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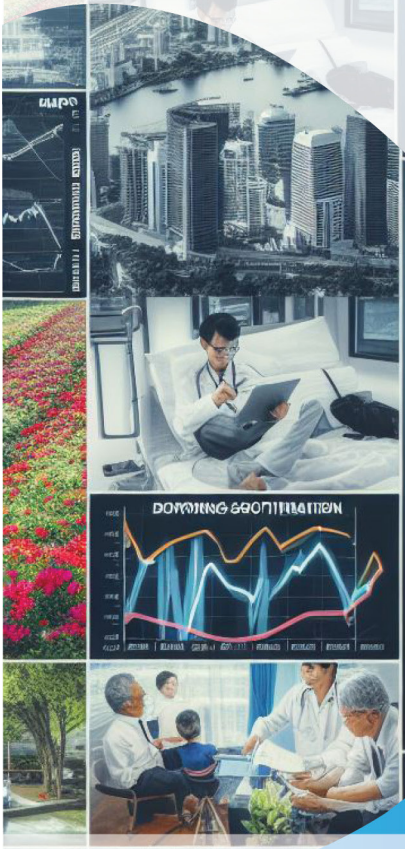
Geopolitics, human security and health equity in an era of polycrises



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PMAC 2024

Geopolitics, Human Security and Health Equity in an Era of Polycrises

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THE COMPANION BOOK FOR FIELD TRIPS

PMAC 2024 | Geopolitics, Human Security and Health Equity in an Era of Polycrises

The companion book for field trips in PMAC 2024

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Preface

Geopolitics, Human Security and Health Equity in an Era of Polycrises

The National Health Security Office

In the global health discourse, the profound impact of geopolitics is often downplayed, yet it significantly influences our understanding and response to health challenges.

This year, PMAC 2024 focuses on Geopolitics, Human Security, and Health Equity in an Era of Polycrises. Expanding our focus on geopolitical determinants of health gives us a more precise understanding of the impact of geopolitical factors such as war, geopolitical conflicts, climate change, and immigration on healthcare policy and health outcomes.

The COVID-19 pandemic has underscored existing inequalities within and between societies, revealing the impact of power dynamics on global health and accentuating how competition between superpower countries can hinder collaborative efforts to address shared health challenges.

Aligned with three sub-themes covering global governance for health in a multipolar world, geopolitical puppeteers, and decolonization of Global Health Governance - our field trips offer profound insights into real-world applications of a geopolitical perspective in health.

Site 1: Siriraj-SSPO: A Jigsaw Puzzle to Strengthen the Health System

The Sirindhorn School of Prosthetics and Orthotics (SSPO) at the Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand, has served as one of the key leaders in prosthetics and orthotics, providing education, research, and services for over two decades.

A life-changing story from the patient - Mr. Prateep Chobkaew, after a motorcycle accident in 1996 - reflects the positive impact of SSPO on individuals after receiving prosthetic services from SSPO. The school's commitment extends beyond education to addressing global health challenges and promoting equal access to healthcare.

SSPO focuses on its three missions, aiming to help people by teaching, researching, and creating a solid system for prosthetics and orthotics. Despite graduating around 400 professionals, a shortage of prosthetists and orthotists in Thailand continues, affecting overall health services. SSPO's geopolitical importance is due to its expertise, making it a leading innovator where health policy and geopolitics meet.

The school's holistic approach integrates primary care, specialized interventions, and community engagement, emphasizing patient referral for effective coordination across various health settings.

As a regional prosthetics and orthotics hub, SSPO is committed to anchoring global healthcare equality, involving collaborations, research aligned with regional contexts, and focusing on affordability and accessibility, particularly in conflict areas.

In conclusion, SSPO extends beyond a health facility, embodying compassion, precision, and resilience. The school's excellence in academics, research, and dedication to health equity makes it a significant focus for global health policy experts navigating the intersections of health, education, and geopolitics.

Site 2: Medical Technology in the Current Geopolitics: Competition, Collaboration, and Technology Transfer

The evolution of Medical Technology within the current geopolitical landscape, emphasizing competition, collaboration, and technology transfer, underscores the transformative impact on global healthcare.

As advanced medical technologies, driven by digital innovations, have revolutionized the healthcare system, the geopolitical context also shapes these technologies' development, distribution, and adoption, influencing international collaborations and imposing barriers based on tensions among nations.

