actually experience practical trainings for cell-tissue culture, CAD system engineering or ME (medical devices) (refer to Chart 1). The second step is “Advanced Coursework” that teams made from shuffled students; 4th year students of School of Dentistry and 3rd year students of School of Oral Health Science can learn the foremost life science research through 4 specialized courses (refer to Chart 2).

Furthermore, 4th year students of School of Dentistry and 3rd year students of School of Oral Health Science take “Practical English Training” (refer to Chart 3). English is not merely a foreign language. It is recognized as the world common tongue, the basic skill for international dental professionals. Students learn presentation and writing skills in English for scientific meetings as well as daily English conversation and medical English.

Prof. Hiroki Nikawa, Vice Dean, Faculty of Dentistry explained the reasons why BioDental Education Program was founded and could be the fundamental force for dental professionals leading the next generation as follow:

“The program started with the concept that future oral health personnel should acquire basic knowledge of biology and cells, evidence-based diagnosis and judgment confirmed by patients’ biological data.”

Dental professionals who are specialized in oral organs should be able to understand the whole body condition from the mouth. Therefore, it is essential to acquire scholastic achievements on sciences such as biology or cells. Moreover, not only conventional medical devices, but the latest computerized medical apparatus such as CT scan, CAD/CAM, and 3D printer are widely utilized in medical care. Such technological skills are also necessary for oral care specialists leading the next generation. Prof. Nikawa concluded the explanations that internationalization of biological data

Furthermore, dental practitioner has difficulty in completing works only in Japan. Rather they need to collaborate with internationally active professionals in different special fields. In order to respond to their global tasks, they should be capable of understanding theses written in foreign languages, communicating with international medical specialists or presenting their research works at international meetings. Thus, it is expected that “internationalization in Japan” will be developed.

International dental professionals currently understand and communicate each other with use of English as a common language. A good command of English is quite important for further internationalization.

Prof. Nikawa concluded the explanations that BioDental education is “a key program to gain basic academic skills necessary to be globally active oral health specialists for the next generation.”

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BioDental Education

Chart 1  Start-Up Coursework for 3rd year students (Dentistry) and 2nd year students (Oral Health Science)

Basic practices of cell culture
Students obtain fundamental techniques such as learning history and future prospects necessary to conduct cell culture. Students divided into a group of 10 students develop basic skills at Tissue Culture Practice Room.

CAD System Engineering – Medical Equipment (ME) Practice
Students will find out advantages or current problems with use of CAD/CAM for clinical purpose through examining consumed time to complete the prosthesis and levels of its accuracy by the following process:
- Take the data of dental casts into a computer
- Design the prosthesis using a computer
- Sharpening the designed prosthesis using an automatic machinery
- Observing cell culture using a phase-contrast microscope
- Producing a crown using CAM (milling machine) from the data designed at the CAD system engineering practice

Chart 2  Advanced Coursework for 4th year students (Dentistry) and 3rd year students (Oral Health Science)

There are 4 courses for advanced coursework; Oral Infection, Dental Diagnosis, Regenerative Dentistry, and Oral Function Evaluation. Students divided in groups of 4 courses acquire the latest knowledge and techniques on life sciences and relationships between basic medical research and clinical dentistry through laboratory experiments.

- Dental diagnosis practice
- Regenerative dentistry practice

Chart 3  Practical English Training for 4th year students (Dentistry) and 3rd year students (Oral Health Science)

Practical English Training offers students to improve basic English skills such as daily English conversation, medical English, techniques for giving oral presentations and writing research papers.

- English practice by a specialized instructor
Providing opportunities to conduct dental practices

Hiroshima University Hospital - providing opportunities to conduct dental practices – learning safe, secure and the latest dental care based on life sciences

Hiroshima University Hospital opened a new Outpatient Clinical Building with both dental and medical departments on September 20, 2013. The establishment of the new building combined medical departments and dental departments further enhances the value as University Hospital offering dental students with excellent education and clinical experiences. Let's look at the current conditions of clinical trials in the new hospital setting!

First of all, we will check characteristics of the new hospital (dental department) as an education and research facility. Prof. Kurihara (Department of Periodontal Medicine), Chief Deputy Director, Hiroshima University Hospital explains as follows: “Though this should be applied to all conditions of general medical care, we made every possible effort to make an environment in which students can learn in a safe, secure setting without any medical accidents.”

Most importantly, in fact, we must follow strict measures to completely eliminate medical accidents such as hospital-induced infections. According to Prof. Kurihara, “It is outrageous for medical practitioners to burden another risk like a hospital infection on patients who visit the hospital to relieve their pain.” You can see ideas of medical pursuit with safety in every corner in the new clinical building. (Please refer to Photo 1 and 2)

Dental students will grow up as medical professionals through clinical experiences. They will also learn the realities of team medicine of today.

Clinical training of dentistry in specialized medical complex

Prof. Tsuga (Dept. of Advanced Prosthodontics), Director of Clinical Training (2013-2014) explains as follows:

“Hiroshima University Hospital is composed of dental departments and medical departments specializing in respective fields that allow us to conduct dental clinical trainings in the latest medicine. Patients who can’t be treated at private dental clinics visit our hospital every day, seeking advanced/challenging dental care. Our dental students are able to join those complicated dental/medical treatments. Of course, they should have solid medical knowledge and skills. Inter-professional collaborative oral care practice started in 2013 enables our students to deliver dental and oral treatment to inpatients with serious disease. The dental and oral care helps patients recover quickly while relieving their pain. Oral care during perioperative period reduces risks for perioperative complications. Thus, these opportunities in the Hiroshima University Hospital allow them to understand how oral health contributes to decreasing patient’s risk of developing systemic diseases.

Highly-qualified inter-professional collaborative practice in oral care

At inter-professional collaborative oral care practice, students undertake dental and oral health treatment to inpatients or patients with severe systemic diseases in a cooperative relationship with dental faculties and dental hygienists. Three to four members in a clinical team collaboratively diagnose a patient’s oral condition and the risk of developing systemic disease. Based on the diagnosis, they provide the most suitable dental treatment and oral health care. Especially, in the hospital ward, clinical students are able to have valuable experiences of treatment/care that they would not experience in general dental practice such as observing the oral cavity of a patient in an unconscious condition only with illumination of a penlight, or keeping a patient’s mouth opened for specialized oral care for dental hygienists. This is the real team based practice!

Dentistry has established its position as an important profession in medical fields.

Professor Masaru Sugiyma (Head, School of Oral Health Science; Dept. of Public Oral Health) who takes dental students to the hospital, provides them a wide range of training experiences in inpatient oral health care every week and checks their submitted reports, mentions as follows:

“It is important to think in the overall environment of health care. Besides dental knowledge and skills, dental practitioners (oral practitioners) are required to give status as dental medicine after understanding the overall health care. Thus, inter-professional collaborative practice is an excellent clinical program to understand medical and health services. Hiroshima University Hospital offers the best environment for practical education in which dental and medical departments closely cooperate in the same clinical building.”

Understanding the human dignity through clinical experiences

Medical cooperation of dental and medical departments allows students to obtain essential and fundamental knowledge as medical professionals. Prof. Sugiyma says “Dentistry has relatively little relation with human birth and death. However, here is not like that. Our dental students learn a lot from interactions with patients who try to “live” every day.”

Prof. Tsuga also continues: “Clinical training offers our dental students to examine patients with various medical conditions: patients who suffer from intractable diseases, inflammation of the mouth, difficulty for swallowing even a glass of water and gargling. There are unconscious patients taken care by their families, who are exhausted by nursing. There also are patients struggling with their critical diseases with their beloved family. Having true respects for those patients is hard to learn from classroom lectures. Medical practitioners must be expected to correctly give examination, diagnosis, explanation and treatment to patients based on life sciences. Furthermore, clinical training provides our dental students fundamental sprits containing effective communication skills and appropriate attitudes when treating patients as health professionals in real settings. Thus, they are directed to acquire the most significant competency: ‘respecting the human dignity’ through the clinical training in Hiroshima University Hospital.”
Dental chair: it is colored all in white or transparent to easily identify patients’ blood. In order to prevent infection, we re-seal for every patient on all parts (blue parts) where dentists touch.

