

A DECADE OF
HEALTH
SCIENCES
IN ASIA

10th Anniversary

*Looking Back at
the FHS International Conference*

A DECADE OF
HEALTH
SCIENCES
IN ASIA

10th Anniversary

*Looking Back at
the FHS International Conference*

Faculty of Health Sciences,
Hokkaido University

A special dedication to Prof. Hiroyuki Date

On August 7, 2022, we were saddened and devastated by the news of the sudden passing of Professor Hiroyuki Date. He was the Dean of the Faculty of Health Sciences and also the President of the 1st, 2nd and 5th Hokkaido University Faculty of Health Sciences (FHS) Conference. He was also in line to be the President of the 6th FHS Conference in 2023.

In recognition of his hard work, dedication and positivity, we dedicate this memorialbook to the late Professor Date.

Taro Yamauchi

Taro Yamauchi

Chair of FHS International Conference
Professor, Director of the International Affairs Office
Faculty of Health Sciences, Hokkaido University

PREFACE

The 1st conference was held in July 2013, and we invited speakers from our two partner universities: Diponegoro University in Indonesia and Taipei Medical University in Taiwan. From the second FHS onwards, the conference featured graduate students' poster presentations to provide them with a special opportunity to give a presentation at an international conference. At the conference meeting, we welcomed more international speakers from our partner universities than the number of speakers from the host, Hokkaido University. Because of the COVID-19 pandemic, the dates for the 5th FHS conference in 2021 were moved to September from July; the whole conference was held online over two days. Next year, 2023, will mark the 10th anniversary of FHS. We cannot wait to hold the conference face-to-face this time around.

This memorial book consists of four parts: (1) Memories shared by the former FHS presidents, the chair and the delegates from our five partner universities; (2) Programs and abstracts of the invited lectures; (3) Best poster presentation awards for graduate students; (4) Data on presenter demographics (host/invited speakers and graduate students) and the frequent keywords extracted from the abstract/poster presentation titles. I hope you all enjoy looking back at a decade of fond memories from the FHS International Conferences.

In the next 10 years, I hope that more graduate students will join FHS and we will have international conferences hosted by our partner universities to further deepen the bond between us and extend international collaboration. To conclude, I'd like to express my sincere gratitude to all the members who have been involved in FHS conferences including former chairs, invited speakers, graduate students and organizing committee members for their dedication.

Sapporo, Japan

Taro Yamauchi



FHS INTERNATIONAL CONFERENCES



1 st	Date	July 5, 2013
	Venue	School of Medicine, Hokkaido University
	Theme	Evolving Health Sciences in Asia
2 nd	Date	July 3, 2015
	Venue	Faculty of Health Sciences, Hokkaido University
	Theme	Gazing into the Future of Health Sciences in Asia
3 rd	Date	July 7, 2017
	Venue	Faculty of Health Sciences, Hokkaido University
	Theme	Hitch our wagon to a remedy!
4 th	Date	July 5, 2019
	Venue	Faculty of Health Sciences, Hokkaido University
	Theme	Putting the Pieces Together: Creating A New Era of Health Sciences in Asia
5 th	Date	September 17–18, 2021
	Venue	Online via Zoom & Slack
	Theme	Look for the Silver Lining in the Post-Pandemic Health Sciences



From
The former FHS presidents, the chair,
and the delegates from our five partner universities

Looking Back at the FHS International Conference — Message to Young Researchers —

Professor Hiroyuki Date

Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

The first Faculty of Health Science (FHS) International Conference was held in 2013 aiming for promoting the research activities of young teaching staff and graduate students in alliance with researchers in other countries. Since the first meeting, FHS has been convened every other year. Here, looking back at the past and present of this precious event, I am deeply moved by recognizing that the field of health sciences develops steadily through efforts of the participants (particularly young researchers). I would like to express my respect for their contributions to this field of study.

Before the first FHS (July 5, 2013), our institute concluded agreements with Diponegoro University (Faculty of Medicine) and Dr Kariadi Hospital in Indonesia (Dec. 2012) and Taipei Medical University (College of Medicine, College of Nursing, College of Public Health and Nutrition, College of Medical Science and Technology) in Taiwan (Dec. 2012). Accordingly, we had many guests from these institutes and had very good time with them in the first FHS.

In 2015, the second FHS was held (July 3) just after the conclusion of agreements with Chulalongkorn University (Faculty of Medicine) in Thailand (Jun. 2015) and Kaohsiung Medical University (College of Health Sciences) in Taiwan (Jun. 2015). Also in this time, the informational exchange was actively conducted among graduate students and guests from the above countries.

At the third FHS in 2017 (July 7), the number of participants surpassed 250 (much larger than 140 in the second FHS). Ten invited speakers from home and abroad gave their lectures, and there were 76 entries to the poster presentation session.

In 2019 the fourth FHS was held (July 5) following the conclusion of agreements with

Chulalongkorn University (The Faculty of Allied Sciences) in Thailand (Aug. 2018) and University of Hong Kong (School of Nursing) in China (Jan. 2019). The number of participants was over 270. Twelve speakers from home and abroad provided their talks, and 77 poster presentations by graduate students were in bustle with activity.

The fifth FHS was held in 2021 (September 17–18), which experienced an online conference for the first time due to “COVID-19 pandemic”. Despite in the unaccustomed situation, participants enjoyed the discussions and 85 poster presentations remotely for two days.

In recent years, medical sciences and health care have been directed to a broad range of subjects, such as transplant and regeneration medicines, gene therapy, measures against infectious disease and life-style disease, provision for an aging society, and so on. In light of these subjects, “Health Sciences” forms an academic area emphasizing health maintenance, the prediction and protection against diseases, rehabilitation after medical treatment and handling of senile changes, in addition to conventional medical issues. We therefore have to construct urgently a platform for supporting the health care system in order to live long and healthy lives.

Many countries of the world have witnessed great changes in the natural environment and social circumstances. For example, infectious diseases have brought threats several times not only to a specific area but also to an extensive area over the world. On the other hand, high speed global communication is common, and we can take a close look at almost any geographical area by satellite images. There are also the changes in the urban environment and transit system, and

demographic changes arising from the declining birth rate and the growing population of elderly people in rural areas.

In present-day Japan, we are doing well, free from the lack of food and clothing, and we can justly assert our freedom, equality and human rights. I suppose this is quite a rare state historically. However, new problems are emerging in the period after World War II, such as a lack of a sense of identity, spiritual ambiguity and life-style related diseases caused by Western dietary habits (such as obesity and hyper-tension). Although all may seem peaceful on the surface, our incapability of crisis management for sudden disasters and pandemic of infectious diseases, and the problem of economic standstill are causing all of us anxiety.

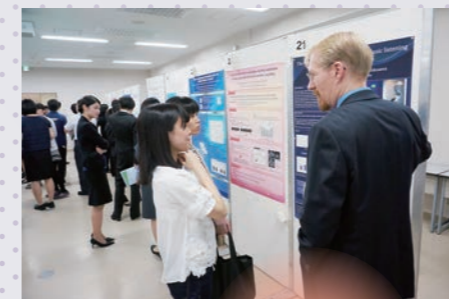
The problems above must be faced by the younger generations. This is why I would like to say to young people to partake in the FHS and to communicate with the investigators in other countries. You must be tackling your own research subject in the master or doctor course, envisaging the problems that need to be overcome and the

scientific truth that should be explored in the future; and at the same time, you must be aware of the concernment for avoiding dogmatism and pedanticism.

A long time ago, in the Roman times, someone said “Life is short, but artifice is long”. That is, our life span is too short to attain a universal and comprehensive scheme of things. Therefore, essential knowledge and cutting-edge technology should be ceaselessly passed on to the next generation. All the more because of this, I hope that you keep your sense of inquiry in mind and proceed on to a higher step of professional specialty.

At last, but not the least, I would like to strongly recommend that you think a great deal of connections with your friends abroad and faculty members because these connections will lead to fruitful relationships and offer mental and spiritual sustenance for the rest of your life.

I hope for your bright and successful future along with the FHS International Conference!



Poster session of the 2nd FHS in 2015.



Group photo of the 1st FHS in 2013



Professor Date's opening remarks in the 5th FHS in 2021.

Let's Create a New Era of Health Science in Asia!

Professor Emeritus **Takeshi Saito**

Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Congratulations on the 10th Anniversary of the FHS International Conference!

Continuity is the father of success, and I believe that FHS' 10-year journey has proven just that. I would like to express deep respect to the faculty members and students of the Faculty of Health Sciences who have supported the FHS International Conference for the past 10 years and who are looking forward to its further development.

Today's society is facing increasing social and environmental problems on a global scale, making it difficult for people to live healthy lives. The time has come for health sciences to contribute to society by promoting and extending physical and mental health, preventing disease and rehabilitating people from disease, but there are few international conferences that cover such a wide range of health science fields. The Faculty of Health Sciences of Hokkaido University consists of six specialized health science fields. The significance of the existence of the FHS International Conference is that faculty and graduate students from all of these specialties can participate in the conference where they can engage in broad and deep discussions with health science researchers from around the world, especially from Asia.

I was involved in the organization of the 4th

FHS International Conference as one of the staff members in 2019 when I was the Dean of the Faculty of Health Sciences. We hoped that the 4th FHS International Conference would be an international conference that will lead to the further development of health sciences while keeping alive the past trends of FHS, and we have set the main theme as "Putting the Pieces Together: Creating A New Era of Health Sciences in Asia". We organized three symposiums and two poster sessions and invited researchers in the fields of Nursing, Biomedical Science and Engineering, Medical Laboratory Science, Rehabilitation Science, Health Sciences and Technology from Taiwan, Korea, Thailand, China and Japan as invited speakers. The poster presentations by graduate students from various countries exceeded 70, making it a very active conference.

We hope that graduate students who have attended or will attend the FHS International Conference will take advantage of this opportunity to reflect on the interdisciplinary significance of their research, and become health science researchers and educators who will collaborate with researchers around the world in the future.

I hope that the FHS International Conference will continue to grow and develop over the next 10 to 20 years.

Welcome reception of the 4th FHS in 2019



Looking toward the Future — A Decade of Memories from FHS —

Professor **Taro Yamauchi**

Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

My name is Taro Yamauchi, and I am the Chair of the FHS International Conference. The Conference was founded by the late Professor Hiroyuki Date and me. Professor Date was the President of the 1st FHS International Conference. Honestly speaking, I never imagined the conference would continue for 10 years after its 2013 inauguration. I would like to take this opportunity to extend a huge thank you to everyone involved: our partner universities, invited speakers, graduate students that took part in, and above all, the members of the International Affairs Office who have immensely supported FHS as the organizing committee.

From the second FHS onwards, we featured graduate students' poster presentations to provide students with a special opportunity to give a presentation at an international conference. During the one-minute "shotgun presentation" session that took place right before the poster session, some students faced the unexpected or technical issues which happened to make the session one of the most exciting, fun and lesson-to-learn moments. It also offered the students a great opportunity to give a summary talk in English on their research. Over the course of years, so many more people started participating in the gatherings that the FHS has become one of the official events of Hokkaido University's Faculty and Graduate School of Health Sciences.

As you would recall, FHS was always held in early July around the Star Festival time in Japan. I reckon Sapporo in early summer is one of the best and most pleasant places to be in the world. Our overseas guests may agree with me since they all loved the weather. At the welcome dinner party for our guests held before each conference, we treated ourselves to the tastes of Hokkaido and Japan such

as sushi. Meanwhile, students enjoyed socializing with our guests from abroad at the after party. I get reminded of good old memories like setting up the party venue with other committee members within an hour right after the conference, announcing the best poster presentation award winners during the party and signing a large conference banner with all attendees after each conference.

Because of the COVID-19 pandemic, the 5th FHS in 2021 was moved to September from the Star Festival season. We hoped the pandemic to end quickly, but the situation seemed to be worsened. We once considered postponing the event, but the organizing committee discussed and resolved to hold the whole conference online. Thanks to everyone's effort to get it underway, the first online conference was a big success. The participants and I nevertheless felt there was something missing in the online event, like chatting or discussing topics face-to-face and enjoying a meal together.

The organizing committee is planning to hold the 6th FHS in 2023 which shall commemorate its 10th anniversary. I am truly looking forward to reuniting with my good old friends from the partner universities, and more graduate students to participate in the FHS programs. And I have a strong hope that our partner universities will host international conferences in the coming years when we are not having an FHS meeting.

To conclude, I would like to say we shall look toward the future of health sciences in honor of Professor Date who was to be the President of the 6th FHS next year. His warm and loving smile remains with us and his words will keep inspiring graduate students and early career researchers.

I very much look forward to seeing you all in Sapporo in 2023.

FHS Memories

Dr. Maria Mexitalia

Faculty of Medicine, Diponegoro University / Dr. Kariadi Hospital, Semarang, Indonesia

My name is Maria Mexitalia. I am a pediatrician from the Faculty of Medicine Diponegoro University / Dr. Kariadi Hospital. I was invited as a speaker at the First and Second FHS International Conference in 2013 and 2015. In 2016 I was also invited as a speaker at the "Japan-Asia Youth Exchange Program in Science (SAKURA Exchange Program in Science)" organized by the Faculty of Health Sciences Hokkaido University.

My topic at the First FHS was about "Non alcoholic fatty liver disease (NALFD) and metabolic syndrome of Indonesian obese adolescents in Semarang". In addition, I also introduced the profile of our institution to the audience. On the Second FHS 2015, I talked about "Early life nutrition, from breastfeeding to complementary feeding". And at the SAKURA Exchange Program 2018 my presentation was about "The physical activity and exercise of Indonesian children in correlation with nutritional status".

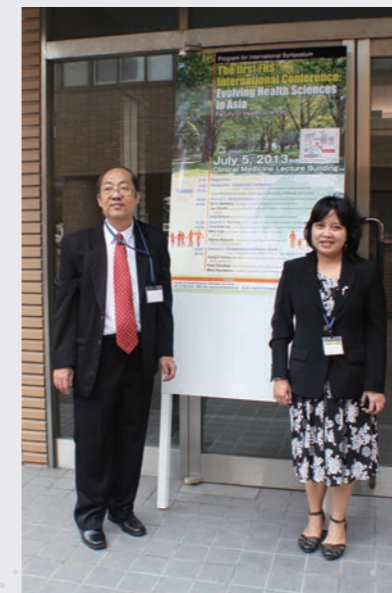
It was very valuable experience for me and colleagues from Indonesia to join the conference, because we can exchange ideas, and discuss research or other activities in scientific sessions. Besides, we were invited to a warm dinner with colleagues from the Faculty of Health Sciences

Hokkaido University, as well as colleagues from some countries in Asia.

We also had opportunity to visit many interesting places in Sapporo and nearby town such Otaru. FHS is held in July, early mild summer, when the weather is very pleasant in Hokkaido. Japanese food is very delicious. Although there are many Japanese restaurants in Indonesia, the taste of authentic Hokkaido food is still the best. Even though I'm not a beer drinker, but Sapporo beer is so good that I can enjoy to drink it. The beer is slightly sweet start and super clean finish. I cannot forget the taste of Sapporo ramen and Otaru's crabs. It was very tasty and distinctive.

In 2021, I am attending the online 5th FHS International Conference. Of course the atmosphere is very different. Unfortunately, foreign students cannot be participated in free papers session. Maybe it's good for future events, the FHS can be held as hybrid conference, and the students from other countries get the opportunity to present on the free paper session.

I attach some memorable photos from First FHS and Second FHS, as well as the SAKURA Exchange Program. Hopefully we can meet again in Sapporo in the near future.



Dr. Handoyo and Dr. Mexitalia, in the 1st FHS in 2013



SAKURA Exchange Program in 2016



Poster presentation in the afternoon section. Short-term exchange student from Taipei Medical University. Ms. Miho Aiba, Mr. Shao-Yu Chao, Mr. Wei-Ting Li and Dr. Chia-Hwa Lee

Memories of Hokkaido University and the FHS International Conference

Dr. Chia-Hwa Lee

Taipei Medical University, Taipei, Taiwan

For many Taiwanese, Japan is always considered the most attractive and friendly country in the world. For myself, I have traveled to several big cities including Tokyo, Kyoto, and Osaka for more than 5 times in the past. However, before I visited Hokkaido, it remained a mysterious place for me, and I tried to find appropriate opportunities to visit.

For years, the international exchange program between the Departments of Medical Laboratory Sciences in Hokkaido University and in Taipei

Medical University has benefitted many students. Therefore, I volunteered to join this exchange program in the summer vacation in 2019. I took this opportunity to be a visiting scholar in the Faculty of Health Sciences, at Hokkaido University. I was arranged to visit the Cardiograph Specialized Lab, led by Dr. Sanae Kaga. Dr. Kaga is an outstanding expert in the sonograph research of cardiovascular. She is also an authorized ultrasonographer (circulatory organ emphasis) by the Japan Medical Ultrasonics Organization, and

by the Graphics Organization Specialist in Japan as well. During my stay in the Echocardiography Lab, I learned extra knowledge and skills to interpret the clinical symptoms or follow-up interpretations of heart diseases. I am specially thankful to Dr. Kaga for giving me an opportunity to learn not only the skills in echocardiography, but also to adopt a rigorous and professional research attitude toward being an echocardiographic specialist. During the visit, I was honored to give a speech in the 4th FHS International Conference. I still remember one night before the conference, I attended the welcome reception with a delicacy banquet. I met many great scientists who have expertise in different fields of human health science. Unexpectedly, I met another invited speaker, Dr. Yeou-Lih Huang, who is a Professor in the Department of Medical Laboratory Science and Biotechnology, Kaohsiung Medical University, Taiwan. During the conference, Dr. Yeou-Lih Huang and I, together with other experts, including Dr. Shu-ping Hui, and Dr. Yamaguchi from Medical Laboratory Sciences in Hokkaido University, had many scientific discussions and had many opportunities to exchange our academic ideas. We enjoyed the banquet very much.

