

Activity Proposal for the Asi@Connect project: 2nd Call

1 General Information

- **Title of proposal** –
“Continuous training programs for hospital engineers, coupling with doctors, to expand telemedicine across the beneficiary countries”
- **Relevance of Work Package (WP)** – WP5
- **Duration** – From June 2018 to May 2019 (1 year)
- **Regional diversity** –
Beneficiaries: Indonesia, the Philippines, Nepal, Vietnam, Malaysia, Thailand, China, India, Myanmar, Bangladesh, Sri Lanka, Cambodia
Supporting non-beneficiaries: Japan, Korea, Singapore, Australia, New Zealand
- **Relationship with other existing projects** –
 1. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science (JSPS) No.16H02773
“Continuous remote medical education for the diagnosis of early gastric cancers in Latin America”
 2. Global Core Project from Kyushu University, Fukuoka, Japan
“Promotion of worldwide education and regional globalization by harmonizing international cooperation among medical schools and hospitals”
- **Keywords** – telemedicine, remote medical education, globalization

2 Information on the participants

2.1. Principal Investigator (PI)/Leader

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PI's proven experience of managing similar activities/projects in the past.

1. Grant-in-Aid for Scientific Research from the Japan Society for the Promotion

of Science (JSPS) 2011-2015,

“Global expansion of telemedicine via research and education network”

2. Core-to-Core Program Asia-Africa Science Platforms from the Japan Society for the Promotion of Science (JSPS) 2011-2015,
“Establishment of remote medical education system for early detection of gastric cancer in Asia”
3. TEIN Project 2015-2016,
Collaborations between doctors and engineers for both international and domestic expansion
4. TEIN4 Project 2017-2018,
Training programs to disseminate telemedicine across the beneficiary countries

2.2. List of Collaborating Participants

1. Tomohiko Moriyama, MD, PhD
Lecturer
Deputy Director, Telemedicine Development Center of Asia
Kyushu University Hospital, Japan
2. Kuriko Kudo, PhD
Assistant Professor
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3 Proposed Activities/Programs

3.1. Background

1. Over 15 years’ experience has been accumulated in telemedicine with more than 800 programs with satisfactory image-quality transmission in Asia and beyond, collaborating with 500 medical institutions in 60 countries.
2. Research and education networks (RENs), such as TEIN, are and will be prerequisites for telemedicine where much higher standard of image quality than regular remote education is needed for accurate diagnosis and precise treatment.
3. Support from the TEIN4 project in 2015/2016 and Asi@Connect project in 2017

initiated and dramatically strengthened the training programs for telemedicine. The importance of training for hospital engineers had not received much attention in REN community where network engineers are major constituents. These projects greatly motivated the initiatives of hospital engineers in the beneficiary countries and resulted in a great deal of development in telemedicine.

3.2. Remaining problems to be tackled

1. Regardless of good achievements above, full coverage of telemedicine in these beneficiary countries cannot be fulfilled in a short period. Education of hospital engineers as well as fostering trainers must be continued for years to reach to our final goal.
2. Another key and basic factor to accelerate telemedicine is to promote these activities to variety of doctors so that they can recognize the true advantage of telemedicine and can learn how to start it for their own benefits, together with the technical support of engineers. Telemedicine is still limited only to small medical community but there is huge potential for further expansion. We mustn't forget that doctors are main players and the expansion of telemedicine strongly depends on their needs and interest.
3. Difficulty in obtaining good engineering support in many hospitals is a main obstacle to initiating and realizing telemedicine, and in addition, engineers in the hospitals have few opportunities for education specialized for telemedicine.
4. Major hospitals, mostly in capital cities, are already active members in many countries, but many other hospitals in remote cities/towns are not highly involved in the activities yet. Actually, there are even bigger needs for telemedicine in these suburban areas.
5. RENs are not yet well established in some developing countries where telemedicine still cannot be started. In addition, we still encounter a lack of REN connectivity to hospitals/medical institutions in suburbs and rural areas even in REN countries.

3.3. Objectives

1. To provide good technical training for hospital engineers, in skills such as Internet management and audio-visual handling: Quality of service is indispensable in telemedicine, and understanding its importance is one of the main targets of this training. The engineers undergo on-the-job training with

the responsibility to prepare and run the program in actual settings. Under this scheme, they can learn how to prepare the session, test connections, and troubleshoot to ensure the quality.