Operating room: tooth extraction is considered as a surgical operation. The operation room is equipped with an air filtration system for infection prevention and a camera system for recording and checking the operation relayed on TV.

Special Care Dentistry, the only special clinic in Hiroshima: it is equipped with various elaborated environments to provide secure and safe treatment for all patients who need special care. In the picture, 4th year students are transferring a patient from a wheelchair to a dental chair.

Early exposure to clinical practice: pairing a 2nd year student with a 6th year student. A 2nd year student simulates a patient and gives his/her honest comment on the practice while a 6th year student simulates a dental practitioner.
What Can Be Learned at School of Dentistry?

(School of Dentistry) Students go on to 2 specialized courses from the latter half of 3rd year after learning a general education curriculum at 1st year

<table>
<thead>
<tr>
<th>Course for Frontier Dental Science</th>
<th>General education subjects</th>
<th>Subjects offered by course</th>
<th>Clinical practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course for Clinical Dental Science</td>
<td>General education subjects</td>
<td>Subjects offered by course</td>
<td>Clinical practices</td>
</tr>
<tr>
<td>International Dental Course</td>
<td>Preparation for 2nd year</td>
<td>Subjects offered by course</td>
<td>Clinical practices at home countries</td>
</tr>
</tbody>
</table>

At School of Dentistry, students take specialized core subjects from 2nd year, and learn specialized subjects until the former half of 5th year. At the latter half of 3rd year, students take specialized core subjects and subjects offered by each course after their selection: Frontier Dental Science or Clinical Dental Science.

**Integration of research and clinical practice**

Frontier research achievements should be reflected to medical practice, and problems encountered in medical site should be solved by frontier research methods. Research and clinical practice work like wheels of a car for dental practitioners.

When both, research and clinical practice are merged, dental professionals with the high level medical skills and knowledge will be nurtured. School of Dentistry, Faculty of Dentistry, Hiroshima University enforces the education which research and clinical practice are well integrated.

**Internationalization strategies**

As the world today is becoming increasingly borderless, internationalization strategies are essential to develop highly-qualified dental professionals who are able to rapidly respond to globalization. Faculty of Dentistry hosted 75th Hiroshima Conference on Education and Science in Dentistry in October 2013, continued after the Conferences of 2006, 2007, 2009, and 2011. We had many participants from sister universities/institutions with academic exchange agreements and discussed on the development of dental medicine and care for 21st century. Concurrently, we held “Hiroshima Peace Seminar for Asian Dental Students 2011” enabling both Asian dental students and our students to experience international exchanges. Furthermore, since the establishment of International Dental Course in October 2011, we have admitted 4 Indonesian students, 3 Vietnamese students and 2 Cambodian students. They take specialized education with Japanese students so that they can become dental practitioners in their home countries. These reveal that Hiroshima University aims to be a hub university for dental educational research of major universities in Pacific Rim countries through the promotion of internationalization strategies leading the forefront of other universities.

**School of Dentistry, Faculty of Dentistry, Hiroshima University** is the only one with a course system education among dental universities in Japan. We have 2-course system: Course for Frontier Dental Science and Course for Clinical Dental Science. The aim of the course system education is to foster dental professionals, researchers, and educators to be leaders in dental medicine while developing students’ individual abilities.

However, the establishment of the system does not merely promote specialized personnel emphasizing on research or clinical practice. We also strive to raise dental professionals who display an enthusiastic spirit to explore a new field by recognizing the importance of collaborative work for both frontier dental science and clinical dental science in each course.

Moreover, responding to globalization, International Dental Course was established as the purpose of confirming our position as a global leader in education of dental medicine and oral health science in Asia. The course enables us to train personnel engaged in dental care in their home countries by accepting overseas students.

**Small group education·PBL education**

For these educational goals, School of Dentistry has adopted small-group learning that capable professors from a various fields teach relatively a small group of students. We are engaged in fostering personnel through introducing the latest educational methods such as PBL education (Problem-Based Learning). Especially in the Course for Frontier Dental Science, research is conducted mostly by one to one lesson. In the Course for Clinical Dental Science, clinical instructors support practices group learning which enable students to acquire advanced therapeutic skills.

**Nurturing high-quality personnel**

Medical professionals are required to possess a high intellectuality and an enriched humanity along with advanced medical techniques and knowledge. The highly-trained professionals will be able to play a leading role in respective dental field such as dental research·medicine. During the 6-year education at School of Dentistry, it is our aim to raise such high-level dental practitioners. For example, concerning specialized core subjects, students will master knowledge/skills extending from life sciences to clinical dentistry through substantial lectures given by excellent professors. Furthermore, we provide students clinical subjects conducted by different viewpoints such as Stomatognathic Function, Lifestyle-related Dentistry, Geriatric Dentistry, Examination and Diagnosis, and Oral Implantology. We also offer students in earlier years to experience the observation of clinical practice which will lead to their flexible thinking at their clinical performance.
Department of Calcified Tissue Biology

Education
We have two courses of study in histology and oral anatomy. Histology studies the microscopic anatomy of normal tissues with some cellular and molecular biology. The histology lecture course is taught in parallel with a laboratory practical course to improve a better understanding of the lecture. The oral anatomy course lectures are designed to understand dental anatomy, including comparative tooth anatomy, structures of the oral cavity, and the practice of tooth carving. We also offer craniofacial development with an introduction to embryology in the anatomy and embryology class.

Research
Bone and other organs affect each other in both physiological and pathological processes. Our goal is to discover new insights into the intercellular/interorgan relationships contributing to development, aging, or disease. Our current projects include:

1. Crosstalk between skeletal and extraskeletal organs.
2. Epigenetic modifications in bone formation and bone resorption.
3. Molecular bases for bone and ectopic mineralization.
5. Development of new technology to study undefined molecules in bone.

Recent highlights
• We have applied for a patent covering the regulatory mechanism of bone metabolism by extracellular vesicle-mediated miRNA transfer between osteoblasts and osteoclasts.
• Our project on a bone-derived factor was adopted by the Drug Discovery Support Network.

Key words
Osteoblast-lineage cells, Epigenetics, Coupling factors, Skeletal and extraskeletal mineralization, Imaging mass spectrometry
Education
We are primarily involved in gross anatomy and neural anatomy. Dentists believe except for the oral and maxillofacial region, the gross anatomy isn’t highly regarded; however it is very important to know the over-all human anatomy including brain anatomy for dental clinicians as well as dental researchers. The course uses an emphasis on laboratory dissection practice rather than lectures.

Research
Our primary aim is the study of hard tissue (tooth and bone) and nervous system (brain and spinal cord). Tooth enamel is mostly composed of inorganic substances. However, a group of proteins, called enamel proteins are very important for enamel development. We have shown each of the various enamel proteins has specific roles and it is impossible to produce normal enamel if one of the proteins is missing. For bone, we study various functions of the genes involved in bone formation and resorption. For our brain and spinal cord research, we examine the causes of allodynia and hyperalgesia to develop methods for treatment.

Recent highlights
Recently, we found that inflammatory cytokine released from neuroglial cell (astrocyte) is involved in chronic pain in dental region. We got hint to develop effective therapeutics for chronic pain in dental region.

Key words
Amelogenesis, Bone metabolism, Chronic pain
Students study the homeostasis mechanisms of a human body as to how the different molecules, cells, tissues, and organs in the body work together to maintain the life. The aim is to understand abnormal functions in disease. The primary emphasis of the course is to study the sensory and motor systems in the oral and maxillofacial regions.

Our laboratory aims to understand how sweet and bitter taste information is processed in the brain, and translated into binary responses of behavior and emotion, e.g., attraction versus aversion or pleasure versus displeasure. Additionally, we research the cellular and molecular mechanisms underlying ion and fluid transport in the salivary glands; and the role of cell communication in proliferation and differentiation of oral tissue. We further address how the disease-causing mutations in ion channels and transporters affect the functions of epithelial cells in order to rationally develop therapeutic means to treat the altered function.