The whole-day FHS program contained three symposiums. I was arranged to give a speech in the first session in the morning. My speech title was "The applications and advances of CRISPR-Cas9 on cancer research and therapy", which summarized my main studies about the CRISPR mechanism and its potential applications on fighting against

various types of breast, thyroid and leukemia cancers. Back to the year 2019, CRISPR-Cas9 was still a very novel technology and was waiting to be explored and applied in anti-cancer therapy. After the speech, I received many precious feedbacks and comments that greatly promoted my research quality. In the afternoon of the FHS International Conference, a poster session was arranged. The students/authors were required to provide a one-minute shotgun presentation before the poster presentation. I think this was a very good training for students to summarize and conclude their own study from the audience's perspective and to present it in a very limited time. Although the FHS International Conference covered many fields in human health sciences I could not fully understand, I noticed that many participants or students came from South-East Asia countries, which again proves that Hokkaido University is indeed an international academic institute. In addition, a significantly high percentage of studies were related to improving the environmental conditions or health cares in undeveloped or developing countries. As a citizen of the world, I admired the courage and ambition of every member in Hokkaido University, who all came together to promote human welfare and make the world better. After coming back to Taiwan, I particularly like the well-known phrase and motto of Hokkaido University, said by Dr. William Smith Clark, the first principal of Sapporo Agricultural College (The former name of Hokkaido University) — **"Boys, be ambitious!"**



From THAILAND

Memories of Faculty of Health Sciences, Hokkaido University



Professor **Anchali Krisanachinda**
Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Upon the Notation for Student Exchanges between Faculty of Medicine, Chulalongkorn University and the Graduate School of Health Sciences, Hokkaido University, on the basis of agreement for international academic exchanges concluded on June 3, 2015. Professor Hiroyuki Date, Ph.D., Dean, Faculty of Health Science, Hokkaido University and Associate Professor Sophon Napathorn, M.D. Dean, Faculty of Medicine, Chulalongkorn University signed in the Agreement at Faculty of Medicine, Chulalongkorn University in Bangkok, Thailand. During this period the Faculty FHS had an opportunity to visit the Rose Garden at Sampran where the Thai culture was collected in this village of Thai house, Thai food and the use of the elephant for dragging the log from high hill down to the ground. The elephant riding is arranged for those who love elephant.

My first official visit to Faculty of Health Sciences, Hokkaido University was on July 3, 2015 on the Second International Conference of FHS Hokkaido University with my presentation on Academic Activity and Clinical Research at Department of Radiology, Chulalongkorn University. Poster on "Activity at King Chulalongkorn Memorial Hospital and Chulalongkorn University" had been displayed. It is an impressive conference as the FHS students spoke English and little Thai — nice for the exchange program. I have been taken to the old Japanese house learning about the culture which partially similar to Thai culture. My second visit was held on July 6, 2017 on Hokkaido Summer Institute. At the 3rd International Conference of FHS Hokkaido University, the paper title "Image Quality and Dose Efficiency Evaluation of Added

Beam-Shaping Filter in Computed Tomography for Pulmonary Nodule Detection: Phantom Study" had been poster presented. One lecture had been presented title "The Current Status of Eye Lens Dose Measurement on Interventional Cardiology Personnel in Thailand".

In July 2015, Dr. Noriyuki Tawara from FHS Hokkaido University had spent 3 months at Department of Radiology to teach the graduate students on the physics of MRI and conduct research on muscle MRI.

In December 17–23, 2015 and August 17–23, 2016, Professor Masayori Ishikawa visited Thailand on exchange program and gave lecture on Teacher's Day and attended the new year party.

It is really the great opportunity for both universities on the exchange of university staff and the graduated students. We are grateful to FHS Hokkaido University and wish to continue this activity forever.



Poster Presentation at the FHS in 2015

The 4th FHS International Conference at the Hokkaido University

Dr. Thititip Tippayamontri

Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok, Thailand

I would like to take this opportunity to express my heartfelt thanks to you for your very active organization in the FHS international conference at the Hokkaido University. My colleagues and I applaud your work in making the symposium a success. We knew that your organization committees would do an outstanding job.

The lectures covered a broad spectrum of topics, so everyone felt that there was something of interest for them. I do believe that all participants came away from each session with renewed enthusiasm for their work. Moreover, you did a fantastic job of keeping the meeting moving, exclusively for a session of speed-talk presentation.

For other academic activities, attending the classroom with Japanese and Taiwan students was one of my favorite activities. It was my new experience that I have never been done before. We were sharing our professional knowledge information, as well as our multi-cultural experiences. I have learned that there is slightly different in healthcare management and clinical practice among these countries. So, I can further transfer some of that interesting knowledge to my Thai radiological technology students. In addition, I also have a chance to visit and meet the healthcare professional team of the Department of Radiology, Hokkaido University Hospital. The working atmosphere in the sector of diagnostic radiology, radiation therapy, nuclear medicine and proton therapy were superb. Moreover, I had the opportunity to exchange many of interesting knowledge with excellence professors from Japan



and other countries. This can be further taught to my

student and applied to my research as well.

From the statement of "Through travel, our feet learn how to form their own paths and our heart begins to beat to a different rhythm". I truly thanks to the chance that I participated at the FHS symposium. I had once again the opportunity to spend away from familiar routines, allowing me to open-up my new world and embrace myself. I observed the graceful Japanese culture and traditional way of life of the peaceful people. I totally agreed with that exposure to new cultures, like graceful Japanese culture brings entire sets of new traditions, each with their own quirks. I have listened to Japanese music, tasted Japanese foods and enjoyed Japanese architecture. Furthermore, I have surrounded with delightful Japanese peoples. They were very kind and gentle with me, especially they made me feel like I was at home at all time I was living there.

For my daily routine, I loved to walk around Hokkaido University's Campus. There were various places in the campus that I really like, included the Central Lawn, Statue of Dr. William S. Clark, Elm Forest, the Hokkaido University Museum, and Ono Pond. For my free time, I enjoyed walk through a very calm and relaxed space of Odori park. After enjoying the city day tour, Sapporo's night view was so extremely beautiful that it was included Sapporo TV tower. As Sapporo in particular is the "City of Food", where fresh ingredients are brought in from all across Hokkaido. Even by now, I am still having the image of delicious seafood, Hokkaido melon, ramen noodles, and special soup curry. Additionally, variety of specialty dishes making Sapporo the foodie heaven in my memory.

All in all, the opportunity to attend the FHS symposium has given me a lot. The time I was

spend in Hokkaido, it was one of the wonderful moments of my life. I have collected the good experiences and memories, including excellence academic and non-academic experiences, and good friendship for further endless collaboration. I once again would like to thank you for such

a wonderful symposium and hope to get a chance to participate such an event from you again soon in the future.

"The FHS symposium was a grand success!"
"Congratulations on a job, WELL DONE!"



Somewhere in Time — Reflections on the Past FHS International Conferences —

Dr. Shih-fen Hsiao

College of Health Sciences, Kaohsiung Medical University, Kaohsiung, Taiwan

I am also honored to have the chance to talk about my memory of the FHS International Conferences, and acknowledge my gratitude and appreciation to those who have made the conferences come true.

My first encounter with the FHS International Conference was in 2013, when I was a visiting scholar to Professor Asaka's motion lab. I remember it was also the first FHS International Conference (the theme was 'Evolving Health Sciences in Asia') and took place on the first week of July. I was due back to Taiwan at the end of that July so it was just like a closure of my one-year

visit to Hokkaido University. I was particularly amused to find myself as a 'local' participant – comparing to other guests from Taiwan (they were from Taipei Medical University). And it was then I realized I have already made Sapporo 'home' and had created quite a remarkable relationship with the physical therapy faculties and students whom I learned not only skills of laboratory work but also attitude of research.

After I left Sapporo and returned to Taiwan, the interaction between me and the FHS (especially the division of physical therapy/rehabilitation sciences) actually got stronger with time went on.

If there was a loyalty card for collecting points, I should have got 5 points for attending each of the conference including the virtual conference last year! In 2014 a memorandum of academic collaboration and student exchange agreement were signed between FHS and the College of Health Sciences of my university, Kaohsiung Medical University (KMU), and it became a custom for us to send PT students for one-month summer exchange during the year whenever the FHS International Conference took place. It was a great experience for our students to attend the international conference as undergraduates, but for me, attending the FHS International Conference was a perfect excuse to get away from busy teaching and administration works, and I always felt so excited to meet friends and lab members from the old days, and the Sapporo soup curry (Picante has always been my favorite)! I remember clearly the excitement of the shotgun presentations — well, to recite your precious research works concisely in one minute is never an easy job! Not only the amounts of posters but also the variety and quality also increased year by year, and it was such a pleasure to talk to those young and ambitious minds. I was also fascinated by the wide spectrum of topics delivered by international speakers encompassing significant health science issues from obesity of children to environmental health.

But I believe the climax of the FHS International Conferences was the dinner party on the last day as the friendship among all participants knitted stronger with toasting to success of the conference

and endless supply of Sapporo Beer. For us from the Asaka Lab, we ended the night always with a group photo of Professor Asaka and all research students including our visiting youngsters from KMU. For me it was a symbol of generation and pedigree, and a reassurance of friendship. To all our visiting students the FHS International Conference was the first international scientific conference of their life time, and some of them have already their master degree or are still doing research. Thanks to the platform and links created in the series of FHS International Conference! This is well beyond my imagination and expectation when I started my visit to Hokkaido University in 2012!

Given the globalized and interconnected health science network created by the FHS International Conferences, I think it has become a tradition for the health science people rather than just an event on the academic calendar. Thanks to the leadership and vision of Dean Date, Dean Saito and Professor Yamauchi, and thanks to Professor Asaka and Professor Samukawa for implementing the PT exchange program, I am extremely honored to be part of the story of these conferences. I believe each of us from various countries were just like a single thread, these conferences have pulled us all together and woven into a strong and beautiful fabric to cover the healthcare and health science needs.

I sincerely wish the collection of this book lead to a new extension of next conference, and I look forward to meeting old friends and the ambitious, next generation of the health sciences field.

Dean Huang of College of Health Sciences KMU and the visiting students (left), KMU students with Professor Asaka (right), in the 4th FHS in 2019



From HONG KONG

Discovering Hokkaido — Intellectuality and Humanity Besides —

Professor Chia-Chin Lin

School of Nursing, The University of Hong Kong, Hong Kong, China



The first bento after arriving at Hokkaido University



Morning run in the beautiful campus

Hokkaido is an amazing place which is famous for its picturesque scenery surrounded by plenty of magnificent natural landscapes. It has been one of the top destinations for my vacations where I had many precious memories and enjoyable moments with my family members. In July 2015, I had been invited by Hokkaido University to attend the FHS International Conference and had the opportunity to visit this wonderful place again. I had a pleasant stay there thanks to the perfect weather as well as the great hospitality from the host university and local people.

During my visit, I had great pleasure to meet with the Dean Professor Date, as well as my students from TMU who were visiting Hokkaido University for an exchange programme. It was exciting to meet with my students who had shared bits and pieces of their life as exchange students and to learn that all of them had enjoyed their exchange experiences there.

Besides, I was really impressed by the beautiful

campus of Hokkaido University and the tranquility of its natural and spacious environment. I had the privilege of feeling the breeze, smelling the trees, and hearing the sounds of nature while jogging around the campus every morning. And I had bumped into one of my colleagues who is a runner when I was jogging.

During the spare time of my visit, I had explored some of the must-see attractions and delicious local cuisine in Sapporo City. I had also spent some delightful moments reminiscing and reconnecting with my old friends while enjoying the dinner in a local restaurant. I had enjoyed the local cuisine and Sapporo ramen is one of my favourites. I also love the fresh fruits from the local farms especially the juicy peaches which are in season during summer time.

It has been seven years since my last visit to Hokkaido, yet all these good memories are still lingering in my mind. And I really hope I can travel to this beautiful place again in the near future.

Group photo of Asaka lab and also Professors Maejima and Samukawa during the 3rd FHS in 2017



Dinner with my old friends



Meeting with Dean Professor Date and my students visiting Hokkaido University for an exchange programme





The reception desk of the 1st FHS in 2013
(Photo by Dr. Hsiao)



Poster session of the 4th FHS in 2019



Students in the 3rd FHS in 2017 (Photo by Dr. Hsiao)



Welcome reception of the 1st FHS in 2013



Symposium session of the 3rd FHS in 2017

Programs & Abstracts

& Best Poster Presentation Awardees 2015-2021

The 1st FHS International Conference

- Evolving Health Sciences in Asia -

July 5, 2013

School of Medicine, Hokkaido University
Clinical Medicine Lecture Building

Program Schedule

8:30–9:00	Registration	
9:00–10:30	Opening Remarks	Prof. H. Date (Dean, Faculty of Health Sciences, Hokkaido University)
	Welcome Address	Prof. M. Kasahara (Dean, School of Medicine, Hokkaido University)
	Introduction: Universities / Institutions Chair: Prof. T. Yamauchi	1. Taipei Medical University / Prof. C-C. Lin 2. Diponegoro University & Dr. Kariadi Hospital / Dr. M. Mexitalia 3. Hokkaido University / Prof. T. Yamauchi
10:30–10:50	Break	
10:50–12:05	Session 1: 'Medial Science' Chair: Prof. H. Yamaguchi	1. Dr. M. Mexitalia (Diponegoro University / Dr. Kariadi Hospital) Non alcoholic fatty liver disease (NAFLD) and metabolic syndrome of Indonesian obese adolescents in Semarang 2. Dr. J. Ohashi (University of Tsukuba) Molecular evolution of TRAP gene in <i>P. falciparum</i> 3. Dr. J. Matsuo (Hokkaido University) Learning from bacteria-protist interactions: from human-health threat to infection control
12:05–13:30	Lunch	
13:30–14:45	Session 2: 'Nursing' Chair: Dr. Y. Asaka	4. Prof. C-C. Lin (Taipei Medical University) Evidence-based practice in Taiwan: Wan Fang Hospital as an example 5. Dr. M. Sato (Hokkaido University) Self-care in adults with diabetes 6. Dr. M. Noguchi (Hokkaido University) Midwifery to improve maternal and child health for global health
14:45–15:00	Break	
15:00–16:15	Session 3: 'Rehabilitation and Public Health' Chair: Prof. H. Tohyama	7. Prof. H-Y. Chiou (Taipei Medical University) Health system reform on NCD in Taiwan 8. Dr. R. Handoyo (Diponegoro University / Dr. Kariadi Hospital) Application of rehabilitation principles in musculoskeletal degenerative diseases 9. Dr. M. Samukawa (Hokkaido University) Stretching to achieve optimal athletic performance
16:15–16:30	Closing Remarks	Prof. T. Saito (Vice-Dean, Faculty of Health Sciences, Hokkaido University)

Non alcoholic fatty liver disease (NAFLD) and metabolic syndrome of Indonesian obese adolescents in Semarang



Maria Mexitalia

Pediatric Department, Faculty of Medicine Diponegoro University /
Dr. Kariadi Hospital, Semarang, Indonesia

The key components of metabolic syndrome are central obesity, atherogenic dyslipidemia, impaired glucose tolerance, and elevated blood pressure. In children, non alcoholic fatty liver disease (NAFLD) has been consistently associated with metabolic syndrome. We compiled 5 studies of metabolic syndrome of the adolescents in Semarang during 2007–2012. A study of 116 adolescents found that the prevalence of metabolic syndrome among the obesity was 31,6% meanwhile none of the normal students got the metabolic syndrome. Other study with smaller number of subjects found that hypoadiponectin was not associated with NAFLD in obese adolescents. Discriminant analysis between adiponectin level and HOMA > -0,259 may predict NAFLD in obese adolescent. A study by assessing the correlation between aspartat amino transferase-platelet ratio index (APRI) as early identification of fibrosis and body mass index in fatty liver children found that there was no correlation between APRI and (BMI), and only 5% obese children with fatty liver indicated liver fibrosis. Meanwhile the other study of us found a positive correlation between waist, body fat, lipid profile, alanine transaminase, and insulin resistance with hsCRP as early marker for atherosclerosis. The risk of children with metabolic syndrome affected NAFLD was 5.6 times greater than non metabolic syndrome. The last study was the intervention study of diet modification given to NAFLD adolescents found that there was no significant differences on fibrosis cirrhosis index (FCI) score before and after diet modification by groups.

As summary, we concluded that NAFLD in obese adolescents was associated with metabolic syndrome. For adolescents with NAFLD, a goal must be the prevention of end-stage liver disease. In addition, children with NAFLD may be at a higher risk for cardiovascular disease than children without NAFLD. Although our intervention with diet modification could not revealed the differences of fibrosis cirrhosis index (FCI) score, but there was a good improvement on liver function.

Molecular Evolution of TRAP gene in *P. falciparum*



Jun Ohashi

Molecular and Genetic Epidemiology, Faculty of Medicine,
University of Tsukuba, Tsukuba, Japan

Malaria infection starts when the sporozoite stage of the Plasmodium parasite is injected into the bloodstream by an infected female Anopheles mosquito. The sporozoites pass quickly into the liver, where they infect hepatocytes. Thrombospondin-related adhesive protein (TRAP) is a protein expressed in sporozoites and essential for sporozoite gliding and cell invasion. To study the molecular evolution of TRAP gene in Plasmodium falciparum, the TRAP polymorphisms were investigated in 32 *P. falciparum* isolates obtained from Suan Phueng District in Ratchaburi Province, Thailand. The analysis of the entire TRAP gene sequences in 32 isolates identified a total of 39 single nucleotide polymorphisms (SNPs) in the coding region of the TRAP gene: 37 nonsynonymous SNPs and two synonymous SNPs. A comparison of our *P. falciparum* isolates with those in the other region of Thailand and Gambia indicated that TRAP is highly differentiated even between the geographically close regions. An evolutionary analysis suggested that diversifying selection is acting on the TRAP gene in Thai *P. falciparum* population. The possibility that TRAP can be a major target of human malaria vaccine development will be discussed further in this presentation.