A case study of Mahidol University's Faculty of Medicine Ramathibodi Hospital in Thailand illustrates how geopolitical factors impact the institution's navigation through the complexities of adopting and transferring cutting-edge medical technologies. The hospital's commitment to advanced patient

care is evident in its adoption of technologies like Stereotactic Body Radiation Therapy (SBRT), proton therapy, and the da Vinci surgical robot.

Geopolitical challenges and opportunities arise from historical collaborations and recent advances, testing Thailand's resilience. The nation remains open to cooperation despite global tensions, emphasizing equity and accessibility in medical technology.

As the Easternization of technological influence extends to Southeast Asia, Thailand, especially the Faculty of Medicine Ramathibodi Hospital, emerges as a potential hub for collaboration and technology transfer.

Strategic approaches promoting South-South collaboration are crucial to effectively managing collaboration and competition challenges. Knowledge transfer requires mutual understanding and shared goals, particularly in advanced technologies like digital health and biotechnology. Siam Bioscience is a noteworthy example, contributing to technology transfer by locally manufacturing essential medications and vaccines.

Addressing ethical equity and access challenges becomes imperative as the medical technology landscape evolves. Thailand

is poised at the crossroads of transitioning from a consumer to a producer of advanced medical technology, necessitating substantial investment in research and healthcare infrastructure. If positioned strategically, Thailand will potentially become a key player in the distribution and utilization of medical technology in Southeast Asia, shaping the ever-evolving global healthcare landscape.

Site 3 Harmony and Peaceful Land between Local and Migrants to Sustain Economic and Equitable Health Accessibility

Samut Sakhon Province near Bangkok is a central hub for Thailand's fisheries and agricultural production. With a significant migrant population, primarily from Myanmar, Laos, and Cambodia, the province has evolved from initial discrimination to acceptance of the vital role migrant workers play in sustaining the local and national economy. The province aims to achieve "high-value economic, eco-industrial, sustainable development, and well-being city" status by 2027.

The Thai government's 20-Year National Strategy underscores social equality, emphasizing the importance of a comprehensive social protection system. Policies for migrant workers include two official migration channels and three social protection programs, ensuring their health and well-being. Regular health examinations, compulsory health insurance, and emphasis on disease screening contribute to health accessibility.

Samut Sakhon's provincial public health office implements four key "excellence" strategies: primary healthcare, service, people, and governance.

By adopting a humanitarian approach, Samut Sakhon Hospital reiterates its commitment to continue providing equal health-care services to migrants. The hospital offers 24/7 translators, specialized clinics, and community outreach to overcome language barriers.

Collaboration among government agencies, healthcare providers, NGOs, legal aid organizations, and educational institutions ensures a networked approach to migrant welfare. During the COVID-19 outbreak, a whole-of-society strategy involving businesses, NGOs, and community support helped control the situation.

Migrant children in Samut Sakhon receive equal educational opportunities up to grade six, fostering social integration. Key success factors include well-being, safety, equality, equity, and humanity, promoting acceptance and harmony between locals and migrants.

Despite implementing numerous initiatives, persistent challenges in Samut Sakhon include illegal migration and coordination issues across different sectors. To promote development in Samut Sakhon and sustain overall well-being and the national economy, key strategies involve:

- Enhancing the whole-of-society approach.
- Clarifying roles and value of migrant health volunteers.
- Coordinating efforts with Thai village health volunteers.
- Aligning policies to create a high-value, eco-industrial, sustainable city that prioritizes well-being and inclusivity.

1

Siriraj-SSPO: A Jigsaw Puzzle to Strengthen the Global Health Systems

Siriraj-SSPO: A Jigsaw Puzzle to Strengthen the Global Health Systems

Kamolrat Turner
Wilaiporn Khamwong
Matanee Radabutr

"*I feel like I have a new life,*" Mr. Prateep Chobkaew, a 64-year-old patient of Sirindhorn School of Prosthetics & Orthotics (SSPO) spoke of a newfound life after receiving his new prosthetic leg. In 1996, Mr. Chobkaew had a life-changing experience when a motorcycle crash took his right leg at the age of 37. He faced a downward spiral fueled by alcohol and despair. He used to drink alcohol to cope with his pain and loss, but now he rides a bicycle to work as a barber and helps students learn about prosthetics and orthotics. His journey, transformed at Siriraj-SSPO.