We visualized the taste neuronal circuitries using genetic tracing to understand how taste recognition is accomplished in the brain. We employed gramicidin-perforated patch recording that enables a time-resolved determination of rate-limiting activities for anion secretion to determine the regulatory mechanisms of fluid transport in the salivary glands.

**Key words**
Taste, salivary secretion, cystic fibrosis
Department of Molecular Biology and Biochemistry

**Education**
Our department provides students with a comprehensive understanding of the basic principles of biochemistry and molecular biology.

**Research**
We are aiming at the elucidation of the molecular and cellular mechanisms underlying the formation and regeneration of cartilage, bone, teeth, tendon, and ligament. We are also investigating the roles of a clock protein, DEC, in metabolic regulation.

We are currently involved in the following research projects:
3. Molecular mechanisms regulating the formation and maintenance of periodontal ligaments.
4. Molecular mechanisms regulating differentiation of dental pulp stem cells.
5. Research on the metabolic regulation by a clock protein, DEC.

**Recent highlights**
We have characterized the progenitor population involved in the establishment of the junction between cartilage and tendon/ligament. We have also found the molecular clock system that regulates energy metabolism.

**Key words**
tendon, ligament, cartilage, bone, teeth, dental pulp stem cells, periodontal ligament, synovial joint, differentiation, regeneration, clock genes, Tenomodulin, Chondromodulin-1, Scleraxis, Sox9, DEC1, DEC2

[Photo explanation]
Contribution of Sox9⁺ progenitors to axial tendon and ligament formation. A transverse section of a Sox9Cre⁺;Ai14;ScxGFP embryo at E14.5 is shown. Cells of the Sox9⁺ lineage were detected by tdTomato reporter expression (red) and Scx⁺ cells were detected with anti-GFP antibody (green). Scx⁺ cells of the Sox9⁺ lineage (yellow) are distributed in and around the junction between cartilage and tendon/ligament.
Our research activities are:

1. Using genetic analysis in abnormal proliferation and metastasis of oral cancer, we focus on developing genetic diagnosis and therapy.
2. Studying the mechanism of destruction and regeneration of periodontal tissues, we focus on developing novel periodontal diagnosis and therapy.
3. Determining the cellular differentiation of odontogenic and salivary gland tumors, we focus on setting criteria of pathological diagnosis of the tumors.

**Recent highlights**

- We determined ameloblastin, an enamel matrix protein, is related to bone formation and inhibition of proliferation and differentiation of osteosarcoma.
- We found the role of lactoferrin in periodontitis and rheumatoid arthritis as an agent for prevention and therapy.
- We determined periodontal pathogens could reach liver and aorta via blood circulation and cause progression of fibrosis of the liver and endothelial injury of the aortal wall.
- We determined dental infection with periodontal pathogens induced preterm birth through Galectin-3.
- We determined the role of VEGF-Flt-1 signaling in bone invasion in oral cancer.
- We showed involvement of N-cadherin in malignant behavior of head and neck cancer.
- We have won various prizes during the past 5 years including seven by staff members, 15 by graduate students and 10 by undergraduate students who are members of our laboratory.

**Key words**: Oral cancer, molecular pathology, periodontal disease, tissue regeneration, salivary gland tumor, odontogenic tumor and histopathological diagnosis

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**Department of Oral and Maxillofacial Pathobiology**

**Education**

Pathology is the study of the causes and mechanisms of diseases, and aims to set standards for diagnosis to support the development of novel therapies. Our lectures provide a study of oral diseases and general diseases and their relationship to clinical application, which permit students to have a solid basis of dentistry.

**Research**

Our research activities are:

1. Using genetic analysis in abnormal proliferation and metastasis of oral cancer, we focus on developing genetic diagnosis and therapy.
2. Studying the mechanism of destruction and regeneration of periodontal tissues, we focus on developing novel periodontal diagnosis and therapy.
3. Determining the cellular differentiation of odontogenic and salivary gland tumors, we focus on setting criteria of pathological diagnosis of the tumors.

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We enjoy research in a pleasant and international atmosphere, having PhD students and researchers from Vietnam, Indonesia, Cambodia, Nepal and Japan. We are on the best of terms!
Education
We primarily offer lectures and practices in microbiology and oral microbiology. For microbiology, we provide a wide basic education in medical microbiology including bacteriology, virology and mycology. Students gain an understanding of how microorganisms exert their pathogenicity by infecting human; and the microbe’s infection strategy. Further, students study antimicrobial chemotherapy to treating infectious disease and a fundamental knowledge of disinfection and sterilization necessary for medical professionals. The two major illnesses in the dental field are dental caries and periodontal disease which are infectious diseases caused by bacteria inhabiting the oral cavity. Our study includes how to treat these infectious diseases, their infection mechanisms and the importance of prophylactively maintaining a healthy oral environment.

Research
We are conducting research concerning two major topics, pathogenicity of bacteria and mechanisms of antimicrobial drug resistance. For the study of bacterial pathogenicity, we established a national collection of clinically isolated Staphylococcus aureus and are using these organisms as model bacterial pathogens. For the study of antimicrobial drug resistance, we have organized a project research center for nosocomial infectious diseases. We accept drug resistant isolates from regional hospitals and analyze the detailed mechanism of drug resistance. Our research approach uses a wide variety of methods e.g., genomics, molecular biology, genetics, protein engineering, and molecular epidemiology.

Recent highlights
We have detected drug resistant bacteria susceptible to carbapenem if imipenem is used to evaluate the susceptibility but is totally resistant if meropenem is used for treatment. We found the underlining unique mechanism and the responsible resistant gene on a mobile genetic element, a plasmid.

Key words: Toxin, biofilm, cell adhesion, genome analysis, molecular epidemiology, drug resistance
We study the molecular mechanisms used in inhibitory neurotransmission with a new signaling molecule, PLC-related catalytically inactive protein (PRIP). We develop new drugs targeting PRIP.

Our recent research projects concern:
1. The PRIP regulatory mechanisms for food intake and obesity.
2. The molecular mechanisms of thermogenesis in brown adipocytes.
3. Abnormal insulin secretion found in PRIP gene knockout mice.
4. PRIP-regulated autophagy for protection from bacterial infection.
5. Pain control via PRIP and the molecular basis for the appearance of neuropathic pain.
6. The mechanisms of cell migration regulated by PRIP.
7. The relationship between the immune system and depression-like behavior.

Pharmacology is the study of how drugs affect living organisms. Dental students study the interactions between living organisms and drugs to learn the necessary medicine for dental care, basic drug education for general disease and treatment, and medical therapy useful in clinical cases.

**Key words:**
Autophagy, GABAA receptor signaling, insulin secretion, obesity (lipogenesis, lipolysis, and thermogenesis), pain relief, protection from bacterial infection
Department of Biomaterials

**Education**
The Department of Biomaterials provides lectures and practical training in fundamental and applied dental materials for undergraduate students. For students in the Course for Frontier Dental Science and the Graduate School of Biomedical & Health Sciences, we organize advanced seminars to provide an opportunity to gain knowledge on the latest biomaterials and devices for use in regenerative medicine and dentistry.

**Research**
Stem cell-based regenerative medicine holds promise for reconstructing tissues and organs damaged by various diseases and traumatic injuries. However, widespread clinical applications of this methodology require technological advances in cell processing and transplantation. Our goal is to provide solutions for these challenges through innovative and advanced engineering approaches.

We are currently involved in the following research projects:
1. Methods for producing clinically-compatible stem/progenitor cells, such as mesenchymal stem cells and iPSC cell-derived dental epithelial cells in large quantities.
2. Antibody arrays for quality control of stem cells.
3. Methods for constructing structurally-intricate tissues such as a periodontal tissue consisting of bone/ligament/cementum and a mandibular condyle tissue with layers of fibrous and hypertrophic articular cartilages.
4. Designing the macroscopic shape of tissue constructs using 3D-printed polymer scaffolds.
5. Engineered proteins for use as building blocks of tissue engineering scaffolds.
6. In vitro analytical platforms for modeling heterotypic cell-cell interactions such as epithelial- mesenchymal interactions during tooth development.