Learning from bacteria-protist interactions: from human-health threat to infection control

Junji Matsuo

Department of Medical Laboratory Science, Faculty of Health Sciences,
Hokkaido University, Sapporo, Japan

As viewed from the point of environmental ecology widely spreading soil, river water or gut, microbial community comprising both protists (e.g. amoebae and ciliates) and prokaryotes (harmless bacteria) plays a major role in nutrient cycle. Meanwhile, since protists can be significant predators of bacteria, some bacteria have evolved variety of mechanisms to survive within protists, including escape from phagocytosis, acquisition of virulent factors and horizontal gene transfer. Such bacterial strategies against protists are also commonly seen into pathogenic bacteria to successfully adapt to mammalian cells (e.g. macrophages), and it seems reasonable to suggest that studies on interactions between bacteria and protists may give us a new insight to understand bacterial pathogenesis into developing appropriate infection control system. Hence, we have begun to study how symbiosis occurred by using amoebae (*Acanthamoeba*) with endosymbiotic bacteria that we originally isolated from Sapporo City. In this session, we would like to show several intriguing findings that some amoebal endosymbiotic bacteria manipulate growth speed and motility of host amoebae. We will also introduce our data indicating that ciliates (*Tetrahymena*) significantly enhance the frequency of bacterial gene transfer, possibly responsible for multidrug resistant bacteria.

Evidence-Based Practice in Taiwan: Wan Fang Hospital as an Example



Chia-Chin Lin

College of Nursing, Taipei Medical University,
Taipei, Taiwan

Research has been grouped into 2 categories: basic and clinical research. Basic research focuses on knowledge in cancer biology, whereas clinical research has traditionally focused on the investigation of new treatment modalities. In recent years, it has become evident that the interaction between basic and clinical researchers can improve the outcomes of cancer patients. Translational research has become a new concept for bridging between basic research and clinical research, and even health decision making. The term translational research usually refers to “from bench to bedside,” and the endpoint of this area of research is the production of a promising new treatment or intervention that can be used clinically or commercially (Woolf, 2008). However, for researchers whose studies focus on health care, translational research refers to translating research into practice. Therefore, the Institute of Medicine’s Clinical Research Roundtable has provided a distinction between these 2 definitions of translational research (Sung et al, 2003). T1 is defined as “the transfer of new understandings of disease mechanisms gained in the laboratory into the development of new methods for diagnosis, therapy, and prevention and their first testing in humans.” T2 is described as “the translations of results from clinical studies into everyday clinical practice and health decision making.”

Efforts at translational research from nursing professionals have been relatively limited in the past. However, nursing is in a unique position for contributing to interdisciplinary translational research because nursing practice is distinguished from most other disciplines by the fusion of the biological, psychological, and sociocultural perspectives regarding the care of people (Woods and Magyary, 2010). Moreover, nursing care and research are highly linked with the community and ambulatory care settings, where population-based interventions and practicebased research networks serve as the “laboratory” for T2 research (Woolf, 2008). Therefore, I propose

3 approaches to fostering the development of translational research in cancer nursing. First, to be successful, the translational research paradigm should be started from educational programs. Students should be offered an opportunity to work with an interdisciplinary mentoring team, and to be exposed to bench science as well as to patient-based and population-based research (Feldman, 2008). Communications and collaborations across disciplines are central to cancer care and to translational research. Such a benefit of a translational research program gives the opportunity to use it as a platform for developing closer relationships with other care disciplines. Second, nursing researchers are encouraged to explore the “why” and “how” regarding our interventions, including psychological as well as biological mechanisms. For this purpose, an interdisciplinary research team and a transfer of understandings of psychological or biological mechanisms into the development of interventions will need to be formed. Nursing research has a rich tradition of attempting to measure and understand relationships among the variables in question. As we engage in translational research, more emphasis must be placed on how relationship variables explain differential interventional effects (Woods and Magyary, 2010). Lastly, the research findings may take several decades to be translated into standard health care practice or guidelines; therefore, more effort of cancer nursing research must be directed at distilling the knowledge gained from practice-based research through systematic reviews and guidelines that can be implemented in practice and assist in clinical decision making.

In conclusion, translational research holds great promise for improving care for cancer patients worldwide. The concept of interdisciplinary collaboration between basic researchers and clinical researchers, and efforts at the translation of new knowledge into clinical practice will certainly advance the quality of cancer care. Nursing researchers such as yourself are encouraged to take the initiative to contribute to translational research in patient care.

Self-care in Adults with Diabetes

Miho Sato

Department of Fundamental Nursing, Faculty of Health Sciences,
Hokkaido University, Sapporo, Japan

The number of people with diabetes in Japan has increased steadily. Serious complications resulting from diabetes could have negative impact on the quality of life. In order to prevent these problems and manage diabetes effectively, people with diabetes are expected to adhere to daily self-care. It includes following a meal plan, engaging in appropriate physical activity, medication adherence if needed and monitoring such as blood glucose testing. However, not all patients follow the recommended activities. Why wouldn’t they maintain self-care? What makes people engage in self-care?

Self-care behaviors can be influenced by a range of broad factors. It is well explained by a framework called “the ecological model of health behavior”. In this presentation, factors influencing self-care for people with diabetes will be discussed from two viewpoints. The first is factors at individual levels, such as knowledge, self-efficacy and emotional aspect. The second is social and contextual factors surrounding the individuals, such as social support and neighborhood resources. The work-related factors will be also discussed. The previous study indicated that factors such as working night shifts, self-disclosure of diabetes and workplace conformity had a significant influence on dietary self-care.

In order to help people with diabetes behave in healthy ways, recognizing multiple factors is important.

Midwifery to improve maternal and child health for global health

Makiko Noguchi

Department of Comprehensive Development Nursing,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Midwifery is essential to improving maternal and child health. A midwifery approach should be established and fostered all over the world, because improvements in maternal and child health have not progressed sufficiently toward achieving the Millennium Development Goals adopted by heads of states in September 2000.

According to the United Nations Population Fund (2007), it is clear that strengthening skilled midwifery workforce is crucial to improve maternal and child health. But new practical ways of working and supporting midwifery have not been established while medicalization of birth which includes ineffective and harmful practices for mothers and babies has become more rapid and widespread.

Japanese project teams utilizing midwifery have been conducting projects overseas to cope with the medicalization of birth and its negative effects, because Japanese midwives can support natural or physiological birth. Many midwifery training programs were conducted by Japanese midwives and were a success. A reproductive health project in Armenia was one of the projects to provide midwifery care. It is not easy to clearly define global standards of midwifery approach, because maternal health depends on social and cultural aspects indigenous to the society. An impact of midwifery care is also not recognized sufficiently compared to conventional medical care. We should, therefore, provide actual results of the midwifery projects to disseminate midwifery practicality.

It is an urgent task that valid, reliable and accessible indicators to evaluate midwifery care be clarified to advance midwifery.

Health System Reform on NCD in Taiwan



Hung Yi Chiou

College of Public Health and Nutrition, Taipei Medical University /
Taiwan Public Health Association, Taipei, Taiwan

According to a 2011 World Health Organization report, 63% of global deaths were due to NCDs (mainly cancers, diabetes cardiovascular diseases and chronic respiratory disease). In Taiwan, NCDs accounts for nearly 60% of deaths. The four leading risk factors changing lifestyle are smoking, inadequate exercise, unhealthy diet and harmful use of alcohol. Aging population and increasing prevalence of non-communicable disease (NCDs) have become major health threats. These challenges such as aging population and increase in NCDs require preventive measures and health promotion from leading public agencies.

In order to reduce the impact of NCDs on health expenditure, Taiwan government launched numerous programs recent years, include Health Centenary, Health Taiwan. This nationwide campaign encouraged people to maintain a healthy body weights. Another important part of health promotion efforts was tobacco hazard prevention and control.

In 2011, the exposure rate to secondhand smoke in public places was under 10% (8.2%), and 90% of people were satisfied with the progress. Moreover, Taiwan has set a target of reducing the cancer mortality rate by 20% by 2020. To reach this goal, free screening are offered for the four major cancer types (cervical cancer, breast cancer, colorectal cancer and oral cancer). In 2011, 4.35 million of these screening were conducted.

With limit resources, we still hope our work is evidence-based and our love for life serves as the motivating force. By mobilizing society and its constituents through bring policies in line with international practices.

Application of Rehabilitation Principles in Musculoskeletal Degenerative Diseases



Rudy Handoyo

Physical Medicine and Rehabilitation Department, Diponegoro University /
Dr. Kariadi Hospital, Semarang, Indonesia

As a shift in demographics occurs with the increase of life expectancy and a growing elderly population, the probability of encountering patients with musculoskeletal degenerative disease increases. The commonly problems of the disease are pain, stiffness and decreased range of motion. These findings combine to decrease overall activity, which in turn leads to physical deconditioning and therefore interferes with the patient's ability to perform basic of activity of daily living. The primary goals of rehabilitation of musculoskeletal degenerative disease such as to decrease symptoms, to optimize daily function and to minimize disability. The efficacy of various modalities for the treatment of musculoskeletal degenerative diseases were presented. Furthermore, an understanding of the role of biomechanics in the manifestation of the musculoskeletal degenerative diseases is essential in the assessment and management of the patient. The rehabilitation may implement strengthening of the muscle around the joint to correct for biomechanical deficits and utilize orthoses or assistive device to protect and decrease load on the joints. The emphasis of the treatment of rehabilitation should include active participation of the patients.

Stretching to achieve optimal athletic performance

Mina Samukawa

Department of Rehabilitation Sciences, Faculty of Health Sciences,
Hokkaido University, Sapporo, Japan

Athletes commonly include stretching exercises in their warm-up routines. In winter sports, athletes are commonly required to perform in cold environments; so effective stretching is considered essential. The most common method is static stretching, which places muscles in their lengthened positions and maintains these positions for a certain period of time. However, static stretching has also been found to have negative effects on athletic performance. By contrast, dynamic stretching consists of performing movements that take the limb through a range of motion by contracting the agonist muscles, which in turn allows the antagonist muscles to relax and elongate. Dynamic stretching is now gaining recognition as an effective exercise for improving sports performance. The results of our recent studies suggested that the effects of dynamic stretching on the muscle-tendon unit were quite different from those of static stretching. The precise mechanisms why dynamic stretching optimizes performance needs to be better understood so that stretching programs can be tailor-made for individual athletes.



The 2nd FHS International Conference

- Gazing into the Future of Health Sciences in Asia -

July 3, 2015

Faculty of Health Sciences, Hokkaido University
Multipurpose room, E building 1F

Program Schedule

8:30–9:00	Registration	
9:00–9:10	Opening Remarks	Prof. H. Date (Dean, Faculty of Health Sciences, Hokkaido University)
9:10–10:45	Symposium Session 1 Chair: Prof. T. Yamauchi	<p>1. Maria Mexitalia (Diponegoro University / Dr. Kariadi Hospital) Early life nutrition, from breastfeeding to complementary feeding</p> <p>2. Agustini Utari (Diponegoro University) Endocrine Disrupting Chemicals (EDCs) : a risk factor for thyroid disorders</p> <p>3. Chia-Chin Lin (Taipei Medical University) Does physical activity have a value in palliative cancer care?</p> <p>4. Shu-Huei Kao (Taipei Medical University) <i>OPA1</i>, the causal protein for autosomal dominant optic atrophy, involves in mitochondrial bioenergetics and genome stability</p>
10:45–11:15	Tea Break	
11:15–12:25	Symposium Session 2 Chair: Prof. K. Denda	<p>5. Shih-Fen Hsiao (Kaohsiung Medical University) Assessing clinical skills with OSCE: pearls and pitfalls</p> <p>6. Yu-Sheng Yang (Kaohsiung Medical University) Touch screen rehabilitation system for paretic upper limb after stroke</p> <p>7. Tatsuo Hatta (Hokkaido University) Development of a new wheelchair component to improve seated posture of elderly individuals</p>
12:25–13:30	Lunch	
13:30–14:40	Symposium Session 3 Chair: Prof. M. Ishikawa	<p>8. Anchali Krisanachinda, Sivalee Suriyapee (Chulalongkorn University) Education and research in medical imaging at Chulalongkorn University</p> <p>9. Sukalaya Lerdlum (Chulalongkorn University) Academic activity and clinical research at Department of Radiology, Chulalongkorn University</p> <p>10. Tamotsu Kamishima (Hokkaido University) Semi-automatic computer-based roentgenographic quantification of joint space width difference using temporal subtraction: initial study with phantom and finger joint in patients with rheumatoid arthritis</p>
14:40–15:00	Tea Break	
15:00–17:00	Poster Session	
17:00–17:05	Closing Remarks	Prof. T. Yamauchi (Chair, Committee on International Affairs, Hokkaido University)

Early Life Nutrition, from Breastfeeding to Complementary Feeding



Maria Mexitalia

Department of Pediatrics, Faculty of Medicine, Diponegoro University /
Dr. Kariadi Hospital, Semarang, Indonesia

Early life nutrition plays an important part of children lives, supporting the ongoing development of their brain and immune systems, as well as impacting the growth and health into adulthood. Malnutrition suffered during the first 2 years of life may causes stunting and have impaired intellectual performance and reduced capacity for physical work. To prevent malnutrition, every children need to get exclusive breastfeeding and starts complementary feeding from the age of 6 months to fill the energy and nutrient gap. The types and adequate food density and the appropriate time for introducing complementary foods, are crucial factors to be considered of infant and child feeding practices. Approximately 50–60% parents reported that their children suffer from feeding problems. Upon further evaluation, around 20–30% of those children suffer from true feeding problems and 1–2% of them suffer from serious and persistent feeding problems. We reported some researches of early life nutrition. It starts from breastfeeding practices in neonates period, with the purpose was to help the parents and health providers understood the breastfeeding mechanism in relation with growth on the first week of life. We also reported that inappropriate complementary “feeding rules” had contributed to underweight and stunted among 6 to 24 months children in rural area of Central Java and Papua. Meanwhile the last chapter of our researches discussed about the effect of intervention by counseling of “feeding rules” to nutritional status of children ages 6–24 months in three provinces of Indonesia i.e Semarang (Central Java), Flores (East Nusa Tenggara) and Sentani (Papua).

Endocrine Disrupting Chemicals (EDCs): A Risk Factor for Thyroid Disorders



Agustini Utari

Department of Pediatrics, Faculty of Medicine,
Diponegoro University, Semarang, Indonesia

There is increasing awareness in the possibility health threat posed by endocrine disrupting chemicals (EDCs) which is man-made chemicals in our environment, food, and consumer products that can disrupt the synthesis, circulating level, and peripheral action of hormones.

Thyroid hormones is essential for normal brain development, control of metabolism and many aspects of normal physiology. There is increasing evidence that thyroid is vulnerable to endocrine-disrupting effects. Environmental chemicals may hamper with thyroid homeostasis through some mechanism of action such as in binding to transport proteins at the receptor level, modifying the metabolism of thyroid or in cellular uptake mechanism.

In some agricultural area, pesticides will use frequently for long time period. Pesticide can play a role as endocrine disrupting chemicals (EDCs) which may interfering with the activity of thyroid hormones. In our studies, we found that there is increasing thyroid stimulating hormones (TSH) level in children with chronic exposure of pesticide. There is also increasing risk of goiter and subclinical hypothyroidism among children in the area of chronic exposure of pesticide. These result should increase our awareness about the link between EDC and thyroid disorders.

Does Physical Activity Have a Value in Palliative Cancer Care?



Chia-Chin Lin

School of Nursing, College of Nursing,
Taipei Medical University, Taipei, Taiwan

In a series of studies by our research group on physical activity intervention in lung cancer patients, we determined that 85.2% of the participants preferred to receive physical-activity counseling during their cancer experience. Walking was the most preferred form of exercise. Exercise adherence is a challenge for lung cancer patients. Participants with higher social support and self-efficacy are more likely to initiate physical activity and participate in a moderate- to vigorous-intensity physical activity program. Social support and self-efficacy are the main factors required for maintaining walking exercise for 6 months. Moreover, in a randomized control trial, lung cancer patients in an exercise group exhibited significantly greater improvements in their anxiety and depression levels in the third and sixth months than did patients in the usual-care group. Overall then, the benefit of exercise and physical activity for patients in curative cancer treatment is fairly well established. The benefit during end of life is not yet established.

In conclusion, there is insufficient evidence to evaluate the effectiveness of physical activity in cancer patients receiving end of life care; however, a potential role for physical activity as a supportive care intervention seems promising. Nevertheless, physical activity preference, social support, and self-efficacy must be considered when implementing a physical-activity program for cancer patients receiving end of life care.