2. To organize a “Train-the-Trainer” program: The engineers take intensive programs at the Telemedicine Development Center of Asia (TEMDEC) at Kyushu University Hospital, Japan, to learn more complex and advanced technical details, as well as some clinical experience to acquire additional knowledge of medical devices. They are expected to be leaders in each country to educate their regional engineers after returning home.
3. To organize an annual telemedicine symposium where a team of medical and engineering staff across Asia assemble to share information on various programs, explore medical needs, recognize current problems, and improve technical conditions: Doctor and engineer must be a couple in telemedicine. This symposium helps to strengthen the human network between them beyond geographic border, and to make good cooperating teams across the region.
4. To organize domestic telemedicine workshops in each country so as to disperse the activity more effectively into the hosting countries: The impact of these workshops was much bigger than we had expected. These conferences must be continued annually so that they can discuss updated situations, troubleshoot the new problems, and can have new members one after another.
5. To expand our activities to new countries such as Myanmar.
6. To continuously improve the system with developing technology.
7. To promote medical standardization that will ultimately provide patients in beneficiary countries with world-standard healthcare.
8. To collaborate with other regions in the world, such as Central Asia, Africa, and Latin America, to make our activities globally beneficial.

3.4. Details of Activities/Programs

- **Key structure of training programs**

The whole project consists of two types of programs; training programs, and a symposium and workshop.

A. Training of hospital engineers

- (a) On-the-Job training at APAN sessions
- (b) Train-the-Trainers at TEMDEC

B. Symposium/Workshop

- (a) Asia Telemedicine Symposium (ATS)

(b) Domestic telemedicine workshop

- **Brief explanation of each plan**

A. Training of hospital engineers

(a) On-the-Job training at APAN sessions

With over a decade of experience in telemedicine, we are strongly confirmed that APAN meetings are the best place to give engineers on-the-job training for a week. We assign trainers to trainees in each session of the medical working group program and make them responsible for technical preparations. Starting a few months before, the engineers must decide the most suitable system to use after collecting information on the program and the available network/equipment, make a schedule of connection tests, solve the various technical problems, and run each session with doctors. After the sessions, all these trainers and trainees assemble on the final day to review each session and to discuss problems and plans for forthcoming sessions.

(b) “Train-the-Trainers” program

This is performed for a period of a month at TEMDEC at Kyushu University Hospital, Japan. Participants learn the technical details of all three systems in use (DVTS, H.323, and Vidy), and have hands-on training on their usage. Participants learn how to control the advanced telecommunication systems installed at TEMDEC, composed of various image and sound equipment, as well as new and advanced technology such as JoinView and Tele-pointer. They also have chances to visit operating rooms and endoscopic suites to become more familiar with these medical devices and how to connect them to telemedicine systems. At the end of the training, participants are expected to make a presentation for their home country, and make all the telemedicine connections to the participating institutions.

Thanks to the efforts of these trained trainers, the activities expanded dramatically after their returning home in Indonesia, the Philippines, Malaysia, and Vietnam. Thus we have found this to be a very effective way to disseminate the activities across each country.

B. Symposium/Workshop

(a) Asia Telemedicine Symposium (ATS)

We started this symposium in 2007, and invited both medical doctors and engineers together to bring these different kinds of people closer by sharing their needs and common interests. This symposium is usually held at the end of the year,

and so it is a good occasion to review the activities of the past year and to make plans for the next year. The host country should have a sufficient academic network as well as good number of active hospitals in telemedicine. Until 2015, aside from Japan and Korea, only Thailand had organized a symposium, but Vietnam hosted it for the first time in 2016 and Malaysia is to be a host in 2017. The Philippines, India, Indonesia, and China are now on the list as future organizers.

(b) Domestic telemedicine workshop

Our activities have expanded into many countries, not only in Asia but also around the world. However, one of the problems we face is that member hospitals are mainly big university hospitals in capitals or big cities, where good network and engineering support is available. Therefore, our aim of organizing domestic telemedicine workshop is to expand the activities across each country including remote and rural areas. It is much easier and effective for each country to implement this than for TEMDEC to try to contact hospitals in suburban areas abroad directly. Members of local communities know each other better and can communicate easily and well sometimes in their local language.

• **Individual plan with time line**

1. On-the-Job training at the 46th (Aug 2018) and 47th (Jan 2019) APAN Meetings
 - (1) Experience technical preparations for various medical sessions
 - (2) Last-day engineering workshop to review the training program
 - (3) Meet many people for human networking
2. Train-the-Trainers at TEMDEC (Aug 2018 and Jan 2019)
 - (1) Train key hospital engineers to learn more advanced technical knowledge using the various systems in use
 - (2) Understand a number of medical devices, how they work and how they can be connected to videoconferencing systems
 - (3) Learn how to educate local engineers in their own country to teach them how to connect the system and how to troubleshoot problems
 - (4) Make a presentation to share their experience with other domestic members, applying what they learned in technology and organization
3. Asia Telemedicine Symposium (ATS2018) in Fukuoka/Japan (Nov 2018)
 - (1) Jointly organized with the 22nd Japanese Telemedicine and Telecare Association, so that more Japanese hospitals can become more interested in international telemedicine activities and can collaborate with beneficially

countries

- (2) Invited doctors and engineers from beneficiary countries are expected to make presentation on their on-going projects and current programs.
- (3) Introduce successful telemedicine programs to members from beneficiary countries so that they can refer to them to make their own.
- (4) They learn advanced telemedicine in Japan and establish wider human network with other Asian countries