**Recent highlights**
We constructed antibody arrays for the quality control of mesenchymal stem cells. To ensure safe and efficient transplantation, the quality of graft cells must be controlled. We developed antibody arrays using a photo-assisted micro-patterning technique. The antibody arrays enable us to simply analyze the pattern of surface markers expressed in a cell population. The binding assay of test cells on the antibody array allows rapid characterization of cells more straightforward than conventional flow cytometry. We successfully applied this analytical technique to the characterization of mesenchymal stem cells. [ACS Appl. Mater. Interfaces, 2015, 7(30):16828–36].

**Key words:** Biomaterials, tissue engineering, regenerative medicine, protein engineering, stem cell, cell-based microarray
Department of Mucosal Immunology

Education

“Immunity” is defined as our body’s resistance against infectious and inflammatory diseases. The collection of molecules and cells/tissues that participate in the “host defense” is “the immune system”, and the coordinated reaction of these molecules/cells against not only harmful but also innocuous foreign materials is “the immune response”. We lecture as well as perform laboratory work concerning the immune system and response.

We show the importance of immunology for the progress of introducing examples of translational research from bench to bedside (e.g., immune therapy for tumors using newly discovered immunity-related rheostat molecules).

The goal of our undergraduate education at dental school is:
1. Increased participation learning of medically important immunology.
2. Increased basic knowledge of the immunological issues in health and disease.
3. Comprehension to develop diagnosis in medically crucial situations.

Research

We are determining (1) how a member of plant rhizosphere microbiota (Stenotrophomonas maltophilia) creates and regulates a physiologic inflammation in gastrointestinal tissues; (2) how environmental bacteria cohabit in the intestinal mucosa, especially with in tissue resident macrophages; and (3) How the rhizosphere bacteria regulate / prevent pathologic inflammation in the gut. This work is supported by grant from the core research for evolutional science and technology (CREST) program of the Japan Science and Technology Agency.

Key words: Mucosal immunity, Physiological inflammation, Intracellular symbiotic cohabitation, Rhizosphere environmental bacteria
Department of Periodontal Medicine

Education
Study on Periodontology (Graduate School)
Lecture about Periodontology (School of Dentistry)

Research
1. Study on therapies for periodontal tissue regeneration
   We evaluate the effect of mesenchymal stem cells or neurotropic factors on periodontal tissue regeneration.
2. Study on disease susceptibility to periodontal disease
   Some host factors are thought to be causes of special periodontal diseases. We examine the pathogenic mechanism of the periodontal disease using DNA, sera or neutrophils isolated from patients.
3. Study on diverse risk factors involved in periodontal disease
   We examine the mechanism how various risk factors including an autoantibody, are involved in progression of periodontal disease.
4. Study on diagnosis for periodontal disease
   We examine the periodontal disease related-biomarkers in saliva in order to make use of clinical diagnosis for periodontal disease.
5. Study on the prevention of periodontal disease
   We develop the preventive therapy, particularly focusing on interaction between host cells and periodontopathogenic bacteria.
6. Study on the therapy for periapical periodontitis
   We aim at the establishment of a new treatment for periapical periodontitis by regulation of host cell function and removal of bacteria.

Recent highlights
Periodontal tissue regenerative therapy with mesenchymal stem cells and neurotropic factors has recently attracted the attention of people throughout Japan and is expected to be used as a new treatment for periodontal disease.

Key words: tissue regeneration, neurotrophin, mesenchymal stem cell, periodontal disease, aggressive periodontitis, susceptibility, periodontal disease, autoantibody, prevention, intercellular adhesion molecule, diabetes, rheumatism, hepatitis, halitosis
Department of Molecular Oral Medicine & Maxillofacial Surgery

Education
We lecture in Molecular Oral Medicine and Maxillofacial Surgery at the graduate school level. At the undergraduate level, we teach oral surgery, maxillofacial surgery, applied oral medicine and practical clinical course work. At the hospital including outpatients and inpatients wards, we diagnose and treat patients with deformities, growth abnormalities, inflammation, trauma, and tumors (benign/malignancy) in the oral and maxillofacial regions.

Research
We conduct the following research to develop new methods of diagnosis and therapy for diseases as described above:
2. The molecular/genetic diagnosis and therapy for oral and cranio-maxillofacial deformities.
3. Establishment and characterization of human induced pluripotent stem (iPS) cells derived from human pulp cells in serum- and feeder-free cell culture.
4. Generation of human induced pluripotent stem (iPS) cells derived from patients with genetic disorders in the oral and cranio-maxillofacial region in serum- and feeder-free culture to elucidate the molecular mechanism involved in the disease.
5. Purification of biologically active factors from marine organism.
6. Photodynamic therapy for oral cancer.
7. Immune cell therapy for oral cancer by using NK/lymphokine-activated killer (LAK) cells.
9. Molecular-epidemiological study of oral and maxillofacial disease among residents of Semipalatinsk Nuclear Test Site (SNTPS) area in Kazakhstan.

Recent highlights
From 2000 to 2005, we performed a molecular-epidemiological study of oral and maxillofacial disease in the residents of the SNTPS area in Kazakhstan, former Soviet Union, and found low-dose radiation exposure severely affects on oral and maxillofacial development in the residents living around SNTPS.
We succeeded in regenerating jaw, eye and tooth using undifferentiated pluripotent cells derived from Xenopus and mice. We have successfully treated oral cancer patients with NK/LAK cell therapy and photodynamic therapy. We are developing a novel therapeutic and diagnostic modality targeted to newly identified Cancer Stem cells from oral squamous cell carcinomas (Fig. 1). We have successfully established iPS cells from patients with genetic disorders in the oral and cranio-maxillofacial region in serum- and feeder-free culture (Fig. 2).
Department of Oral and Maxillofacial Surgery

Education
We lecture in the various fundamental knowledge of disease, diagnostics and therapeutics in the fields of oral and maxillofacial surgery. We perform basic practices such as several blood tests, physiological examination and technique, blood sampling, injection, counter-measures for infection, cleaning operation, and Basic Life Support (BLS). We conduct model procedures using appliances for tooth extraction, cyst extirpation, incision/struction, and tooth ligation. Students learn individually diagnostic methods or therapeutic policies in response to a variety of presented cases; we have small group tutorial classes; and report our findings preparing slides and manuscripts for presentations at academic meetings. Further in the clinical course, we perform embedment operations using real implants and create splints for temporomandibular arthritis.

And in clinical practice, students learn medical interviews, various examinations, medication, periooperative management and operation for patients having several diseases at outpatient area, hospital ward or operation room.

Research
We research genomic oral disease, biological characteristics and therapies for various oral tumors, and their molecular biology relating to invasion and metastasis of oral cancer and cell biology regarding intractable lesions of mucous membrane of the mouth. We are also involved in developing new biomaterials for dental implants and chronic mandibular osteomyelitis.

Recent highlights
We study regenerative medicine of the jaw bone using novel interconnected porous hydroxyapatite ceramics (IP-CHA) as basic scaffold material for osteoblasts.

Key words: Gnathodiaphyseal dysplasia, cemento-osseous dysplasia, responsible gene, oral cancer, invasion and metastasis, epithelial to mesenchymal transition, oral mucosal diseases, novel biomaterials, regenerative medicine for jaw bone.
Education
Lectures and practical laboratory for crown and bridge prosthodontics, removable prosthodontics, implant prosthodontics, oral and maxillofacial prosthetics.

Research
1. New biomaterials for dental implant and bone reconstruction.
2. Biomechanical analysis of dental implants.
4. Functional rehabilitation of the stomatognathic system.
5. Effect of prosthodontic treatment on oral function and quality of life of the elderly.
6. Relation between occlusion and dementia.

Recent highlights
We developed interconnected-porous hydroxyapatite (IP-CHA) as bone substitutes that are approved for clinical trials. Therefore, we can use IP-CHA as a bone substitute in case of the treatment after cyst extraction or bone regeneration around a fenestrated implant.