OPA1, the Causal Protein for Autosomal Dominant Optic Atrophy, Involves in Mitochondrial Bioenergetics and Genome Stability



Shu-Huei Kao

School of Medical Laboratory Science and Biotechnology,
Taipei Medical University, Taipei, Taiwan

OPA1 (Optic atrophy 1) is the causative gene of autosomal dominant optic atrophy (ADOA) and is the central regulators of mitochondrial network dynamics and apoptosis. We established lymphoblastoid cell lines from four ADOA families harboring different *OPA1* mutations, unaffected relatives (as internal control), and unrelated normal controls (as normal control). Gene mutations included *OPA1* whole exon 10 deletion, whole exon 12 deletion, 3 nucleotides deletion in exon 19, and a point mutation in exon 28. *OPA1*-mutated cell lines showed significant decreases in *OPA1* mRNA and protein expression, mitochondrial membrane potential, and ATP synthesis. Confocal microscopy revealed increased mitochondrial fragmentation in *OPA1*-mutated cells. *OPA1*-mutated cells also displayed reduced oxygen consumption and underwent glycolysis to produce ATP. Moreover, *OPA1* mutations caused the accumulation of oxidative damage. In addition, we found that *OPA1* mutations induced formation of mitochondrial DNA (mtDNA) deletions and 8-hydroxy-deoxyguanosine, decreased mtDNA copy numbers, and affected mitochondrial nucleoid distribution. Our experiments demonstrated that *OPA1* mutations induced mitochondrial fragmentation, uncoupled mitochondrial respiration and elicited dysfunctional bioenergetics. *OPA1* mutation leads to mitochondrial nucleoid disruption which may cause mitochondrial genome instability and respiratory chain dysfunction.

Assessing Clinical Skills with OSCE: Pearls and Pitfalls



Shih-fen Hsiao

Department of Physical Therapy, College of Health Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

Healthcare education today reflects on the quality of tomorrow's healthcare services. Therefore measurements of clinical skills before or after clinical placement need to be justified to reflect competency in clinical performance. The use of objective structured clinical examinations (OSCEs) and standardized patients (SP), and at the same time, attempting to simulate a realistic patient-care scenario during skill assessment is useful in physical therapy education. The components of clinical competence such as history taking, physical therapy assessment and procedures, interpretation of assessment results, communication, attitude etc. can be tested using agreed check lists or rating scales. However, an OSCE is not without the pitfalls just like other assessment - more expensive in terms of human resources and space, and the time required to prepare and set up such examinations is greater too. This talk will describe the experiences in developing OSCEs specific to neurologic physical therapy, before and after clinical placement, in the Department of Physical Therapy, Kaohsiung Medical University, Taiwan, which is the first to apply OSCEs in PT curriculum in the country. Students feedback questionnaire with five point Likert Scale (from 1 as strongly disagree to 5 as strongly agree) was used to analyze the responses from the student participants. Focus group discussion was also conducted with randomly selected students and their responses were recorded. The possibility of using pre-clinical OSCEs as an indicator of clinical performance during placement, validity of post-clinical OSCEs, perceptions of students about the effectiveness of implementing such clinical skill assessment, will also be discussed.

Touch Screen Rehabilitation System for Paretic Upper Limb after Stroke



Yu-Sheng Yang

Department of Occupational Therapy, College of Health Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

One of the most debilitating deficits after stroke is upper-extremity (UE) paresis. Surprisingly, interventions to address UE paresis are often inconsistently applied in routine clinical settings and even neglected at various stages of stroke recovery. When provided, UE interventions often consist of various therapeutic approaches provided in low doses, as observed during delivery of clinical services. Task-specific UE trainings with high-repetition have been shown to have beneficial effects for some people with stroke. This type of individually tailored, progressive UE training can also be done in an outpatient setting for extended hours. We developed a prototype touch screen rehabilitation system for UE motor rehabilitation. In this system, we introduce touch panel games into the UE training, motivating the user to actively participate in the rehabilitation and making the whole process reliable and retrievable. The patient or therapist can obtain performance scale from a database management system to monitor improvement. This system includes five high repetition programs for UE training and three operation models. Our pilot study showed that the score of UE training programs had high correlation with Action Research Arm Test, Grip strength, and Box and Blocks test. It indicated that this touch screen rehabilitation system is suitable for UE training in patients after stroke.

Development of a New Wheelchair Component to Improve Seated Posture of Elderly Individuals



Tatsuo Hatta

Department of Functioning and Disability,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Wheelchair users frequently sit in standard straight-backed wheelchairs with a hunched forward head posture (FHP). FHP is one of the most common posture disorders and is assumed to be associated with thoracic kyphosis. To prevent FHP, we developed a new wheelchair component. The component called an "ABS pelvic support" comprises two metal attachments, one pelvic and one thoracic belt. Setting the component for clinical application is based on the condition of the pelvis and the curvature of the spine. We then investigated the effects of the component on the seated posture of elderly individuals. Eighteen healthy elderly individuals sat on wheelchairs with the component (WCO) and without (NCO). We analyzed seated postures using the Dartfish movement analysis system and the pressure distribution on the buttocks and back using the Force Sensitive Application. The posterior inclination of the trunk, head and neck was significantly increased on WCO compared with NCO. The maximal and average values and the sensing area of the buttocks were significantly lower, whereas the average value and the sensing area of the back were significantly higher on WCO rather than NCO. The increased head and neck posterior inclination on WCO indicated that the component might prevent FHP. The increased trunk inclination and pressure distribution on the back also indicated that the belts supported the trunk along the physiological curve of the spine, which might provide a stable base for appropriate head and neck alignment.

Education and Research in Medical Imaging at Chulalongkorn University



Anchali Krisanachinda, Sivalee Suriyapee

Department of Radiology, Faculty of Medicine,
Chulalongkorn University, Bangkok, Thailand

The increasing use of radiation in medicine results from the development of medical imaging technology for early detection of cancer and leading to the curable of diseases with life longer and healthy patients. The Medical Imaging graduate program was firstly established in the year 2002 at Chulalongkorn University, Bangkok, Thailand. This program strengthens the scientists for their continued education with research development. The research is mostly related to the performance study of the radiology equipment, phantom study simulate patients to determine the skin dose and the organ dose from different modalities such as CT, fluoroscopy, mammography, MRI, PET/CT, SPECT/CT. The followings are title of research: Determination of tumor boundary on PET images using active contour coupled with optimal thresholding: A Phantom Study, Standardized uptake value of ^{99m}Tc -SESTAMIBI in myocardial perfusion SPECT/CT, Influence of standard pitch and high pitch 64-MDCT on lung nodule - chest protocol: Phantom study, Radiation dose and image quality from coronary angiography in 320- detector row CT, Appropriate technique for reduce distortion in diffusion weighted imaging MRI 1.5 Tesla, Optimal protocols of single-shot dual energy subtraction chest radiography. Medical imaging becomes an essential part of radiotherapy as the technology has been applied and/or included in radiotherapy service with higher accuracy. The example could be counted from the use of CT simulator, MR simulator, PET/CT and other hybrid system for treatment planning. The image guided radiotherapy for beam verification makes use of many imaging modalities ranging from portal imaging to kV cone-beam CT.

Academic Activity and Clinical Research at Department of Radiology, Chulalongkorn University



Sukalaya Lerdlum

Department of Radiology, Faculty of Medicine,
Chulalongkorn University, Bangkok, Thailand

The education includes the undergraduate and post graduate programs. The clinical training is organized for residents, Fellow in radiology, and medical physicists which research involves in all programs. Various resources are available in the department from human, equipment, patients, research support team and research fund. Inter-departmental research such as HIV studies, epilepsy and Alzheimer's disease investigated by SPECT and MRI, are increasing in the last 10 years. International Atomic Energy Agency offers inter-regional research title 'Evaluation and Optimization of Pediatric Imaging', 'Development of Quantitative PET/CT Imaging for Optimized Patient Specific Dosimetry'. Department research is about 30 topics per academic year. Research in nuclear medicine involves both imaging and treatment. For treatment, the majority are in treatment of hyperthyroid and thyroid cancer, which is descriptive and experimental as well as studying molecular and genetic aspects in collaboration with other departments. For imaging, we currently undergo brain, kidney, bone, thyroid, heart researches. Imaging studies and bone mineral density measurement in HIV patients are continued in many aspects. Technologists and nurses are also doing their research in nuclear medicine techniques to develop the routine studies for the safety of the patients. Researches in radiation oncology focus on radiation treatment in several kinds of cancer and also physics of advanced radiation techniques. The studies are intra division study and interdepartmental study. In addition, we have participated in an international protocol, INTERTECC trial which is a randomized study comparing 3-Dimensional RT versus IMRT in cervical cancer patients.

Semi-Automatic Computer-Based Roentgenographic Quantification of Joint Space Width Difference Using Temporal Subtraction: Initial Study with Phantom and Finger Joint in Patients with Rheumatoid Arthritis



Tamotsu Kamishima

Department of Biomedical Science and Engineering,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by synovial membrane inflammation leading to joint damage. Conventional radiography permits measurement of structural joint damage, which is currently considered the gold standard of treatment efficacy studies in RA, and scoring methods for radiography is used extensively in clinical trials as the primary outcome measure. However, currently established scoring methods, although widely applied, have been associated with several limitations such as restricted generalizability and objectivity due to the difficulty of standardized scoring by different readers with variable experience. To overcome these issues, various software for use in measuring the joint space width has been reported, and this provides a quantitative, reproducible, and more objective measure to assess structural joint damage in patients with RA. To further improve the computer-based analysis of the joint damage of RA patients, we developed and validated a computer-based quantification of joint space width difference using temporal subtraction which can detect slight changes in joint space narrowing (JSN) between two images and display the joint space difference index (JSDI). Positive correlation was found between the difference in joint spaces and the JSDI in phantom study. JSDI of the rheumatoid patients was significantly different between finger joints with and without JSN progression ($p < 0.001$). The computer-based quantification of joint space width difference using temporal subtraction can recognize the interval difference in finger joint space on radiographs and quantifies its degree objectively.

The 3rd FHS International Conference

- Hitch our wagon to a remedy! -

July 7, 2017

Faculty of Health Sciences, Hokkaido University
Multipurpose room, E building 1F

Program Schedule

8:20–8:50	Registration	
8:50–9:00	Opening Remarks	Prof. T. Saito (Dean, Faculty of Health Sciences, Hokkaido University)
9:00–10:20	Symposium Session 1 Chair: Prof. T. Yamamoto	1. Dr. Noriyo Colley (Hokkaido University) Professional reconstruction in nursing to support technology: dependent children at home 2. Dr. Pei-Shan Tsai (Taipei Medical University) Mind-body interventions to improve patients-reported outcomes 3. Dr. Minghui Tang (Hokkaido University) Evaluation of arteriolar vasomotor function by using MRI 4. Dr. Ming-Chung Chou (Kaohsiung Medical University) Diffusion-weighted magnetic resonance imaging: technical development and clinical applications
10:20–10:40	Tea Break	
10:40–12:10	Poster Session 1	
12:10–13:10	Lunch	
13:10–14:10	Symposium Session 2 Chair: Prof. S. Hui	5. Dr. Takayuki Furukawa (Hokkaido University) From chemistry to the challenge for clinical chemistry 6. Dr. Horng-Mo Lee (Taipei Medical University) N ^ε -(carboxymethyl) lysine increased reactive oxygen species production that induced mitochondrial fission and mitophagy in pancreatic beta cells 7. Dr. Shih-Fen Hsiao (Kaohsiung Medical University) Physical fitness, cognition and emotional wellbeing of older adults with and without dementia
14:10–14:30	Tea Break	
14:30–15:30	Symposium Session 3 Chair: Prof. T. Yamauchi	8. Dr. Li Cong (Hiroshima International University) Therapeutic use of occupation in traditional Chinese medicine 9. Dr. Kyoungmin Lee (GangWon National University / Far East University) Development of preliminary occupation-centered model in a Korean elderly daycare center 10. Dr. Hein Mallee (Research Institute for Humanity and Nature) From ecosystem health to planetary health: the development of “health” as an ecological concept
15:30–15:50	Break	
15:50–17:20	Poster Session 2	
17:20–17:30	Closing Remarks	Prof. T. Yamauchi (Chair, Committee on International Affairs, Hokkaido University)

Professional reconstruction in nursing to support technology: dependent children at home



Noriyo Colley

Department of Comprehensive Development Nursing,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Recently, the numbers of technology-dependent children (0–19 years old) has soared rapidly from 9,403 in 2005 to 17,078 in 2015. A training system for technical health procedures such as endotracheal suctioning and tube feeding was enforced in 2012, and special-need-school teachers, geriatric care workers, and childcare-workers became able to offer these procedures after training attendance. Hokkaido Government Board of Education was registered as the type three training (targeted for a contracted student) for training teachers who newly employed at 20 special-need schools which provide technical health procedures in Hokkaido. Simultaneously, registered nurses have assigned to support provision of technical health procedures by teachers at school settings. Social capital e.g. regulation, training system, and human resources, seems to be gradually fulfilled to provide structured support for technology-dependent children and their families. However, lack of respite care facilities made family members to decide to put their children into the long term facilities before graduation of schools.

School nurses take a full responsibility for technology-dependent children to graduate and adjust as members of their society from nursing perspective. In the current situation after the training system has commenced, nurses must be recognize the expectation of nursing role shift from “direct care provision” to “indirect care provision” such as initiation of respite care services as a nursing manager in the community, orientation and consultation of technical health procedures for families and teachers. Joint wayfinding nursing activities are festinate tasks to create safe and comfortable learning environment for technology-dependent children and their families.

Mind-body Interventions to Improve Patients-reported Outcomes



Pei-Shan Tsai

College of Nursing, Taipei Medical University,
Taipei, Taiwan

Mind-body interventions that encompass a large group of interventions such as relaxation and breathing, tai chi, qi gong, yoga, hypnosis, meditation, and biofeedback focus on the relationships among the brain, body, and behavior, and their effects on health and disease. Many of these techniques are thought to be beneficial for conditions where psychological stress is a factor.

Relaxation breathing significantly improved pain in advanced cancer patients, depressive symptoms in patients with coronary heart disease and patients undergoing hemodialysis. Blood pressure biofeedback and massage both significantly reduced blood pressure in patients with prehypertension and hypertension. A wide range of mind-body intentions has also been shown to be efficacious in improving sleep in cancer patients. This presentation will introduce mind-body interventions, their efficacy in improving patients-reported outcomes, and potential mechanisms underlying the beneficial effects of mind-body interventions.

Evaluation of arteriolar vasomotor function by using MRI



Minghui Tang

Department of Biomedical Science and Engineering,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Arteriolar vasomotor function which is the capability of arteriolar vasomotion, e.g. vasodilation and vasoconstriction, would be a new biomarker for early diagnosis of dementia. Invasive techniques have been employed preclinically for assessing arteriolar vasomotor function by using vasodilator agents, such as CO₂ inhalation, which are challenging for patients. On the other hand, respiration induces the spontaneous fluctuation of CO₂ concentration in arterial blood, and this CO₂ fluctuation consequently causes arteriolar vasomotion that varies cerebral blood flow and venous blood oxygenation which make MRI signal fluctuate. Focusing on the fluctuation of time series MR signal in the superior sagittal sinus, we developed a non-invasive method to obtain the respiratory fluctuation of venous blood oxygenation which represents the averaged arteriolar vasomotor function in the brain. Our method was applied to young-age and middle-age healthy men to investigate changes in averaged arteriolar vasomotor function by aging. The result that respiratory fluctuation of venous blood oxygenation in the middle-age group was significantly less than that of the young-age reflects the degeneration of arteriolar vasomotor function with aging. We also analyzed the fluctuation in MR signal of brain parenchyma. An extremely strong correlation of MR signals was found between the respiratory fluctuation at the sagittal sinus and the cardiac fluctuation in brain parenchyma; pulsatile blood pressure modulates volume of arterioles. Using this strong correlation, the arteriolar vasomotor function was quantitatively mapped in the brain. Decreases in arteriolar vasomotor function of middle-age group were clearly observed especially in frontal, occipital lobe and thalamus.

Diffusion-weighted Magnetic Resonance Imaging: Technical Development and Clinical Applications



Ming-Chung Chou

Department of Medical Imaging and Radiological Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

Diffusion-Weighted Imaging (DWI) is a unique magnetic resonance imaging (MRI) technique that can quantitatively detect and measure molecular diffusion *in vivo*. It was not until a rapid acquisition, echo-planar imaging, was implemented in MRI scanners, DWI was then popularly utilized clinically to detect tissue alterations and became a standard image for diagnosis of acute ischemic stroke lesions. To accurately measure water diffusion in three-dimensional space, diffusion tensor imaging (DTI) technique which models three-dimensional diffusion as an ellipse, was proposed to detect fiber orientations of white matter tissue. The detected fiber orientations were recently further utilized to construct neuronal fiber tracts by connecting vectors of neighboring voxels. In clinical application, fiber tracts generated by tractography provided very useful information for disease diagnosis, tumor surgery as well as disease prognosis after treatment. Moreover, the fiber tracts were recently utilized to construct so-called brain structural connectivity networks in order to understand how brain is organized and how the brain was altered in patients with neurological and psychological disorders. As so much attention has been paid to the applications of brain structural networks, the network measures will be potentially utilized for disease diagnosis, prognosis, and monitoring the efficacy of treatment. In conclusion, the diffusion MRI techniques can quantitatively measure water diffusion *in vivo* and provide unique and useful microstructural information for diagnosis of brain diseases.

From chemistry to the challenge for clinical chemistry



Takayuki Furukawa

Department of Medical Laboratory Science,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

In this presentation, I am going to talk about my research history during graduate school and post-docs, and introduce one of my on-going projects.

Glycoblotting, which was invented by Prof. Nishimura at Hokkaido University in 2005, is an excellent method for glycan analysis. From the principle of glycoblotting, this method can be extended to oxidized lipids, not only glycans. I am going to show the latest result of an application into lipid analysis.