4. Domestic telemedicine workshops

- (1) The 3rd Indonesia Telemedicine Workshop (October 2018)
Jointly organized with Jakarta International GI Endoscopy (JIGES)
- (2) The 3rd Philippines Telemedicine Workshop (December 2018)
Jointly organized with the Philippine College of Surgeons (PCS)
- (3) The 1st Nepal Telemedicine Workshop 2019 (March 2019)

• **Target participants**

- Hospital engineers
- REN engineers
- Healthcare providers, not only doctors but also nurses, medical students, and others involved in healthcare
- Other health-related personnel, such as policy makers, administrators, and public relations professionals

3.5. Deliverables to the participants:

	Deliverable name	Type	Delivery date
1	Program and certificate (O.IT at APAN46)	Document & website	3 months
2	Program and certificate (O.IT at APAN47)	Document & website	8 months
3	Program and certificate (ATS)	Document & website	7 months
4	Program and certificate (Indonesia workshon)	Document & website	5 months
5	Program and certificate (The Philippines workshon)	Document & website	7 months
6	Program and certificate (Nepal workshon)	Document & website	10 months

7	Training manual	Book & website	3 months
8	T-shirt	Goods	3 months
9	Ballpoint pen	Goods	6 months
10	Clear file	Goods	6 months

4 Resources to be committed/Budgets

Please refer to the Appendix B.

This grant is for the training for engineers. Financial support for doctors and other healthcare providers is to be arranged by other funds.

5 Expected impacts

5.1. Expected outcome:

1. Hospital engineers will learn how to set up and run the system and enable their hospitals to join the telemedicine program. This will increase the number of hospitals participating in the activity and lead to grow the whole community. They will recognize the importance of the quality for telemedicine and of the advantages of RENs.
2. Trained trainers will educate hospital engineers in each country, and are expected to lead the technical support in their whole country. This will exponentially increase the number of newly participating hospitals. Trained trainers are also expected to help doctors to run more telemedicine programs by contacting with other active members inside and outside each country.
3. Network engineers can help these hospital engineers to increase the use of RENs.
4. Doctors in beneficiary countries will routinely obtain easy access to hospitals in other developed countries to share new medical knowledge and advanced skills/treatments. Because the programs can be repeated and many participants can be invited without considerable investment, this is quite an effective and economical way to educate medical staff, ultimately to provide patients in the beneficiary countries with standardized medication.
5. To run the telemedicine, doctors and hospital engineers are two essential players. Therefore, for the expansion of telemedicine, the education for the doctors is also crucial and important. By inviting doctors to symposiums and

workshops together with engineers, they will learn the rapid technological advancement and practical benefits of telemedicine and will know how to establish it with their engineering counterparts.

5.2. Benefits to TEIN and its Community

Indicators	Expected	Means of verification
Number of collaborating NREN countries	12	- Invited as trainees
Number of courses and workshops given	8	- Programs
Number of trainees, persons trained	100	- Programs
Number of trainers	30	- Programs
Number of telemedicine programs organized	100	- Programs
Number of participated hospitals in the	100	- Programs
Number of newly-joined hospitals	10	- Programs
Number of newly-joined countries	1	- Programs
Evaluation by training program participants	100	- Reports
Evaluation by telemedicine program	100	- Report
Evaluation by annual symposium participants	100	- Program
Evaluation by domestic workshop participants	100	- Programs

5.3. Visibility/Dissemination plan

1. Event reports
 - Program, Posters, Banners, Presentations, Surveys
 - Printed documents and websites
2. Promotion video
 - Training, Testing, Teleconference, Live demonstration
 - Tip of teleconferences
 - Prepared as DVD and uploaded in the website
3. Promotion goods
 - Ballpoint pen, Clear file

- T-shirt during trainings

5.4. Sustainability of the Activity/Program

FY2019 (From June 2019 to May 2020)

1. Increasing number of training programs for hospital engineers in beneficiary countries
2. Continuous organization of domestic telemedicine workshops
3. Initiation of domestic telemedicine workshops in other beneficiary countries such as China, Thailand and India
4. ATS in other beneficiary countries, such as the Philippines and Indonesia

FY2020-FY2022 (April 2020-Aug 2022)

1. ATS in other beneficiary countries, such as India, Nepal, and China
2. Initiation and acceleration of telemedicine in new countries, such as Myanmar, Bangladesh, Sri Lanka, Laos, Cambodia, Bhutan, Mongolia, Afghanistan, and Pakistan
3. Continuous expansion of telemedicine activity in all beneficiary countries
4. Worldwide expansion of telemedicine, collaborating with beneficiary countries
5. Evaluation of our activities
6. Plan for the next periods