Bone regeneration around implant
bFGF-gelatin hydrogel complex enhanced bone regeneration around fenestrated implant by releasing bFGF (drug delivery system which allows timed control of the required local concentration).

(A) Implant is placed into the created bone socket with four screws exposed at the buccal side.
(B) GF-gelatin hydrogel complex is filled to cover all four exposed screws.
(C) Regenerated bone covers most of the four screws well (two arrows).

Key words:
Prosthodontics, Oral Implant, Oral Function, Biomaterial, Rehabilitation, Aging
Orthodontics, an area of dentistry that treats teeth alignment and bite malformations, contributes to the general well-being of people through good mouth health.

We focus on teaching the basic dental sciences regarding orthodontics, clinical orthodontics including orthodontic treatment, dentofacial orthopedics, and surgical orthodontics; this allows for precise orthodontic diagnosis and treatment. In addition, the Course for Clinical Dental Science provides a practical training in orthodontic tooth movement using multi-bracket appliances to show orthodontic treatment. The Postgraduate Course in Orthodontics has classes to acquire certification as an orthodontic specialist for an advanced professional specialty.

**Education**
Orthodontics, an area of dentistry that treats teeth alignment and bite malformations, contributes to the general well-being of people through good mouth health.

**Research**
Contents of research
1. Elucidation of pathogenic mechanism in malocclusion and management of oral maxillofacial skeletal growth.
2. Optimization of tooth movement by orthodontic force.
4. Bone regeneration using mesenchymal stem cells and the development of regenerative medicine for closure of the jaw cleft.
5. Elucidation of pathogenesis of amelogenesis imperfecta and the restoration of tooth enamel by application of a bio-mineralization process.
6. Evaluation of the contribution of various oral functions to general fitness.

**Recent highlights**
Many postgraduate students have been sent to overseas research institutions to experience advanced research. Concurrently, we accept foreign students from various countries to accomplish active international exchange. Recently in our research, we developed a new modality optimized for bone regeneration of the jaw cleft using bone marrow-derived mesenchymal stem cells and a novel scaffold, unsintered carbonated-hydroxyapatite granules. We are applying this method in clinical practice.

**Key words:** Orthodontic force, craniofacial growth, temporomandibular disorders (TMD), amelogenesis imperfecta, genetic diagnosis, regeneration medicine
Department of Oral and Maxillofacial Radiology

Education
Dental radiology is the study of the core principles of image production, including advanced imaging, basic science of radiation and radiotherapy; and as importantly how to interpret the medical imaging findings.

Research
1. Radiation effects on the bone.
2. Imaging study for dysphagia.
3. Early detection of osteoporosis using panoramic radiography.
4. Diagnostic study of dento-maxillo-facial radiology.
5. Physiological study of swallowing using magnetic encephalography.

Recent highlights
We developed an osteoporosis screening system using dental panoramic radiography. The treatment of osteoporosis is performed using medication such as bisphosphonate, and rarely results osteomyelitis and osteonecrosis, called BRONJ (recently MRONJ); we are developing a screening system for detecting the patients that develop disease after medication.

Key words:
Oral and maxillofacial Radiology, Videofluoroscopic study, Videoendoscopic study, dysphagia, Screening, Osteoporosis, MRONJ(BRONJ)
We teach treatment and prevention of oral diseases in children. The lecture contents are systemic and oral growth and development, the current status and causes of oral disease. Further subjects are prevention and treatment of dental caries and periodontal disease, surgical treatment including tooth extraction and oral traumatology, managing developing dentition and occlusion, and oral health promotion education in children.

Education
Lecture
We teach treatment and prevention of oral diseases in children. The lecture contents are systemic and oral growth and development, the current status and causes of oral disease. Further subjects are prevention and treatment of dental caries and periodontal disease, surgical treatment including tooth extraction and oral traumatology, managing developing dentition and occlusion, and oral health promotion education in children.

Practice
The preparation training laboratories to acquire technical skills in the dental treatment for children using models, analysis of X-ray pictures, cast analysis of mixed dentition, and making space maintainers and retainers are shown. In the practical exercises of the clinical course, specific objectives are learning diagnosis and planning of treatment, mastery of problem-finding and problem-solving abilities and skills for pediatric treatment. Doctor course students study one theme for four years to obtain a PhD. to become a pediatric dental specialist.

Research
5. Three-dimensional analysis of the growth of the dentition in children.
7. The relationship between periodontal disease and systemic conditions in children or pregnant woman.

Recent highlights
Every year since 2009 many of our staff has traveled to Cambodia to support an oral health promotion. This project is one of the missions of our dental school. Recently, much care by pediatric dental specialists are needed for abused children, and children with developmental disabilities or dysphagia.

Key words: Dental caries in child, early childhood caries, mutans streptococci, intrafamilial transmission, dental traumatology, periodontal disease in children, child health
Department of Biological Endodontics

Education
Undergraduate lectures in Endodontology and Operative Dentistry (School of Dentistry)
Lectures in Endodontology (Graduate School)

Research
1. Biological regeneration in the dentin/pulp complex and periapical tissues.
2. Biological obturation of root canals at apical areas.
3. Relationship between HIV infection and dental caries.
5. The relationship between dental disease and systemic diseases.
7. Development of new preventive therapies for dental diseases based on new laboratory tests.

Recent highlights
In January, 2015, Professor Shiba succeeded the former Professor. At the same time the name of the department has been changed to “Biological Endodontics”. The pursuit in this department is to establish a new treatment for endodontic diseases by removal of bacteria and regulation of host cell function.

Key words:
Biological endodontics, Biological regeneration, Dentin/pulp complex, Dentin sialophosphoprotein, Pulp cells, Mesenchymal stem cells, Antimicrobial peptide
Our lectures are in the management and prevention of medical emergency during dental treatment. The contents are the students learn the basic knowledge on methods for evaluation of patient’s physical status and for his/her physical management which is necessary as dental professionals through lectures of Dental Anesthesiology. Further, for dental practices, we intend to foster dental professionals capable of enforcing safe dental care through studying basic techniques on checking of vital signs or lifesaving treatment for generalized disease accidentally happening during dental treatment.

Education

Our lectures are in the management and prevention of medical emergency during dental treatment. The contents are the students learn the basic knowledge on methods for evaluation of patient’s physical status and for his/her physical management which is necessary as dental professionals through lectures of Dental Anesthesiology. Further, for dental practices, we intend to foster dental professionals capable of enforcing safe dental care through studying basic techniques on checking of vital signs or lifesaving treatment for generalized disease accidentally happening during dental treatment.

Research

1. Mechanisms of general anesthetic action.
2. Role of individual neurons in an intravenous anesthetic agent-induced anesthetic factor.
3. Stages of delirium in general anesthesia.
4. Anti-anxiety effects of sedative drugs.
5. Effects of nitrous oxide on the cardiovascular system.
7. Efficacy of chest compression in cardio pulmonary resuscitation.

Recent highlights

We study mechanisms of general anesthetic action using brain microdialysis (refer to the photo) through increasing inhibitive transmitters, decreasing of the excitatory transmitters in the brain, and proving knock down of specific nerves affecting general anesthesia. We intend to have safe general anesthesia, not giving adverse effects on respiration and circulation. We believe that to make the mechanisms clear will help us to reach this goal.

Key words: Mechanisms of general anesthetic action; Analgesia; Unconsciousness; Immobility; GABA; Glycine; Glutamate; Dopamine; Pain suppression system
Department of International Collaboration Development for Dentistry

Education
Department of International Collaboration Development for Dentistry (ICDD) was established in Hiroshima University, Faculty of Dentistry (HUD) on April 2011. Our mission is to develop Asia-based global collaboration in dental education and research. To achieve the mission we developed education systems and collaboration systems that provides studies of dental medicine to both Japanese students and international students.

HUD has conducted the International Dental Course (IDC) program, short exchange programs between HUD and overseas universities. Students from the overseas universities with academic exchange agreements join these programs in the Faculty of Dentistry Hiroshima University. In addition, we performed Short Visit student programs to give our students an opportunity to join the academic activities in overseas universities with academic exchange agreements. By joining these programs the students understand the importance of mutual understanding, cultural diversity, and internationalization.