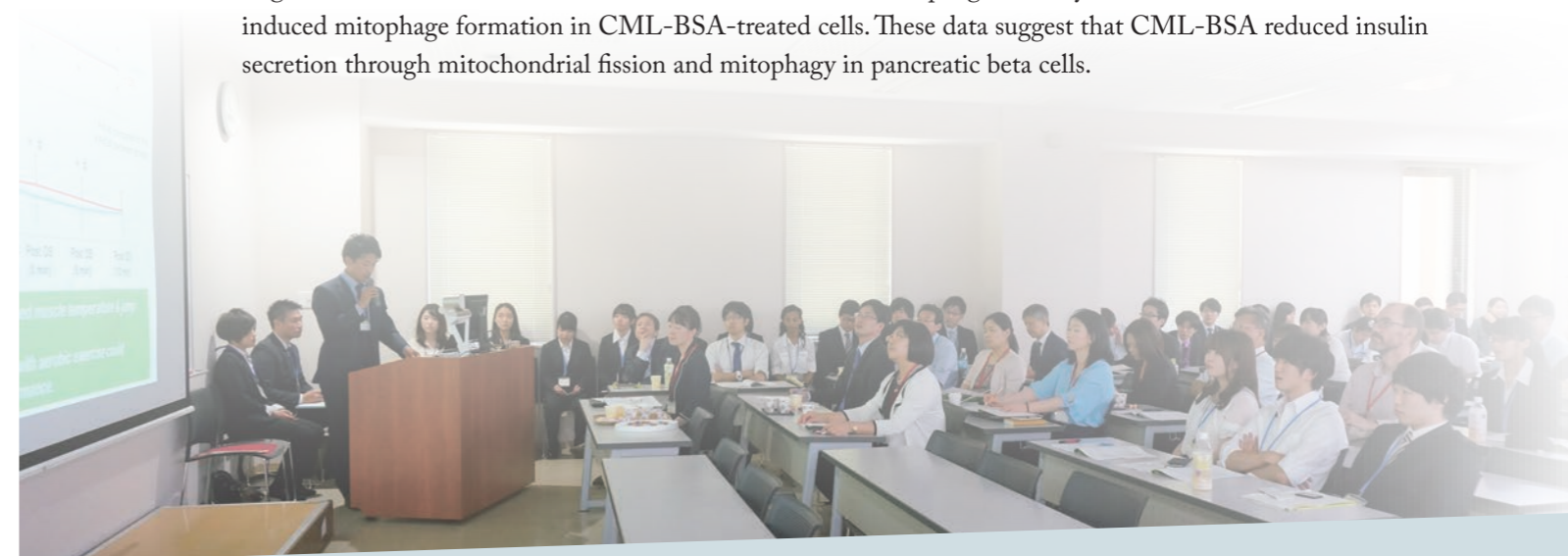
N^ε-(carboxymethyl) lysine Increased Reactive Oxygen Species Production That Induced Mitochondrial Fission and Mitophagy in Pancreatic beta cells



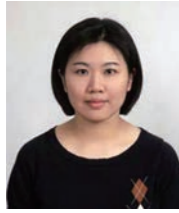
Horng-Mo Lee

School of Medical Laboratory Sciences and Biotechnology,
College of Medical Science and Technology,
Taipei Medical University, Taipei, Taiwan

N^ε-(carboxymethyl) lysine-conjugated bovine serum albumin (CML-BSA) is a major component of advanced glycated end-products (AGEs). In the present study we investigated mechanisms by which AGEs reduce insulin secretion from pancreatic beta cells in pancreatic islets of diabetic *db/db* mice and in cultured CML-BSA-treated insulinoma cell line RIN-m5F. We demonstrated that diabetic *db/db* mouse exhibited an increase in the number of autophagosomes in damaged mitochondria and receptor for advanced glycation end products (RAGE). Treatment of *db/db* mice with alpha-lipoic acid (ALA) for 12 weeks increased the number of mitochondria with well-organized cristae and fewer autophagosomes. Treatment of RIN-m5F cells with CML-BSA reduced mitochondrial membrane potential and ATP production, increased ROS and lipid peroxides production, and caused mitochondrial DNA deletions. CML-BSA also increased the level of RAGE protein and autophagosome formation, caused mitochondrial dysfunction, and decreased insulin secretion in RIN-m5F cells. Elevated fission protein dynamin-related protein 1 (Drp1) level and mitochondrial fragmentation demonstrated the unbalance of mitochondrial fusion and fission in CML-BSA-treated cells. Additionally, increased levels of Parkin and PTEN-induced putative kinase 1 (PINK1) protein suggest that fragmented mitochondria were associated with increased mitophagic activity. ALA attenuated CML-BSA-induced mitophagy formation in CML-BSA-treated cells. These data suggest that CML-BSA reduced insulin secretion through mitochondrial fission and mitophagy in pancreatic beta cells.



Physical Fitness, Cognition and Emotional Wellbeing of Older Adults with and without Dementia



Shih-fen Hsiao

Department of Physical Therapy, College of Health Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

The world is addressing significant challenges of ageing population with an increase in people requiring a continuum of healthcare services designed to support their needs to live independently, or to live with chronic health problems that affect their capacities to perform everyday activities. Dementia is a good example of such challenges faced by older people, their care givers, and healthcare professionals. People with dementia does not only exhibit decline in cognitive but also physical functions, and many of them are also affected by the behavioral and psychological symptoms of dementia. In order to find out how physical ability may affect the emotional wellbeing and burden of care, we investigated a group of older people from community with (Clinical Dementia Rating, CDR = 0.5 or 1) or without dementia, for their physical fitness, muscle strength, amount of physical activities and level of depression. We found that older people with dementia not only had less physical activities but also performed less well in the functional fitness testing. The result of geriatric depression scale also showed that elderly with dementia was more prevalent with depression, which was significantly correlated with their functional fitness and muscle strength. Severity of dementia also linked with worse performance of functional fitness, muscle strength, and associated with greater burden of caregivers. These results indicate a need in developing a balanced physical training program for older people with dementia, not only to maintain their physical and emotional health but also for decreasing the burden for their caregiver.

Therapeutic Use of Occupation in Traditional Chinese Medicine



Li Cong

Department of Occupational Therapy, College of Rehabilitation,
Hiroshima International University, Hiroshima, Japan

In China, occupational therapy was initiated with the support of WHO, Japan and Canada since the 1980s. On the other hand, for thousands of years, Chinese doctors had tried to choose suitable treatments for patients from herbal medicine, acupuncture and Qigong. However, the occupation activities have not been summarized.

The purpose of this study is to explore and analyze the occupation from the historic Traditional Chinese Medicine. The cases using occupation activity in the Traditional Chinese Medicine references were carefully searched from 12 commentary books in Chinese and 4 commentary books in Japanese. These cases were classified by history era, activity, area and disease, with considering both the theories of Traditional Chinese Medicine and occupational therapy. As the result, 80 cases were found from 49 classic references authored by doctors in successive generations. The oldest description is that dance was used to treat the muscle and joint pain in the cold Yellow River basin in the 16th century B.C., which is found in the "Lu ancient Le articles". The latest one is that a female patient without appetite due to the perceived notion of unpleasant from her husband was cured by engaging in housework in the Qing dynasty.

These cases are classified by mental health, physical disabilities, developmental disabilities, gerontology and healthy person. 23 kinds of activities including gardening, music playing, reading and calligraphy were used. In addition, they can also be classified to self-care, productivity, leisure and others. These cases can be interpreted by both the Traditional Chinese Medicine and the modern occupational therapy. This study revealed that occupation activities have been used for a long time in the Traditional Chinese Medicine.

Development of Preliminary Occupation-centered Model in a Korean Elderly Daycare Center



Kyoungmin Lee

GangWon National University /
Far East University, Korea

Occupational therapists (OTs) have a unique understanding of how occupations impact people's health and well-being and thus play a significant role in preventing disabilities and promoting health (Soderback, 2015). Despite of the increasing number of the aged, the role of OTs in the long-term care insurance system for the elderly hasn't established in Korea because of lack of awareness about OT in social welfare setting. The purpose of this presentation to share an experience to explore the role of the OT in a daycare center under the Korean long-term care insurance system by developing and managing an occupation-centered service model. One OT researcher and one OT clinician have developed the occupation-centered model with the support of Korean Association of Occupational Therapists and Mr. Fujiwara of Dream-lake day service center in Japan from the February 2015 until June 2016. All service users who have dementia and other geriatric conditions and staffs at a daycare center have collaborated. Preliminary service model has been drawn up to meet individual occupational needs of the service users and to enable them to engage in the various daily occupations (Cheong Choon activities) and monthly special event (Choeng Choon Market). All data were analyzed according to the interaction of service users (person), activity programs (Occupation), and environment (physical setting and the personnel in the center). Conclusively, service users could engage in self-determined activities with greater satisfaction leading to the increase in the number of service users, care workers, and occupational therapists. The preliminary occupation-centered day care model seemed to prove the power of occupation in this setting.

From Ecosystem Health to Planetary Health: The Development of "Health" as an Ecological Concept



Hein Mallee

Research Institute for Humanity and Nature,
Kyoto, Japan

There is considerable controversy over how to define the concept of health, but the realization that it carries a positive connotation beyond the absence of disease has gained ground. Increasingly, "health" is used as a metaphor to refer to a desirable, "sustainable" state of ecosystems and this broad conceptualization has given rise to a several vibrant fields of research and action. This includes notions such as ecosystem health, ecohealth, One Health, and, most recently, planetary health. In most cases, the fields associated with these concepts address both people's health and the wider ecosystem that influences their health. The presentation will present an overview of how these different streams of research and action developed, in particular highlighting contributions from the humanities and social sciences where applicable. It argues (1) that relatively flexible "buzzwords" play an important role in bringing together actors from diverse backgrounds in discussions of themes of common interest, and (2) that the elusive, but generally positive, nature of "health" makes it a fertile metaphor for discussing issues related to sustainability.

The 4th FHS International Conference

- Putting the Pieces Together: Creating A New Era of Health Sciences in Asia -

July 5, 2019

Faculty of Health Sciences, Hokkaido University
Multipurpose room, E building 1F

Program Schedule

8:20–8:50	Registration	
8:50–9:00	Opening Remarks	Prof. T. Saito (Dean, Faculty of Health Sciences, Hokkaido University)
9:00–10:20	Symposium Session 1 Chair: Prof. H. Yamaguchi	<p>1. Dr. Denise Shuk Ting Cheung (University of Hong Kong) Inclusion of telomere length and telomerase activity in outcome evaluation of lifestyle interventions</p> <p>2. Dr. Chien-Chih Ke (Kaohsiung Medical University) Therapeutic potential of mesenchymal stem cell-derived exosomes</p> <p>3. Dr. Chia-Hwa Lee (Taipei Medical University) Using CRISPR/Cas9 genome editing system in molecular cancer therapy through <i>in vitro</i> and <i>in vivo</i> models</p> <p>4. Dr. Torahiko Okubo (Hokkaido University) Antimicrobial-resistant bacteria and health sciences</p>
10:20–10:40	Tea Break	
10:40–12:10	Poster Session 1	
12:10–13:10	Lunch	
13:10–14:30	Symposium Session 2 Chair: Prof. H. Maejima	<p>5. Dr. Chitanongk Gaogasigam (Chulalongkorn University) Lower limb muscle activation during quiet stance in hyperextended knee individuals</p> <p>6. Dr. Takako Chikenji (Hokkaido University) Role of platelet-derived growth factor signaling in synovial fibrosis</p> <p>7. Dr. Yeou-Lih Huang (Kaohsiung Medical University) Speciation of trace elements and its applications in health sciences</p> <p>8. Dr. Wenjun Ding (University of Chinese Academy of Sciences) Effects of vanadium compounds on glucose homeostasis and lipid metabolism in diabetes mellitus</p>
14:30–14:50	Tea Break	
14:50–16:10	Symposium Session 3 Chair: Prof. M. Ishikawa	<p>9. Dr. Thititip Tippayamontri (Chulalongkorn University) Mechanistic insights into biological effects of low-dose radiation in medical radiology</p> <p>10. Dr. Akira Sai (Hokkaido University) The impact of social media on body image in young Malaysian females</p> <p>11. Dr. Shih-fen Hsiao (Kaohsiung Medical University) Identification and Intervention of older adults at risk of falling in the community</p> <p>12. Dr. Sujitra Boonyong (Chulalongkorn University) Anterior seat inclination and high seat chair could improve sit-to-stand performance in children with cerebral palsy</p>
16:10–16:30	Break	
16:30–18:00	Poster Session 2	
18:00–18:10	Closing Remarks	Prof. T. Yamauchi (Chair, Committee on International Affairs, Hokkaido University)

Inclusion of telomere length and telomerase activity in outcome evaluation of lifestyle interventions



Denise Shuk Ting Cheung
School of Nursing, The University of Hong Kong,
Hong Kong, China

Telomeres, which can be thought as analogous to the plastic caps at the ends of shoe laces, cap the ends of chromosomes and provide protection; and an enzyme, called telomerase, maintains their length. Telomeres shorten over time with each cell division, and the rate of shortening can be increased by chronic stress, leading to accelerated aging and diseases. Measuring the change in telomere length and telomerase activity can be useful to evaluate the effect of lifestyle interventions from a cellular perspective. In this presentation, a brief introduction of telomeres and telomerase will be given. Also, previous lifestyle studies that included telomere length/telomerase activity in outcome evaluation will be presented.

Therapeutic potential of mesenchymal stem cell-derived exosomes



Chien-Chih Ke
Department of Medical Imaging and Radiological Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

Mesenchymal stem cells (MSCs) have been demonstrated as the promising cell therapy for various human diseases. Several reports indicate that the major therapeutic effect comes from the paracrine action of transplanted MSCs. This leads to the recent robust development of using MSC-secreted exosomes or microvesicles (MV) as MSC-based cell-free cell therapy. Exosomes are lipid-membrane bound extracellular vesicles massively produced by all types of cells and involved in the cell-cell communication. Materials encapsulated in the exosomes, including DNA, mRNA, microRNA, enzymes and long non-coding RNA (lncRNA), are transported to and regulate the behavior of recipient cells. MSC-derived exosomes, carrying the factors involved in the paracrine effect, exert the therapeutic effect through modulating the microenvironment of disease. In this study, we have preliminarily tested the therapeutic potential in osteoporosis. The results showed the exosomes could be collected from MSC-conditioned medium and characterized by specific surface marker detection and size measurement. After treatment of MSC-derived exosomes, mice with ovariectomy-induced osteoporosis showed improved bone marrow density and elevated osteomarker expression in bone tissue. We found a few important MSC-derived exosomal microRNAs which are reported to target to the key regulators in osteoporosis. In conclusion, MSC-derived exosomes are a promising therapeutic agent in osteoporosis treatment, and holds several advantages as compared to MSCs. Studies should be carried on to make MSC-derived exosomes a therapeutic strategy for human diseases in the future.

Using CRISPR/Cas9 genome editing system in molecular cancer therapy through *in vitro* and *in vivo* models



Chia-Hwa Lee

School of Medical Laboratory Science and Biotechnology,
TMU Research Center of Cancer Translational Medicine,
Taipei Medical University, Taipei, Taiwan

Although the understanding of tumor malignancy at the molecular level has been largely improved in the past decades, cancer is still one of the main causes of disease-associated mortality globally. Thus, more effort is needed to develop new therapeutic tools and approaches exploiting these advances. Recently, the techniques of clustered regularly interspersed short palindromic repeats (CRISPR)/CRISPR-associated proteins (Cas9) have emerged and become potentially powerful tools in the arsenal of cancer therapy. In our research model, Cas9 protein and genomic target sgRNA are delivered by lentivirus transfection, which ensures the highest transfection efficiency in most of the cancer cells. Once sgRNA binds to the target genomic sequence, Cas9 is soon making a DNA double-strand break which automatically triggers DNA repair system in the host cells, eventually causing indel (insertion or deletion) formation on the edited genomic sequence. In our recent study, we showed epidermal growth factor receptor (EGFR) is predominately expressed in triple negative breast cancer (TNBC), the most malignant type in breast cancer classification. Using CRISPR to target EGFR genome in MDA-MB-231 (TNBC) breast cancer cells, we found reductions of cancer cell growth both *in vitro* and *in vivo*, indicating EGFR as a promising cancer target for TNBC patients. In another cancer therapy model, chronic myeloid leukemia (CML), we found CRISPR edited ABL DNA locus of Philadelphia chromosome (BCR-ABL) significantly induced apoptosis event in K562 cells (CML cells). A systemic CML animal model also suggested that using virus to deliver ABL-target CRISPR/Cas9 system significantly inhibited leukemia cell growth. Furthermore, the leukemia cell population from clinical CML patients demonstrated a significant cancer cell death when ABL-target CRISPR/Cas9 system was introduced in *ex-vivo* model. It is worth noting that, according to our experience, no off-target genetic alterations associated with gene edit model has been discovered. A CRISPR trial has already begun in Europe to cure beta thalassemia, a blood disorder, by making a genetic tweak to people's blood cells. The success of this clinical trial would create a new era for CRISPR-based cancer therapy.

Antimicrobial-resistant bacteria and health sciences



Torahiko Okubo

Department of Medical Laboratory Science,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Antimicrobial agents such as penicillin and tetracycline are one of the greatest medical tool discovered during the 20th century. These drugs have been helped millions of patients from diarrhea, pneumonia, urinary tract infections, and sepsis. However, the emergence and spread of antimicrobial-resistant bacteria have been a global concern. Some bacteria, such as methicillin-resistant *Staphylococcus aureus* (known as MRSA), carbapenem-resistant *Enterobacteriaceae* (including *Escherichia coli* and *Salmonella*) or *Acinetobacter*, are designated as critical or high-risk pathogens for human health by World Health Organization. These antimicrobial-resistant bacteria can cause hospital-acquired infection, sometimes fatal to elderly and immune-compromised patients. In Japan, JANIS (Japan Nosocomial Infections Surveillance) system monitors the prevalence of antimicrobial-resistant bacteria in hospitals. In this presentation, I will talk about the current situation of antimicrobial-resistant bacteria in mainly Japan using national surveillance data.