Research
We do research related to the development of educational programs or exchange programs:
1. Development and evaluation of dental education programs cooperating with Asian countries.
3. Study of international exchange programs.
4. Study of the contribution to the international community through dentistry.

Recent highlights
• Three of the first IDC students completed their four-year program in Hiroshima.
• The International Dental Course program is now entering its fifth year. This year we accepted three new international students from Indonesia, Cambodia, and Vietnam as usual.
• We accepted six international students for the 6 month short stay program and 18 international students for the 10 day short stay program.
• We sent our students to Canada, Cambodia, Indonesia, South Korea, Taiwan, Thailand and Vietnam for joint academic and cultural activities.
Education
Students learn general dentistry as well as health communication training at the senior undergraduate level at the Faculty of Dentistry to postgraduate education after acquiring a license as a dental practitioner with the aim of forming careers as a dental practitioner. Students study 1) differences between communication and “reception” using self-leading and role playing, 2) methods of communicating with a patient, his/her family and medical staff, and 3) what is dental treatment based on “patient centered”, “problem centered”, and “the story of the patient illness”, including prevention, therapy and rehabilitation, and how we provide it. Students have opportunities to study real clinical judgments based on the dual theories in medicine and medical ethics.

Research
For the purpose of securing and enhancing qualities of higher education (both undergraduate and graduate education), we conduct research on 1) methods for teaching and learning dental professionalism through a life-long training course and programs before/after graduation, 2) ways to choose coaching and teaching techniques, 3) supporting methods for learners (emotional support), 4) what kinds of examinations we should give to evaluate understanding of learners and 5) how we should judge the quality of educational programs.

Recent highlights
We have conducted research on 1) the methods for teaching and learning dental professionalism through a life-long training course and programs before/after graduation, 2) ways to choose coaching and teaching techniques, 3) supporting methods for learners (emotional support), 4) what kinds of examinations we should give to evaluate understanding of learners and 5) how we should judge the quality of educational program.

Key words: Dentistry Clinical Training Course, Dental Education, Health Communication
Undergraduate students are taught basic knowledge in Special Care Dentistry. Senior undergraduate students in clinical training learn basic clinical skills to provide patients dental treatments with safe and secure practices. Doctoral students continue training to become certified physicians for Special Care Dentistry. We also aim at human resource development for study on Special Care Dentistry and cultivating practical clinical ability in community oral health care.

**Research**

1. Dental caries risk in disabled patients.
3. Risk of periodontal disease in disabled patients.
4. Dental cooperation of patients with autism spectrum disorder.
5. The PBL task for the dental problem of patients with mental retardation.

**Recent highlights**

We demonstrated patients with mental retardation as well as school children harboring both *Streptococcus mutans* and *S. sobrinus* have a significant higher dental caries incidence as compared to those with *S. mutans* alone. Now we are using probiotic replacement therapy for prevention of dental caries (in progress).

**Key words:**

Special Care Dentistry, dental caries, *Streptococcus mutans*, *S. sobrinus*
What Can Be Learned at School of Oral Health Science?

(School of Oral Health Science) Students learn general education subjects and specialized basic subjects at their first year. Oral Science students take specialized subjects at the first half of 1st year, while Oral Engineering students do at the latter half of 1st year. They conduct clinical practice and graduation research from the latter half of 3rd year and pursue to be oral health science specialists at their 4th year.

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<thead>
<tr>
<th>Course for Oral Science</th>
<th>Course for Oral Engineering</th>
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<td>General education subjects</td>
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<td>Specialized subjects</td>
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<td>Graduation research</td>
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Cooperation to healthy long-lived life and oral health

We currently encounter the world trend of oral health promotion, and the formation of “healthy long-lived life society”. In addition to conventional dental care methods, “disease prevention” has appeared as a major theme. Our aim is to foster medical professionals with highly-advanced skills and corporate warriors with a medical mind who can play a variety of roles in “health-oriented society”.

Promising futures with various possibilities

Promising futures with various possibilities are opened up for students after the graduation of the 4-year course as follows:

- Course for Oral Health
  - Highly specialized dental hygienists in major hospitals
  - Dental hygienists in public centers
  - Yogo teachers in schools
  - University teachers
  - Researchers in universities or research institutions
  - Researchers in affiliated manufacturers
- Course for Oral Engineering
  - Researchers in fields of tissue engineering, cell therapy and IT in universities or research institutions
  - Researchers in pharmaceutical companies or companies collaborated with dental engineering
  - Technicians for maxillofacial prosthodontics (medical artists)
  - Educators in the fields of oral health and oral engineering

Developed from The School for Dental Hygienists and The Dental Technicians School, School of Oral Health Science was established as a 4-year educational system in 2005 for the first time in Japan for the promotion of dental specialists for both dental hygiene and dental technological works.

The School consists of two courses: Course for Oral Science to raise highly advanced dental hygienists and Yogo teachers (school nurses), and Course for Oral Engineering to foster personnel in the collaborative field of dentistry and engineering capable of responding to new social demands. Both courses strive to cultivate dental specialists with an enriched knowledge and humanity as well as highly-specialized medical techniques.

Course for Oral Engineering as a pioneer in Japanese universities

It is known as Japan’s first university to establish the 4-year course cultivating dental technicians. Besides conventional studies for dental technicians, our goal is to train medical professionals, career employees, and researchers who can take leading roles, possess knowledge of skills to apply the system engineering, CT, MRI data by use of computers, and a wide range of medical knowledge of general education. At graduation, students can acquire the qualification to take the national examination for dental technicians. As a special practice, we offer rehabilitation make up techniques by “Reiko Kazki”. Moreover, we provide practical trainings for cell/tissue culture by the Japanese Tissue Culture Association, the only course which the qualifications of facial therapists and the degree in cell engineering are acknowledged in Japan.

Course for Oral Science acquiring the qualification of Yogo teachers

It is the course to foster dental hygienists with a 4-year course system which is still a few courses in Japan. We focus on nurturing highly advanced hygienists to be a leader in each field. As a future demand for enhanced social roles as dental hygienists, in addition to the qualification to take the national examination for dental hygienists, students are also able to obtain the 1st class license for Yogo teachers (optional) at graduation.
Education
We lecture in social dentistry, health care and nursing science. In social dentistry, we provide students in the Schools of Oral Health Science and Dentistry education concerning “public health”, “oral health”, “public health administration”, “social welfare, and oral health statistics”. In the study of nursing care, students are taught health maintenance and promotion for a person on every health level from child to adult; and nursing as a medical occupation. In the Yogo class (optional), the students study specialized knowledge and techniques concerning school health.

Research
Thesis for oral health.
1. The relationship between oral microorganism infection and oral mucosal lesion and condition.
2. The relationship between oral sensitivity and function.
Thesis for health activities and education.
1. What school health activity should be like.
2. Educational effect in oral health education.
Through these studies, we put efforts on solving several problems in the study of health care and fostering medical professionals, educators and researchers who are able to have scientific and logical thinking.

Recent highlights
Research associate Eri Fukada who graduated from the School of Oral Health Science, Faculty of Dentistry and then Oral Health Sciences Major, Graduate School of Biomedical & Health Sciences, Hiroshima University, just joined us this April 2015.

Key words:
Oral Health, Oral Function, School Health
Department of Maxillofacial Functional Development

Education
We instruct dental hygienists and Yogo teachers (optional). “Team Dentistry” indicates not only medical practitioners in dentistry but the cooperation with medical treatment as a whole. Therefore, we instruct in knowledge and technique, culture and personality suitable for medical professionals, and consideration. We provide active lives for people in all life stages.

Research
We carry our clinical examination of oral care on the whole as well as dental management for children during the period of growth and for disabled people. Our research concerns the morphological and functional development of the maxillofacial region using three-dimensional measuring system and other computer systems.

Recent highlights
We study the sonic environment of the dental treatment and a new examination system of oral function with intraoral pressure sensor. We are also engaged in Dental Kids•Project as an oral health activity (refer to the photo).

Key words:
growth and development, oral function, disability, oral care
Education

Oral health maintenance is necessary in nursing care and health promotion. Preventive dentistry and dental health education are among the main duties of dental hygienists aimed for the maintenance and management of oral health. In response to the aging society, a role of oral health management by a dental hygienist has become more important.

The members of this department are Prof. Toshinobu Takemoto, Assistant Prof. Atsue Matsumoto, and Research Associate Yoshie Niitani. We provide lectures and practices necessary for oral health management such as oral health science, dental education, practice of dental health management, practice of team care for oral health, and practice of oral health counseling.

Research

1. Dental hygienists education.
2. Research about dental hygienists occupation.
3. Career information for students.
5. Relation between saliva flow and emotion.
6. Education about counseling.
7. Infection control in dentistry.
8. Research about halitosis.

Recent highlights

We developed disaster relief dentistry after earthquake (Master course work by M. Kume). Research work about dental hygienists education and working environment are in progress.

Key words:
Oral health science, Dental hygienists’ education, Infection control
Department of Anatomy and Functional Restoration

Education

Research
1. Development of teaching materials for anatomical education.
3. Study on dental materials for esthetics.
4. Study of bonding prosthetic materials to dental alloys.
5. Effective denture marking for individual identification.

Recent highlights
We developed a functional model of the larynx (photograph).

Key words:
Embryology, Functional Anatomy, Model, Zirconia, Dental materials

[Photo explanation]
We can easily explain the structure and functions of Larynx by using this model. The Larynx is composed of Thyroid, Cricoid, Arytenoid cartilages and so on. Vocal ligaments come closer and vibrate during phonation. On the other hand, vestibular ligaments close tightly while swallowing or holding breath.
Department of Medical System and Biomaterial Engineering

**Education**
We offer lectures and practices in dental CAD/CAM systems, medical engineering, bio-materials, oral process engineering, sports dentistry, and esthetic dentistry.

**Research**
1. Application of CAD/CAM and additive manufacturing to dentistry.
2. Application of manufacturing system technology to dentistry.
3. 3d modeling and computer simulation in dentistry.
4. Analysis of the movements of dental technicians using motion capture systems.
5. Study of esthetic dentistry.
6. Study in sports dentistry (mouth guards).
7. Study for musical dentistry (adapters).

**Recent highlights**
We measured the movements of dental technicians using motion capture systems and analyzed the difference between a skilled dental technician and beginners in movement.

**Key words:**
computerized dentistry, additive manufacturing, manufacturing systems, sports dentistry, musical dentistry
Department of Oral Biology and Engineering

Education
We lecture in theoretical and practical prosthetic dentistry, including crown & bridge works, denture works, esthetic dentistry, TMJ, and medical design engineering using current practices and practical training. We provide practical training for the artificial body, cell and tissue culture (only one in Japan), and rehabilitation make up techniques supported by Reiko Kazki.

Research
1. Development of immobilizing antimicrobial and antiviral agents.
2. Application of probiotics in the oral cavity.
3. Design and application of antimicrobial peptides.
4. Diamond-like-carbon and its effects on differentiation of osteoblasts and osteoclasts.
5. Construction of a finite elemental analysis model from DICOM data from CT scans.

Recent highlights
The aims of our department and research club ‘Bio-Tech’ are i) we perform the biological, and molecular biology studies based upon engineering, and ii) to promote the translational research in the oral health engineering, in addition to the conventional dental technology. The curriculum encourages the students in open discussion.

Key words:
Immobilizing antimicrobial and antiviral agents, Oral moisturizing agents, Probiotics for oral cavity, Implant materials, Texture analysis for food

Prof. Hiroki Nikawa

[Photo explanation]
Immobilizing antimicrobial and antiviral agents, Oral moisturizing agents, Probiotics for oral cavity, Implant materials, Texture analysis for food

[Photo explanation]
Massage which facilitates the blood flow, made by Reiko Kazki
Practical trainings for cell and tissue culture (only on in Japan)

[Photo explanation]
‘Bio-Tech’ members have made a lot of presentations at Scientific Meetings, and been awarded many prizes!!
Statistical Data

Number of Students

As of May 2014

<table>
<thead>
<tr>
<th>School</th>
<th>Number (Female Students)</th>
</tr>
</thead>
<tbody>
<tr>
<td>School of Dentistry</td>
<td>328 (160)</td>
</tr>
<tr>
<td>School of Oral Health Science: Course for Oral Science</td>
<td>88 (88)</td>
</tr>
<tr>
<td>School of Oral Health Science: Course for Oral Engineering</td>
<td>88 (62)</td>
</tr>
</tbody>
</table>

( ) indicates female students.

Current Staff Numbers

As of May 2014

<table>
<thead>
<tr>
<th>Institute</th>
<th>Professor</th>
<th>Associate Professor</th>
<th>Lecturer</th>
<th>Assistant Professor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institute of Biomedical &amp; Health Sciences</td>
<td>22</td>
<td>10</td>
<td>6</td>
<td>56</td>
<td>94</td>
</tr>
<tr>
<td>Hiroshima University Hospital</td>
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<td>0</td>
<td>13</td>
<td>29</td>
<td>44</td>
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<tr>
<td>Total</td>
<td>24</td>
<td>10</td>
<td>19</td>
<td>85</td>
<td>138</td>
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</table>

Number of Graduates

Graduated on March 23, 2014

<table>
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<tr>
<th>School</th>
<th>Graduates</th>
<th>Grand total</th>
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<tbody>
<tr>
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<td>58 (27)</td>
<td>2,460 (743)</td>
</tr>
<tr>
<td>School of Oral Health Science: Course for Oral Science</td>
<td>22 (22)</td>
<td>125 (121)</td>
</tr>
<tr>
<td>School of Oral Health Science: Course for Oral Engineering</td>
<td>21 (13)</td>
<td>118 (72)</td>
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</tbody>
</table>

( ) indicates female students.

Degrees Conferred (Dental fields)

<table>
<thead>
<tr>
<th>Year</th>
<th>Doctoral Degree</th>
<th>Doctoral Degree by dissertation</th>
</tr>
</thead>
<tbody>
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<td>0</td>
</tr>
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<td>2010</td>
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<td>2011</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>35</td>
<td>0</td>
</tr>
</tbody>
</table>

Number of Applicants and Students admitted

( ) indicates female students.

<table>
<thead>
<tr>
<th>School</th>
<th>Year of Entrance</th>
<th>Division</th>
<th>Admission Capacity</th>
<th>Applicants</th>
<th>Competitive Rate</th>
<th>Examiners</th>
<th>Successful Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>School of Dentistry</td>
<td>2012</td>
<td>AO Exam</td>
<td>5</td>
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<td>3.8</td>
<td>13(8)</td>
<td>2(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1st Term</td>
<td>33</td>
<td>103(57)</td>
<td>3.1</td>
<td>95(51)</td>
<td>36(19)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Term</td>
<td>15</td>
<td>183(85)</td>
<td>12.2</td>
<td>102(45)</td>
<td>17(7)</td>
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<td>27(19)</td>
<td>5.4</td>
<td>15(12)</td>
<td>4(4)</td>
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<tr>
<td></td>
<td></td>
<td>1st Term</td>
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<td>160(71)</td>
<td>4.8</td>
<td>147(63)</td>
<td>34(10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd Term</td>
<td>15</td>
<td>223(114)</td>
<td>14.9</td>
<td>119(61)</td>
<td>23(15)</td>
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<tr>
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<td>26(15)</td>
<td>5.2</td>
<td>15(10)</td>
<td>2(1)</td>
</tr>
<tr>
<td></td>
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<td>1st Term</td>
<td>33</td>
<td>206(79)</td>
<td>6.2</td>
<td>184(72)</td>
<td>36(12)</td>
</tr>
<tr>
<td></td>
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<td>2nd Term</td>
<td>15</td>
<td>272(19)</td>
<td>18.1</td>
<td>157(71)</td>
<td>19(14)</td>
</tr>
</tbody>
</table>