Antimicrobial-resistant bacteria can easily transfer their resistance gene(s) to other bacteria by conjugation. Our study revealed that antimicrobial resistance genes are significantly more frequently transmitted from bacteria to bacteria when we co-culture them with ciliates (a group of protozoa which lives in river and pond water). Our field work also showed that antimicrobial-resistant bacteria can be isolated from wild damselfly in rivers and ponds around Sapporo city. These results suggest that antimicrobial resistance genes which were emitted from hospitals can spread to environmental bacteria, especially in aquatic conditions. To maintain the efficacy of antimicrobial agents against bacterial infections, we must prevent the spread of antimicrobial-resistant bacteria not only among human clinical settings but also natural environments.

Lower limb muscle activation during quiet stance in hyperextended knee individuals



Chitanongk Gaogasigam

Department of Physical Therapy, Faculty of Allied Health Sciences,
Chulalongkorn University, Bangkok, Thailand

Background: The study of knee hyperextension on the control of quiet stance ability is scarce. One study reported that hyperextended knee individuals exhibited lower stance stability than normal knee individuals, while postural responses were comparable. However, there is little, if anything, known about neuromuscular control over the knee joint. The aims of this study were to compare knee joint postural adjustment and neuromuscular control of the knee joint between hyperextended and normal knee individuals.

Methods: The electromyographic activities of seven lower limb muscles and knee joint postural adjustment data were collected from 36 healthy female participants (18 hyperextended and 18 normal individuals). They were asked to stand on a firm and foam surface with their eyes open or closed.

Finding: The knee joint postural responses were comparable between groups. It was also found that there was no group effect on muscle activity but that standing conditions did show some effect. Both groups demonstrated an increase in muscle activity as the level of the postural challenge increased. Furthermore, the hyperextended knee individuals revealed a different muscle activation pattern during standing with eyes closed, especially in the medial hamstrings muscle.

Interpretation: Knee hyperextended individuals might rely on vision more than normal knee individuals.



Role of platelet-derived growth factor (PDGF) signaling in synovial fibrosis



Takako S. Chikenji

Department of Functioning and Disability,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Tissue fibrosis is defined by the deposition of extracellular matrix (ECM), and hyperplasia of resident mesenchymal cells resulting in induced tissue dysfunction. Synovial fibrosis is commonly observed in patients with rheumatoid arthritis (RA) and carpal tunnel syndrome are as the primary cause of joint destruction and nerve entrapped, respectively. We have been studied about the mechanism of synovial fibrosis and identified some therapeutic target.

Research 1. PDGFR signaling mediates fibrosis in carpal tunnel syndrome

Carpal tunnel syndrome (CTS) is the most common compression neuropathy with the incidence reported to be 2–5% in the general population. Progressive fibrosis of subsynovial connective tissue (SSCT) is associated with progressive compression and dysfunction of the median nerve, resulting in hand dysfunction. Here we reported that platelet-derived growth factor receptor alpha (PDGFR α) positive (+) cells accumulated in SSCT fibrosis and the fibrotic response of PDGFR α + cells occur via PI3K/Akt/mTOR signaling pathway.

Research 2. phosphorylated PDGFR signaling mediates fibrosis in RA

RA is a chronic, inflammatory, autoimmune disease that primarily affects the joint destruction associated with synovial inflammation. Fibroblast-like synoviocytes (FLSs) in the inflammatory synovium of RA is known to the primary cause of joint destruction. Here we reported that phosphorylated-PDGFR $\alpha\beta$ + FLSs accumulated in the sub-lining layer in RA patients and that the presence of PDGF-BB, TGF- β , and TNF- α , resulted in the activation of anti-apoptotic protein, suppression of cell-cycle inhibitor protein and promote cell accumulation and hyperproliferation. Cyclin-dependent kinase 4/6 inhibitor and TNF- α inhibitor suppressed the hyperproliferation and pPDGFR $\alpha\beta$ activity, respectively.

Speciation of Trace Elements and its Applications in Health Sciences



Yeou-Lih Huang

Department of Medical Laboratory Science and Biotechnology,
College of Health Sciences, Kaohsiung Medical University, Kaohsiung, Taiwan

To date, most instrumental methods for trace element speciation have been based on the coupling of separation techniques with sensitive and selective detection systems. Although, liquid chromatography-hyphenated analytical systems can be reliable and accurate, various sample pretreatment processes (e.g., filtration, extraction, deproteinization) are necessary, potentially causing unwanted or unexpected contamination or even changing the nature of the elemental species. Due to increasing demands for green analytical methods, there is a move towards the development of miniaturized methods with minimal use of hazardous solvents. In this presentation, I am going to talk about my experience on biological trace element research and recent work regarding a rapid and efficient technique for trace element speciation using a desorption free magnetic solid phase extraction microfluidic system (MSPE), coupled to ICP-MS. Additionally, an effective, continuous, and convenient sampling method (microdialysis technique) with HPLC/ICP-MS systems to assess the dynamic variations of oxidative stress biomarker and elemental species in microbe-inoculated culture broth.

Effects of vanadium compounds on glucose homeostasis and lipid metabolism in diabetes mellitus



Wenjun Ding

Laboratory of Environment and Health, College of Life Sciences,
University of Chinese Academy of Sciences, Beijing, China

Our previous studies have demonstrated vanadium and its compounds as potential anti-diabetic agents appear to have a profound impact on glucose homeostasis and lipid metabolism. However, the molecular mechanisms are not fully understood. We found that Vdipic-Cl treatment significantly improved hyperglycemia and glucose intolerance in diabetic rats, as well as attenuated the increase in serum and liver triglyceride levels in the mice fed with high-fat diet, while significantly increased autophagy induction and activated liver kinase B-1 (LKB1) and adenosine monophosphate-activated protein kinase (AMPK) phosphorylation in the liver. In vitro results showed that VOdipic-Cl significantly inhibited lipid droplet formation by increasing the level of conversion and punctuation of microtubule-associated proteins light chain 3 (LC3) in a dose-dependent manner, and activated LKB1 and AMPK phosphorylation. Confocal microscopy images also showed that VOdipic-Cl induced sequestration of lipid droplets (LDs) by autophagy. In addition, VOdipic-Cl down-regulated the expression of peroxisome proliferator-activated receptor (PPAR γ), CCAAT element binding protein a (C/EBP α) and sterol regulatory element binding protein 1c (SREBP-1c), fatty acid synthase (FAS) and fatty acid-binding protein 4 (FABP4) and activated the phosphorylation of acetyl coenzyme A carboxylase (ACC), AMPK and LKB1 in 3T3-L1 preadipocytes. Taken together, these results suggest that VOdipic-Cl can inhibit preadipocyte differentiation and adipogenesis and reduce hepatic lipid accumulation by inducing autophagy via the activation of LKB1/AMPK-dependent signaling pathway. These findings will aid our understanding of vanadium compounds with their anti-diabetic properties, and may provide more selective therapeutic approaches for metabolic syndrome in the future.

Mechanistic insights into biological effects of low-dose radiation in medical radiology



Thititip Tippayamontri

Department of Radiological Technology and Medical Physics,
Faculty of Allied Health Sciences, Chulalongkorn University, Bangkok, Thailand

Understanding in the biological mechanisms of response to low-dose radiation (LDR) is crucial for evaluating the health impacts of ionizing radiation, especially in the expanding field of medical radiology. Although accumulating evidence indicates that the biological effects of LDR are somewhat different from those of high-dose radiation, mechanistic insights into biological effects of LDR is still unclear. Thus, the biological effects of LDR exposure turn into topic of ongoing discussion. LDR induces a variety of DNA lesions. DNA double strands breaks (DSB) are the most biological significantly, because difficulty repair or absence of repair leads to genomic instability and cell death. This further induces the risk of developing cancer and toxicities in normal tissues. Therefore, additional investigation needs in order to evaluate whether of LDR could induce stochastic effects. LDR induces ROS generation through several molecular pathways. The potential relationship between the accumulation of ROS and the induction of DSB in the LDR irradiated cells has been described and researched. Moreover, exposure to LDR may stimulates the cell cycle progression and increase in the production of endogenous ROS by mitochondria, which potentially lead to mitochondrial dysfunction. Thus, understanding of these interesting mechanisms might illuminate the potential use of low-dose irradiation as a standard treatment regimen.

The Impact of Social Media on Body Image in Young Malaysian Females

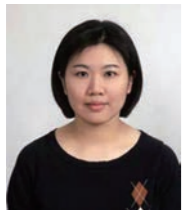


Akira Sai

Department of Health Sciences and Technology,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Extensive literature has implicated the role of media in promoting thinness as a societally accepted standard of attractiveness. However, few works have addressed the effects of contemporary media on body image in Southeast Asian groups, exclusively in one multicultural country. The present study aimed to dismantle how a range of sociocultural factors influences body image perceptions of modern-day females in Malaysia with a particular focus on social media. Questionnaires were administered to 371 female college students in Kuala Lumpur who reported how much time spent watching TV, using internet and social media, and how many people they are connected to on two distinct social media platforms, Facebook and Instagram. The Objectified Consciousness Scale (OBCS) and Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4) were also assessed to explore the degree of bodily attitudes and internalization of thinness. Bivariate analyses found ethnic differences between three main ethnic groups, Malays, Chinese and Indians, in relevant body image areas such as body surveillance, body shame, appearance control beliefs, and pressures from media and family. Notably, general linear model analyses indicated that the effects of ethnicity and religion were removed while exposure to social media, measured by number of friends on Facebook and whom she is following or being followed by on Instagram, was explicitly found to be a significant predictor. The present findings show that social media exposure plays a considerable part in young females' body image despite of ethnic differences, highlighting the need for international attention to multidimensional aspects of the current media.

Identification and Intervention of Older Adults at Risk of Falling in the Community



Shih-fen Hsiao

Department of Physical Therapy, College of Health Sciences,
Kaohsiung Medical University, Kaohsiung, Taiwan

Taiwan has become 'aged' in 2018, and will become a super-aged society in 2025, when the population of the elderly is over 20%. Frailty or falls in the elderly often leads to hospitalization, disability or bedridden. Successful implementation of evidence from frailty and fall prevention studies would improve quality of care and promote healthy aging as well as diminish the impact of aging on health care systems. We examined community elderly utilizing the 28 Kaohsiung Community-based Care Centers during 2017–2018 to find if they could be benefited from a physical therapist-led, multi-domain intervention for integrated balance and fitness training. In total 598 elderlies completed the tests and exercise programs. They were further categorized as high risk of falling (n=368) and low risk of falling (n=230) groups, and sub-grouped according to the age. Most of the elderly were classified as having risk of falls with the 2.44m Up-and-Go Test in all age groups during the baseline testing. There was significant improvement in 30-second chair-stand, 2.44m Up-&-Go test, single-leg stance, total number of risk factors and cognitive performance in those with high fall risk, but the improvement was limited in the oldest-old group. Based on the results, one-hour per week, multi-domain intervention including exercise component seem to be promising. We also advocate intervening proactively for those healthy elderly to prevent developing risk of falls or frailty with a multidisciplinary collaborative approach.

Anterior Seat Inclination and High Seat Chair Could Improve Sit-to-Stand Performance in Children with Cerebral Palsy



Sujitra Boonyong

Department of Physical Therapy, Faculty of Allied Health Sciences,
Chulalongkorn University, Bangkok, Thailand

Background: Anterior seat inclination (AI) and high seat chair (HiS) has been applied in children with spastic diplegic cerebral palsy (SDCP) to adjust alignment during sitting. However, there has been a lack of evidence reporting the effects of AI and HiS on sit-to-stand (STS) performance in children with SDCP. Therefore, the aim of the study was to determine whether AI and HiS could improve STS performance in children with SDCP. **Methods:** Twelve children with SDCP (GMFCS I-II) and twelve age- and gender-matched control TD children were enrolled. All participants performed STS with horizontal seat (HS). Then, children with SDCP randomly performed STS with AI and HiS. Three-dimensional motion analysis system was used to capture STS movements.

Finding: Children with SDCP took a longer time and used more mechanical work during STS than TD children. In addition, children with SDCP presented more trunk, hip, and knee flexion, and less ankle dorsiflexion during STS. Moreover, the peak vertical ground reaction force, maximum hip, knee extension moment, and plantar flexion moment in children with SDCP were asymmetrical between the dominant and non-dominant leg. Using AI and HiS during STS in children with SDCP could reduce the movement time and mechanical work. However, the movement time in both AI and HiS conditions still higher than those in TD children.

Interpretation: AI and HiS could help children with SDCP to improve STS performance.



The 5th FHS International Conference

- Look for the Silver Lining in the Post-Pandemic Health Sciences -

September 17–18, 2021
Online via Zoom & Slack

Program Schedule

Day 1 Sept. 17, 2021 (Fri)

11:00–11:10	Opening Remarks	Prof. H. Date (Dean, Faculty of Health Sciences, Hokkaido University)
11:10–12:10	Symposium Session 1 Chair: Prof. T. Chikenji	<p>1. Dr. Cheng-Feng Lin (National Cheng Kung University) Approach to understand and prevent ankle injuries</p> <p>2. Dr. Naoya Hasegawa (Hokkaido University) The different effects on motor learning for postural control using visual and auditory biofeedback training</p> <p>3. Dr. Qian Liu (Second Xiangya Hospital of Central South University) Engineered tendon-fibrocartilage-bone composite and bone marrow-derived mesenchymal stem cell sheet augmentation promotes rotator cuff healing in a nonweight-bearing canine model</p>
12:10–13:10	Break	
13:10–14:10	Shotgun Presentation of Poster Session 1	
14:10–15:10	Poster Discussion for Poster Session 1	
15:10–15:30	Break	
15:30–16:30	Symposium Session 2 Chair: Prof. A. Ikeda-Araki	<p>4. Dr. Polly Wai-Chi Li (The University of Hong Kong) Creating a virtual heart attack experience to prepare patients in responding to heart attack symptoms</p> <p>5. Dr. Michiko Yoshida (Hokkaido University) Comprehensive analysis of childcare-related factors affecting infant sleep development: effects of light stimulation and co-sleeping</p> <p>6. Dr. Hien Thi Thu Ngo (Thang Long University) Environmental pollution and potential health effects of exposure to e-waste in Vietnam: A short review</p>

Day 2 Sept. 18, 2021 (Sat)

11:00–12:20	Symposium Session 3 Chair: Prof. T. Yamauchi	<p>7. Dr. Sikopo Nyambe (Hokkaido University) Examining the water, sanitation and hygiene ecosystem in peri-urban Lusaka, Zambia through photovoice</p> <p>8. Dr. Yung-Feng Lin (Taipei Medical University) Studies on blood-based biomarkers of Alzheimer's disease</p> <p>9. Dr. Takaaki Yoshimura (Hokkaido University) Urethra-sparing intensity modulated proton therapy for localized prostate cancer with non-invasive urethra visualization method</p> <p>10. Dr. Anussara Prayonggrat (Chulalongkorn University) Studies on selective use of proton therapy in primary liver cancers using normal tissue complication probability model</p>
12:20–13:20	Break	
13:20–14:20	Shotgun Presentation of Poster Session 2	
14:20–15:20	Poster Discussion for Poster Session 2	
15:20–15:30	Closing Remarks	Prof. T. Yamauchi (Chair, Committee on International Affairs, Hokkaido University)

Approach to Understand and Prevent Ankle Injuries



Cheng-Feng Lin

Department of Physical Therapy, College of Medicine,
National Cheng Kung University, Tainan, Taiwan

Ankle injuries are very common in athletes, and the unstable ankle affects not only their daily activities but also movement quality and performance. In addition, fatigue during sports may lead to injury. Thus, our lab evaluated the movement pattern of athletes to identify potential risk factors as well as training program to reduce the movement error or inappropriate movement pattern. Therefore, athletes with or without functional ankle instability (FAI) were recruited for different studies. A motion capture system along with forceplates were used to evaluate the biomechanical factors during static and dynamic movements. An electromyography system was used to identify muscle firing pattern. Ankle joint reposition sense was also evaluated. Ankle brace and kinesio tape were also applied for evaluation of their effectiveness on movement correction after fatigue. For training effect, six-week training programs were designed for athletes with FAI. Furthermore, a three-dimensional bike pedal was designed to facilitate ankle motion during pedaling and a 6-week pedaling training was applied in athletes with FAI.

In our findings, the remodeled bicycle pedal training and integrated training program reduced absolute error in either plantar flexion angle or inversion angle, decreased inversion angle at impact, increased overall ankle stability with increased co-contraction index, and should be considered for athletes with FAI to restore the proprioception and static and dynamic movement control. Furthermore, ankle braces might affect shock absorption during landing with a more extended knee while kinesio tape may be effective for the postural control during landing.

The Different Effects on Motor Learning for Postural Control Using Visual and Auditory Biofeedback Training



Naoya Hasegawa

Department of Rehabilitation Science,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Postural control is impaired with aging and with neurological disorders. Specifically, postural instability with some neurological disorders is notoriously difficult to treat, and that are not often cured by pharmacological or surgical treatment. By contrast, there is evidence that physical training can improve the postural stability. Therefore, it is important for physical therapists to choose effective method of the training on postural control.