Grant-in-Aid for Scientific Research (KAKENHI) from Japan Society for the Promotion of Science (JSPS)

Our faculty members are in top 10 ranking in the field of Dentistry

Morphological basic dentistry
Functional basic dentistry
Prosthodontics/Dental materials science and engineering
Surgical dentistry
Orthodontics/Pediatric dentistry
Periodontology

https://www.jsps.go.jp/j-grantsinaid/22_startup_support/data/27/h27_kensta_konbo_e.pdf

Course of Oral Health Science, School of Oral Health Science

<table>
<thead>
<tr>
<th>Year of Entrance</th>
<th>Division</th>
<th>Admission Capacity</th>
<th>Applicants</th>
<th>Competitive Rate</th>
<th>Examiners</th>
<th>Successful Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>AO Exam</td>
<td>5</td>
<td>10(10)</td>
<td>2.0</td>
<td>10(10)</td>
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</tr>
<tr>
<td></td>
<td>1st Term</td>
<td>15</td>
<td>39(38)</td>
<td>2.6</td>
<td>35(34)</td>
<td>19(18)</td>
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<td>3.4</td>
<td>9(9)</td>
<td>4(4)</td>
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<tr>
<td></td>
<td>1st Term</td>
<td>15</td>
<td>59(59)</td>
<td>3.9</td>
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<td>20(20)</td>
</tr>
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<td>2014</td>
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<tr>
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<td>47(47)</td>
<td>3.1</td>
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<td>20(20)</td>
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</table>

Course of Oral Engineering, School of Oral Health Science

<table>
<thead>
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<th>Year of Entrance</th>
<th>Division</th>
<th>Admission Capacity</th>
<th>Applicants</th>
<th>Competitive Rate</th>
<th>Examiners</th>
<th>Successful Candidates</th>
</tr>
</thead>
<tbody>
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<td>30(23)</td>
<td>2.0</td>
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</tr>
<tr>
<td>2013</td>
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<td>1.3</td>
<td>4(3)</td>
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</tr>
<tr>
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<td>12</td>
<td>43(26)</td>
<td>3.6</td>
<td>40(24)</td>
<td>18(11)</td>
</tr>
<tr>
<td></td>
<td>2nd Term</td>
<td>5</td>
<td>71(50)</td>
<td>14.2</td>
<td>34(24)</td>
<td>10(10)</td>
</tr>
<tr>
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<td>1(0)</td>
<td>0.3</td>
<td>1(0)</td>
<td>1(0)</td>
</tr>
<tr>
<td></td>
<td>1st Term</td>
<td>12</td>
<td>43(21)</td>
<td>3.6</td>
<td>42(21)</td>
<td>18(10)</td>
</tr>
<tr>
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<td>5</td>
<td>51(39)</td>
<td>10.2</td>
<td>25(21)</td>
<td>8(7)</td>
</tr>
</tbody>
</table>
Statistical Data

Career Prospects after Graduation 2013

School of Dentistry

Almost all graduates become residents (compulsory for one year) under condition of their success in the National Examination for Dental Practitioners. The decision which facility they work as residents is made by matching examinations conducted in each institution during 6-year of their undergraduate program. Upon their completion of the one year training, they are provided various career choices; continuing to work as residents for another year, proceeding to graduate schools, working at other medical facilities or administrative agencies.

<table>
<thead>
<tr>
<th>Dental Residents</th>
<th>49(22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>9(5)</td>
</tr>
</tbody>
</table>

Course of Oral Health Science, School of Oral Health Science

There are many career paths that students may choose upon their graduation as follows: highly-specialized dental hygienists at local dental clinics, dental hygienists engaged in dental health managements in general hospitals / administrative agencies / schools, or teachers at schools for training dental hygienists. Furthermore, if they acquire the license for Yogo teachers, they can play an active role as Yogo teachers (school nurses) giving advices about oral health at schools.

<table>
<thead>
<tr>
<th>Pursuing a higher education</th>
<th>Graduate School of Biomedical &amp; Health Sciences, Hiroshima University (Master’s Program)</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals, Dental Clinics</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Public Officers</td>
<td>Teachers</td>
<td>5</td>
</tr>
</tbody>
</table>

Course of Oral Engineering, School of Oral Health Science

There are many career paths that students may choose upon their graduation as follows: researchers at universities / research institutes, researchers / technicians for corporations relevant to pharmacies, dental apparatus / materials, specialized dental technicians, oral specialists in maxillofacial surgeries (medical artists), or teachers at schools for training dental technicians.

<table>
<thead>
<tr>
<th>Pursuing a higher education</th>
<th>Graduate School of Biomedical &amp; Health Sciences, Hiroshima University (Master’s Program)</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporations</td>
<td>General office work*MR (medical representative)</td>
<td>7</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Hospitals, Dental technicians</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Public Officers</td>
<td>General office work</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Many students go to graduate school (Master’s program) and receive high-leveled education and skills in order to pursue the following future careers: entering doctor’s courses to become researchers at universities / research institutes, researchers / teachers at schools for training dental hygienists / dental technicians.

National Examinations

**Dental Practitioners**

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Graduates</th>
<th>Number of Successful Candidates</th>
<th>Number of Examinees after graduation</th>
<th>Number of Successful Candidates after graduation</th>
<th>Passing Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 2005</td>
<td>61</td>
<td>59</td>
<td>5</td>
<td>3</td>
<td>93.9</td>
</tr>
<tr>
<td>Feb. 2006</td>
<td>62</td>
<td>55</td>
<td>4</td>
<td>3</td>
<td>87.9</td>
</tr>
<tr>
<td>Feb. 2007</td>
<td>57</td>
<td>51</td>
<td>8</td>
<td>5</td>
<td>86.2</td>
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<tr>
<td>Feb. 2008</td>
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</tr>
<tr>
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<td>61</td>
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<td>15</td>
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<tr>
<td>Feb. 2010</td>
<td>52</td>
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</tr>
<tr>
<td>Feb. 2011</td>
<td>56</td>
<td>56</td>
<td>16</td>
<td>8</td>
<td>88.9</td>
</tr>
<tr>
<td>Feb. 2012</td>
<td>57</td>
<td>54</td>
<td>8</td>
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</tr>
<tr>
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<td>50</td>
<td>46</td>
<td>9</td>
<td>4</td>
<td>84.7</td>
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<tr>
<td>Feb. 2014</td>
<td>58</td>
<td>49</td>
<td>9</td>
<td>5</td>
<td>80.6</td>
</tr>
</tbody>
</table>

**Dental Hygienist**

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Enforced Times</th>
<th>Number of Graduates</th>
<th>Number of Successful Candidates</th>
<th>Passing Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 2010</td>
<td>19</td>
<td>21</td>
<td>21</td>
<td>100</td>
</tr>
<tr>
<td>Mar. 2011</td>
<td>20</td>
<td>22</td>
<td>22</td>
<td>100</td>
</tr>
<tr>
<td>Mar. 2012</td>
<td>21</td>
<td>20</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td>Mar. 2013</td>
<td>22</td>
<td>18</td>
<td>18</td>
<td>100</td>
</tr>
<tr>
<td>Mar. 2014</td>
<td>23</td>
<td>22</td>
<td>22</td>
<td>100</td>
</tr>
</tbody>
</table>

**Dental Technicians**

<table>
<thead>
<tr>
<th>Date</th>
<th>Number of Enforced Times</th>
<th>Number of Graduates</th>
<th>Number of Successful Candidates</th>
<th>Passing Rate (%)</th>
<th>National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 2010</td>
<td>-</td>
<td>19</td>
<td>19</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Mar. 2011</td>
<td>-</td>
<td>23</td>
<td>23</td>
<td>100</td>
<td></td>
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<tr>
<td>Mar. 2012</td>
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</tr>
<tr>
<td>Mar. 2013</td>
<td>-</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Mar. 2014</td>
<td>-</td>
<td>21</td>
<td>20</td>
<td>95.2</td>
<td></td>
</tr>
</tbody>
</table>

Dental Hygienist Not open to the public
N/A