Augmented sensory biofeedback (BF) for postural control is widely used to improve postural stability. Most previous studies of postural control using sensory BF have used visual BF during quiet stance. However, postural control includes several balance domains: anticipatory postural adjustments, automatic postural responses, postural sway during quiet stance, voluntary postural sway, and gait. In addition, visual BF increased performance during acquisition, but not during retention tests (learning effects). On the other hand, the field of BF training has taken advantage of technological advances, and as technology continues to progress more options will be available for physical therapists such as consecutive or discreet auditory or somatosensory BF training. However, the effective sensory information in BF systems of motor learning for postural control is still unknown.

This lecture will present recent research on the effects of BF training on postural control in healthy young adults, focusing on investigating the learning effects of visual versus auditory BF training.

Engineered Tendon-Fibrocartilage-Bone Composite and Bone Marrow-Derived Mesenchymal Stem Cell Sheet Augmentation Promotes Rotator Cuff Healing in a Non-Weight-Bearing Canine Model



Qian Liu

Department of Orthopaedics,
Second Xiangya Hospital of Central South University,
Changsha, China

Reducing rotator cuff failure after repair remains a challenge due to suboptimal tendon-to-bone healing. In this study we report a novel biomaterial with engineered tendon-fibrocartilage-bone composite (TFBC) and bone marrow-derived mesenchymal stem cell sheet (BMSCS); this construct was tested for augmentation of rotator cuff repair using a canine non-weight-bearing (NWB) model. A total of 42 mixed-breed dogs were randomly allocated to 3 groups (n=14 each). Unilateral infraspinatus tendon underwent suture repair only (control); augmentation with engineered TFBC alone (TFBC), or augmentation with engineered TFBC and BMSCS (TFBC+BMSCS). Histomorphometric analysis and biomechanical testing were performed at 6 weeks after surgery. The TFBC+BMSCS augmented repairs demonstrated superior histological scores, greater new fibrocartilage formation and collagen fiber organization at the tendon-bone interface compared with the controls. The ultimate failure load and ultimate stress were 286.80 ± 45.02 N and 4.50 ± 1.11 MPa for TFBC+BMSCS group, 163.20 ± 61.21 N and 2.60 ± 0.97 MPa for control group (TFBC+BMSCS vs control, $P=1.12E-04$ and 0.003 , respectively), 206.10 ± 60.99 N and 3.20 ± 1.31 MPa for TFBC group (TFBC+BMSCS vs TFBC, $P=0.009$ and 0.045 , respectively). In conclusion, application of an engineered TFBC and BMSCS can enhance rotator cuff healing in terms of anatomic structure, collagen organization and biomechanical strength in a canine NWB model. Combined TFBC and BMSCS augmentation is a promising strategy for rotator cuff tears and has a high potential impact on clinical practice.

Creating a Virtual Heart Attack Experience to Prepare Patients in Responding to Heart Attack Symptoms



Polly Wai-Chi Li

School of Nursing, The University of Hong Kong,
Hong Kong, China

Delay in seeking treatment for acute myocardial infarction (AMI) persists to be the most significant hindering factor for effective AMI management. Previous interventions are brief and didactic in nature, rendering them ineffective in shortening the time delay in care-seeking.

A randomized controlled trial (N = 285) was conducted to evaluate the effects of a modelling-based narrative intervention in patients with a history of AMI. The participants were randomized to receive either the tested intervention or didactic education as control. The modelling-based narrative intervention comprised group-based interactive sessions to engage participants in mental rehearsal of the perceptual-cognitive processes in recognizing and responding to AMI symptoms, while the control intervention consisted of factual information about AMI to be delivered with a traditional didactic approach. Generalized estimating equation modeling was used for data analysis.

There were no between-group differences in changes of AMI knowledge over the baseline and 3- or 12-month time-points, such difference became significant at 24-month time-point ($p = 0.042$). Participants

in the intervention group had significant improvements in attitudes and beliefs about care seeking for AMI symptoms at all time-points than those in the control group ($p = <0.001-0.017$). Among the participants with another AMI attack during the study period, those in the intervention group showed a significant reduction in prehospital delay time than the control group ($p = 0.031$), and no between-group difference was found for the use of ambulance.

This study demonstrates the favorable effects of the modelling-based narrative intervention in optimizing care-seeking behaviors in AMI patients.

Comprehensive Analysis of Childcare-Related Factors Affecting Infant Sleep Development: Effects of Light Stimulation and Co-Sleeping



Michiko Adachi-Yoshida

Department of Comprehensive Development Nursing,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

The purpose of this study was to comprehensively evaluate childcare-related factors such as light stimulation and nighttime co-sleeping which may affect infant sleep development. The subjects were infants aged 3-5 months. The amount of sleep and light stimulation was monitored for four days using an actigraph. Additionally, mothers were asked to complete a sleep diary and questionnaire about childcare-related factors. Among the childcare-related factors, strong influences were light stimulation and nighttime co-sleeping. The amount of light stimulation during the daytime was inversely correlated with the extent of sleep during the daytime, and light stimulation during the nighttime was inversely correlated with both the extent of total sleep and the extent of active sleep during the nighttime. Co-sleeping infants slept significantly less during the daytime (12.1% vs. 15.2%, $p = 0.001$) and significantly more during the nighttime (38.8% vs. 36.5%, $p = 0.001$) compared to infants who slept alone. These results suggest that an environment with more light stimulation during the day and less light stimulation at night may promote the development of circadian rhythms in infants. Further, co-sleeping at night may reduce the proportion of daytime sleep and increase the proportion of nighttime sleep, thereby promoting sleep consolidation at night. This is a new finding on infant sleep. In recent years, co-sleeping has been regarded as a risk factor for SIDS and SUID, however, the results of this study reveal additional new benefits of co-sleeping for infants. The effects of co-sleeping are not yet fully revealed. Therefore, the risks and benefits need to be examined without preconceptions.

Environmental pollution and potential health effects of exposure to e-waste in Vietnam: A short review



Hien Thi Thu Ngo

Department of Public Health, Faculty of Health Sciences,
Thang Long University, Hanoi, Vietnam

E-waste contains a unique combination of persistent organic compounds and about 60 chemical elements, many of which are potentially hazardous. Inappropriate handlings of informal e-waste processing have increasingly become an environmental and public health issue of concern in Vietnam. A large amount of e-waste was collected and dismantled by the informal private sector, using a simple, manual process to recover only a fraction of precious metals or plastics, and then dispose of or export the remaining parts. Processing e-waste had not been specifically regulated by Vietnamese government. Numerous studies elucidated the current levels of contaminants associated with various types of e-waste processing such as persistent organic pollutants including polybrominated diphenyl ethers, brominated and chlorinated flame retardants, chlorinated and brominated dioxins, and dioxin-like compounds, and heavy metals derived from informal processing area of e-waste in Vietnam. Exposing to multiple toxic substances via different environmental media and pathways may cause aggregative health effects to humans, particularly levels of blood metals, DNA damage, carcinogenic and non-carcinogenic risks found in exposed children were significantly higher than those in reference children. This short review highlighted the importance of release mitigation of hazardous substances from informal e-waste processing facilities to prevent their potential environmental health effects on humans.

Examining the Water, Sanitation and Hygiene Ecosystem in Peri-Urban Lusaka, Zambia Through Photovoice



Sikopo Nyambe

Department of Health Sciences and Technology,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

In Zambia, 11.4% of all deaths are related to inadequate access to water, sanitation and hygiene (WASH), with frequent disease outbreaks emanating from peri-urban settlements. Despite these outbreaks, few studies have explored the factors that maintain the peri-urbans poor WASH health environment. This study aimed to explore the WASH ecosystem from the viewpoint of resident youth by identifying maintaining factors through ecological theory. It was conducted in two peri-urban settlements in Lusaka, Zambia. Our participants (n = 16, age = 17–24 years) took part in a photovoice exercise, in which they used photographs to answer the question: 'What is WASH in your community?' Data underwent theoretical thematic analysis after contextualization, brief codifying and participant poster creation.

Participant results defined peri-urban WASH under four themes within ecological theory: Poor practice (intrapersonal, interpersonal), Health hazard (community norm), Substandard and unregulated (public policy, organizational), and Offering hope for change (intrapersonal, interpersonal). Participant findings highlighted a gap at community level: public policy level standards, regulations and implementations had minimal impact on peri-urban WASH and public health at community, inter- and intrapersonal levels due to poor community engagement and an inconsideration of the WASH realities in high density areas. Our study showed the importance of co-research and co-design of interventions with community members, with participants recommending increased government-resident collaboration to empower residents in WASH and overall peri-urban health.

Studies on Blood-Based Biomarkers of Alzheimer's Disease



Yung-Feng Lin

School of Medical Laboratory Science and Biotechnology,
Taipei Medical University, Taipei, Taiwan

Alzheimer's disease (AD) is the most common form of dementia worldwide. Currently established biomarkers of AD from cerebrospinal fluid and neuroimaging can be valuable; however, barriers to efficient, cost-effective clinical execution exist. The development of blood-based biomarkers for early diagnosis and treatment of AD is desirable. Serum samples from AD or health control Taiwanese were collected from Taipei Medical University Hospital or Taipei Medical University Joint Biobank. Specific proteins were analyzed with immunoblotting and ELISA to identify potential AD biomarkers, or immunoprecipitated for LC-MS/MS to identify AD-specific post-translational modifications. Abelson helper integration site-1 (AHI1), a facilitator of intracellular cargo translocation to inhibit amyloidogenic pathology of AD, was reduced in AD model cells, mouse brain and patient's serum, suggesting that AHI1 is a promising AD biomarker. In the clinical chemistry tests, fasting glucose was statistically higher in AD patients than in control subjects. In addition, it has been reported that hyperglycemia can promote the production of reactive oxygen species and advanced glycation end products, leading to lipid peroxidation and neurodegeneration. Indeed, LC-MS/MS and immunoblotting analyses identified N ϵ -(Carboxyethyl)lysine (CEL) and 4-hydroxynonenal (HNE) adducts significantly increased in AD serum. The levels of specific autoantibodies IgG and IgM against these adducts were also changed depending on the disease progression. Thus, AHI1 protein, adducts of CEL and HNE as well as responding autoantibodies may be good biomarkers for AD diagnosis and treatment.

Urethra-Sparing Intensity Modulated Proton Therapy for localized prostate Cancer with Non-invasive Urethra Visualization Method



Takaaki Yoshimura

Department of Health Sciences and Technology,
Faculty of Health Sciences, Hokkaido University, Sapporo, Japan

Prostate cancer is the most frequent diagnosed cancer in over one-half of the countries of the world and has multiple treatment options. The basic goals of radiotherapy for prostate cancer are maximizing the disease control and minimizing both acute and late side effects. These are depending on the dose to tumor and normal tissue. Currently, urethra-sparing radiation therapy has been considered to minimize genitourinary toxicity by identified urethra with catheter insertion and intentionally underdosing the periurethral transitional zone. However, this procedure is not only invasive but also may increase patient discomfort, the risk of infection, and the risk of iatrogenic urethral strictures. We have developed non-invasive urethra visualization methods using post-urination magnetic resonance image (PU-MRI) without using catheter. This study aimed to investigate the clinical impact of urethra-sparing intensity modulated proton therapy (US-IMPT) plan compared to conventional clinical plans without urethral dose reduction. To evaluate the clinical impact of the US-IMPT plan compared to the clinical plan, tumor control probability (TCP) for clinical target volume (CTV) and normal tissue complication probability (NTCP) for rectum, bladder and urethra were calculated. The NTCP value for urethra in US-IMPT plan was significantly lower than that in the clinical plan, while maintaining the same level of TCP in CTV and NTCP in other organs. Thus, the US-IMPT with PU-MRI has potential clinical advantages in reducing the risk of genitourinary toxicities.

Studies on Selective Use of Proton Therapy in Primary Liver Cancers Using Normal Tissue Complication Probability Model



Anussara Prayongrat

Department of Radiation Oncology, Chulalongkorn University, Bangkok, Thailand

Liver cancer is a common cancer and cause of cancer deaths around the world. Radiotherapy is one of the mainstay treatments but might induce liver toxicity. Proton therapy is an emerging radiotherapy technology to improve tumor control and minimize toxicity, by giving higher dose to tumor while lower dose to normal liver. However, the obstacles are limited availability and high cost of proton therapy. Therefore, it is important to appropriately select patients for proton therapy. Normal tissue complication probability (NTCP) model is a tool to translate radiation dose into clinical risk or toxicity. Challenges include multifactorial effects which result in uncertainty of the NTCP model, for example, heterogeneous patient population and baseline characteristics, small sample size, and difference in treatment protocol. Our studies focused on the NTCP model to predict radiation-induced liver toxicity. Apart from the radiation dose, baseline patient characteristics were integrated in the model for an individual use. The model uncertainty was assessed by statistical and computational methods, resulting in toxicity risk with a range of confidence interval. Finally, the toxicity risk reduction from proton therapy, compared with standard x-ray treatment, was estimated together with confidence interval. Patients with sufficient risk reduction will be a candidate for proton therapy. This is called NTCP model-based approach to select patients for proton therapy. Estimation of the model uncertainty possibly improved the reliability of this approach. Further studies on more sophisticated analysis such as machine learning and validation of the NTCP model-based approach are required.



Best Poster Presentation



Awardees 2015-2021

2015 (2nd Conference)

Presenting author | M/D year | Major, Institute | Poster title

Tomohiro Yamazaki	D3	Advanced Medical Sciences, GSHS, HU	<i>In silico</i> prediction of novel effectors secreted by type III secretion apparatus of pathogenic chlamydiae
Jihun Kwon	M2	Biomedical Science and Engineering, GSHS, HU	Application of gold nanoparticles as a radio sensitizer: comparison between protons and X-rays
Ryodai Yamamura	M2	Health Research Studies, GSHS, HU	Lifestyle and bowel habits in female college students: Risk of the pre-constipation group

2017 (3rd Conference)

Kyungshil Kim	D3	Comprehensive Health Sciences, GSHS, HU	Effect of exposure to short-wavelength light on susceptibility to motion sickness
Junko Hasegawa	D2	Comprehensive Health Sciences, GSHS, HU	Development of a screening tool to Predict malnutrition among children under two years old in Zambia
Kensuke Shirasawa	M2	Medical Laboratory Science, GSHS, HU	Increase of Lysophosphatidylinositol in Liver Graft during Cold Preservation

2019 (4th Conference)

Tamao Miyao	M2	Biomedical Science and Engineering, GSHS, HU	Radio-Sensitivity of the Cells Exposed to Ionizing Radiations Considering the Bystander Effect
Zijun Gao	M1	Health Research Studies, GSHS, HU	Determination of the Levels of Polycyclic Aromatic Hydrocarbons (PAHs) in Seafood and Testing the Binary Effects of Total 4-PAH on HepG2 Cells

2021 (5th Conference)

Shan Yun	D3	Comprehensive Health Sciences, GSHS, HU	Factors Predicting Occupational Dysfunction in Community-Dwelling Older Adults
Yi Zeng	D1	Comprehensive Health Sciences, GSHS, HU	Associations Between Hygiene Practices and Fecal Contamination in the Household Environment of Children in a Suburban Area of China
Ryuichiro Ueda	M2	Health Research Studies, GSHS, HU	COVID-19 and Public Opinion: A Sentiment Analysis of Twitter Users in Japan

* GSHS, HU: Graduate School of Health Sciences, Hokkaido University

Analyses of FHS International Conferences

..... Trends & Transitions

Overview of the Number of Presentations

The numbers of presentations at the FHS International Conferences held in 2013, 2015, 2017, 2019, and 2021 were 12, 43, 86, 89, and 95, respectively; after a sharp increase from 2013 to 2017, the number remained at around 90 at the three most recent conferences (Figure 1). The increase was due to the rise in the number of student presentations since 2015 despite the number of invited presentations remaining constant at around 10.

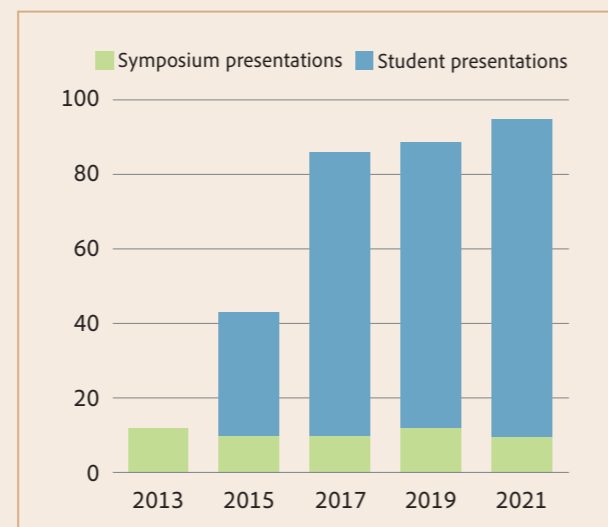


Figure 1. Total number of presentations

One of the main components of the presentations at FHS conferences is symposiums. In 2013 and onwards, around 10 presentations were given by invited speakers at each conference meeting. Figure 2 shows the distribution of speakers by institute location. In total, there were 51 presentations given across five conferences. The largest number (19) among all presentations came from Japan. Sixteen presentations among those were given by speakers from the host institute, Hokkaido University, along with invited speakers from the University of Tokyo, Hiroshima International University and Kyoto Prefectural University. The second majority of the speakers were from Taiwan with 16 presentations – eight speakers from Taipei Medical University, seven from Kaohsiung Medical

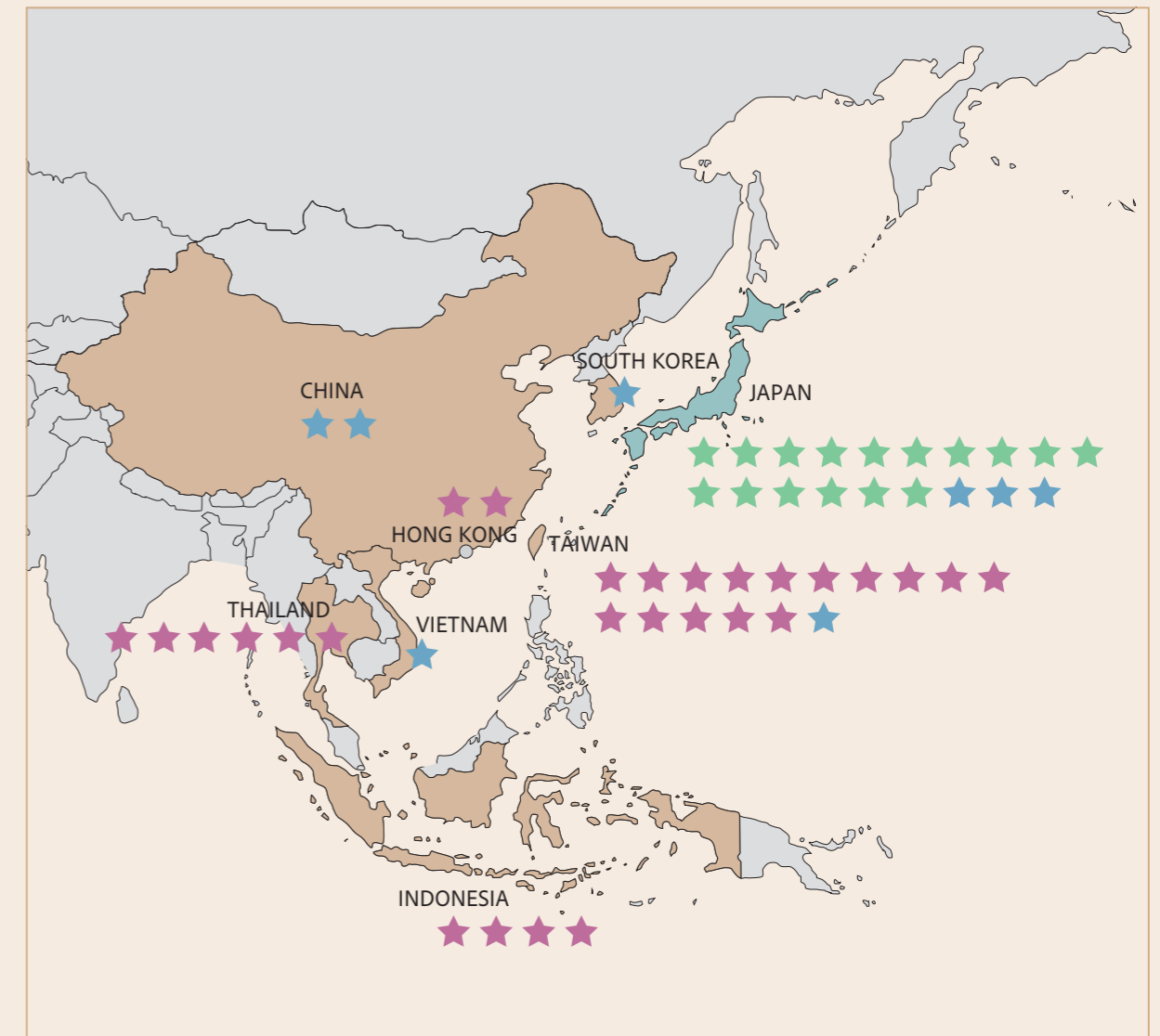


Figure 2. Countries and regions of the institutes of FHS invited speakers. One star represents one speaker. The green stars are those from Hokkaido University (HU) alongside the purple stars from HU's MOU partner universities and the blue stars from other institutes.

University, and one from National Cheng Kung University. Following the above countries, we had six speakers from Chulalongkorn University in Thailand. Indonesia followed Thailand with four invited speakers who all belonged to Diponegoro University/Dr. Kariadi Hospital. In addition to that, two speakers from the University of Hong Kong took part in past FHS meetings, and so did our two colleagues from the University of Chinese Academy of Sciences and the Second Xiangya Hospital of Central South University in China. Last but not least, we had one guest speaker from Thang Long University in Vietnam. On that note, the Faculty of Health Sciences has signed a Memorandum of Understanding with each of the said five institutes with which the highest numbers of invited speakers per institute correlate—Taipei Medical University, Kaohsiung Medical University, Chulalongkorn University, Diponegoro University/Dr. Kariadi Hospital, and the University of Hong Kong—their active contribution and collaboration have been very much appreciated. We hope to welcome more diverse lectures on invitation from a variety of countries and regions in the future.

Another main component of the presentations was the graduate students' poster presentations first introduced in 2015. As shown in Figure 3, the number of presentations made by the Graduate School of Health Sciences students increased between 2015 and 2021 rising from 30 to 66, 71 then 79, respectively. Overall, there were more presentations by master course students than those by doctoral course students. The student presentations from other graduate schools between 2015 and 2021 were 3, 10, 6, and 6 in number, respectively.

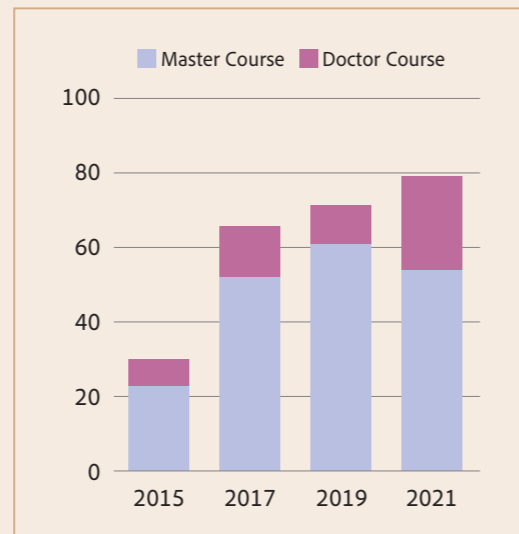


Figure 3. Total number of student presentations by graduate course

In 2021, the number of presentations by doctoral students increased to 25. The breakdown by doctoral course program (Nursing Sciences, Comprehensive Health Sciences, and Advanced Medical Sciences) was 6, 11, and 8, respectively (Figure 4). The accumulation to date classified in the above programs prescribes the Comprehensive Health Sciences as the highest in number with 36 presentations, followed by 11 by the Advanced Medical Sciences and 9 by the Nursing Sciences.

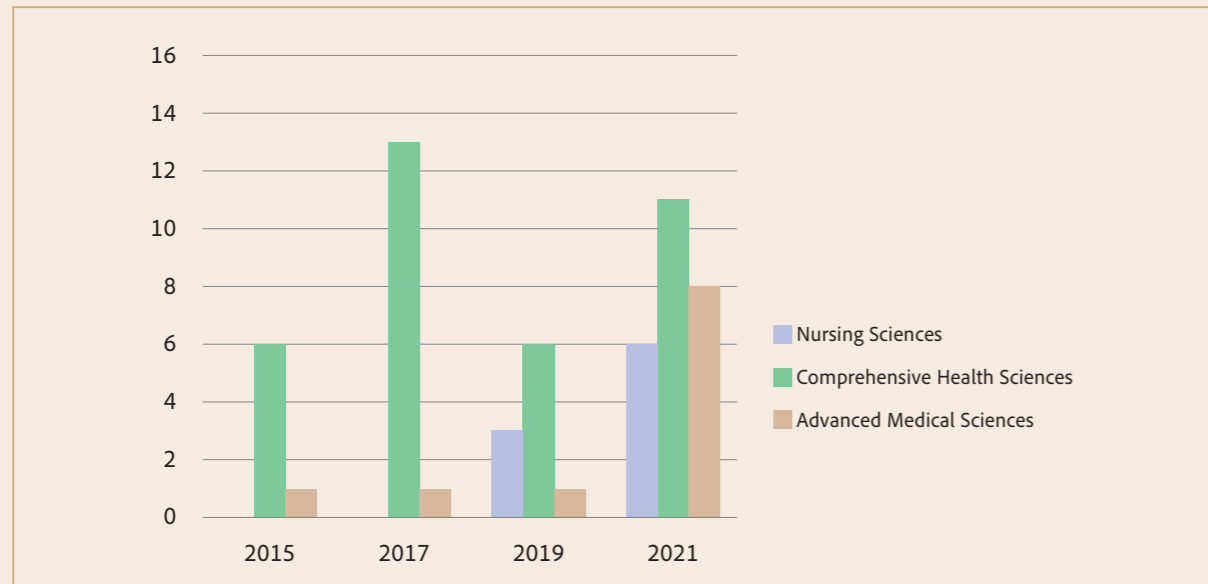


Figure 4. Total number of student presentations by doctoral course program

The number of presentations made by master's course students has been at around 60 in recent years: 23 in 2015, 52 in 2017, 61 in 2019, and 54 in 2021. As shown in Figure 5, at the most recent conference in 2021, the highest number of presentations was 15, shared by the master's programs of Biomedical Science and Engineering and Health Research Studies which was followed by

9 presentations by Rehabilitation Science. The accumulation to date classified in master's programs prescribes Biomedical Science and Engineering as the highest in number with 48, Health Research Studies as the runner-up with 41, followed by Medical Laboratory Science with 28, Rehabilitation Science with 23, Advanced Public Health Nursing with 19, Nursing Science with 15, Advanced Midwifery with 15, and Advanced Practice Nursing with 1.

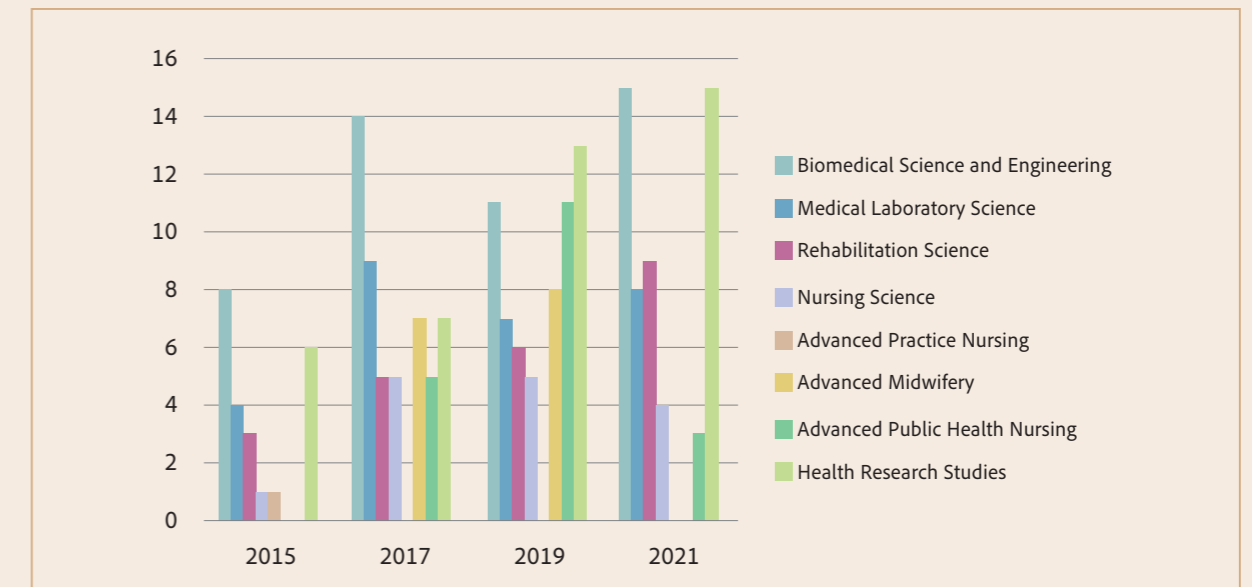
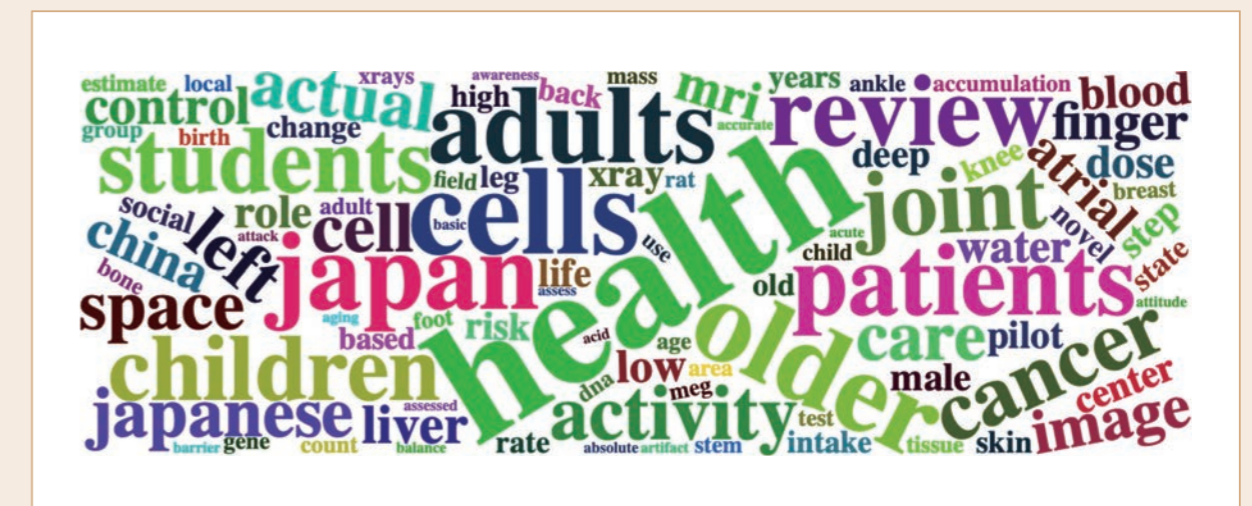


Figure 5. Total number of student presentations by master's course program

Word Cloud of the Research Titles

A word cloud of the research titles collected from the 1st–5th FHS International Conferences. The high-frequency words unique to the titles of the presented research papers include “health”, “cells”, “older”, “adults”, “Japan”, “patients”, and “children”.



The FHS International Conference

Organizer

International Affairs Office

Faculty of Health Sciences, Hokkaido University

1st FHS: Tadayoshi Asaka, Junji Matsuo, Makiko Noguchi, Shinya Sakai, Mina Samukawa,
Miho Sato, Naomi Sumi, Kaori Tsutsumi, Taro Yamauchi

2nd FHS: Tadayoshi Asaka, Junji Matsuo, Makiko Noguchi, Shinya Sakai, Mina Samukawa,
Miho Sato, Naomi Sumi, Kaori Tsutsumi, Taro Yamauchi

3rd FHS: Tadayoshi Asaka, Hiroyuki Date, Junji Matsuo, Makiko Noguchi, Shinya Sakai,
Mina Samukawa, Miho Sato, Risa Takashima, Kaori Tsutsumi, Taro Yamauchi, Yuko Yoshida

4th FHS: Michiko Aoyanagi, Takako Chikenji, Hiroyuki Date, Torahiko Okubo,
Takeshi Saito, Shinya Sakai, Mina Samukawa, Miho Sato, Risa Takashima, Kaori Tsutsumi,
Hiroko Yamashina, Taro Yamauchi, Yuko Yoshida

5th FHS: Michiko Aoyanagi, Atsuko Araki, Tadayoshi Asaka, Hiroyuki Date,
Takako Chikenji, Naoya Hasegawa, Torahiko Okubo, Mina Samukawa, Miho Sato,
Risa Takashima, Taro Yamauchi, Michiko Yoshida, Takaaki Yoshimura



Faculty of Health Sciences, Hokkaido University

Our partners

Faculty of Medicine, Diponegoro University & Dr. Kariadi Hospital, Indonesia
Faculty of Medicine & Faculty of Allied Health Sciences, Chulalongkorn University, Thailand
Taipei Medical University, Taiwan (Inter-university)
College of Health Sciences, Kaohsiung Medical University, Taiwan
School of Nursing, University of Hong Kong, China

10th
Anniversary

A Decade of Health Sciences in Asia: Looking Back at the FHS International Conference

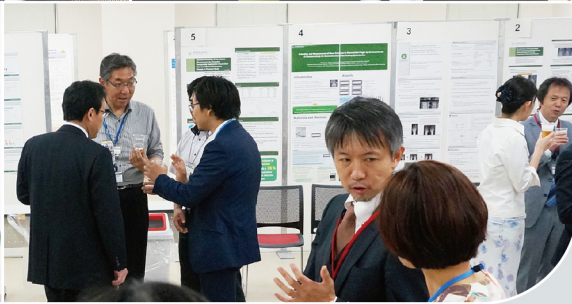
Edited by International Affairs Office, Faculty of Health Sciences, Hokkaido University

Michiko Aoyanagi, Takako Chikenji, Hisanori Fukunaga, Naoya Hasegawa, Atsuko Ikeda, Torahiko Okubo,
Mina Samukawa, Tomoko Sasaki, Miho Sato, Risa Takashima, Taro Yamauchi, Michiko Yoshida, Takaaki Yoshimura



The 4th FHS International Conference:

Putting the Pieces Together: Creating A New Era of Health Sciences in Asia



Faculty of Health Sciences, Hokkaido University

A Decade of Health Sciences in Asia: Looking Back at the FHS International Conference

Edited by
International Affairs Office (Faculty of Health Sciences, Hokkaido University)

Published by
Faculty of Health Sciences, Hokkaido University
N12-W5, Kitaku, Sapporo, Hokkaido 060-0812, JAPAN

Published on March 1, 2023
ISBN978-4-600-01190-1

Designed by S. Honma (Public Relations Office, Faculty of Health Sciences, Hokkaido University)