Mr.Pratreep Chobkaew, a patient of Sirindhorn School of Prosthetics & Orthotics, is able to do his daily activities.

Mr. Chobkaew's journey began not only as a patient of the SSPO, but also amidst the turbulent of complexities of life. As a man with unfulfilled dreams, he navigated through the intricate dance of health and illness as symptoms manifested, searching for answers within the walls of Siriraj Hospital. Amidst the hum of medical equipment and the muffled conversations of healthcare professionals, Mr. Chobkaew's story unfolded, interwoven with the fabric of the Siriraj-SSPO.

"My life has changed for the better after using the services of the SSPO. I can now stand, walk and ride a bicycle to my customers' houses to work as a barber again. I feel great. I can do everything like a normal person and I'm not as drunk as I used to be," said Mr. Chobkaew, marking a triumphant change.

The genesis of this intricate jigsaw puzzle began at the SSPO Outpatient Department, where Mr. Chobkaew met compassionate healthcare professionals who had medical expertise and a commitment to understand his health history. The gentle embrace of the Siriraj-SSPO process unfolded here and represented the first piece of this complex puzzle. The SSPO, which advocates for equal access to healthcare, ensured that people with disabilities like Mr. Chobkaew had access to the prosthetic and rehabilitation services they needed[1]. Later on, Mr. Chobkaew was invited by a doctor to participate in the master's project. He continues to contribute and participate in a prosthetic development research project led by a Japanese professor [2].

Mr. Prateep Chobkaew, a patient of Sirindhorn School of Prosthetics & Orthotics (Transfemoral prosthesis user)

Mr. Chobkaew was proud to receive a royal plaque from Her Royal Highness Princess Maha Chakri Sirindhorn for his role as a master teacher and shared his joy at being a valuable part of SSPO's educational endeavours despite his disability. "*Although I am disabled, I can contribute to SSPO students learning and being useful to society. This has made me very happy*," he said, epitomizing his resilience and commitment to the SSPO community.

Siriraj-SSPO at a Glance

The Sirindhorn School of Prosthetics and Orthotics is one of the departments at the Faculty of Medicine Siriraj Hospital, Mahidol University, located in the vibrant Chao Phraya Building area on Arun Amarin Road, Bangkok. It has served as Thailand's

first and only school of prosthetics and orthotics for 22 years. Its commitment extends not only to education, but also to improving mobility and well-being around the world. SSPO's main missions include education, research and the development of a robust prosthetic and orthotic service system.

The SSPO was established as a result of the Nippon Foundation's initiative to develop prosthetics and orthotics in Southeast Asia, which led to a co-operation agreement between the Faculty of Medicine Siriraj Hospital and the foundation. The development of the school began in 2002 with the admission of the first cohort of students. In 2006, it received royal recognition from Her Royal Highness Princess Maha Chakri Sirindhorn, which resulted in the renaming of the school to "Sirindhorn School of Prosthetics and Orthotics."

Main Building of Sirindhorn School of Prosthetics and Orthotics, Mahidol University

With its commitment to improving mobility and well-being, the school goes beyond its local influence and strives to be a world leader in prosthetics and orthotics. According to Assoc. Prof. Gulapar Srisawasdi, SSPO's missions include education at various levels, from bachelor to doctoral programs, with the aim of training prosthetists, orthotists and specialists who are equipped to meet future healthcare needs. In addition, the SSPO is dedicated to generating research and innovation to improve knowledge and accessibility to high-quality international standards in prosthetics and orthotics at affordable prices. The school is also actively involved in the development of a robust service delivery system that serves as a model for institutions at national and regional level, with the aim of improving people's mobility.

To date, the SSPO has produced approximately 400 graduates with national and international backgrounds. Despite this achievement, the shortage of prosthetists and orthotists in Thailand remains a major challenge with only over 200 prosthetists and orthotists. This shortage contributes to the lack of access to comprehensive health services[3].

SSPO is at the intersection of health and geopolitics and is known for its expertise in prosthetics and orthotics, making it more than just an educational institution. It is a beacon of innovation in addressing global health challenges and attracts the attention of health professionals with a sophisticated understanding of

geopolitics in a world where health policy and geopolitics are increasingly intertwined[4].

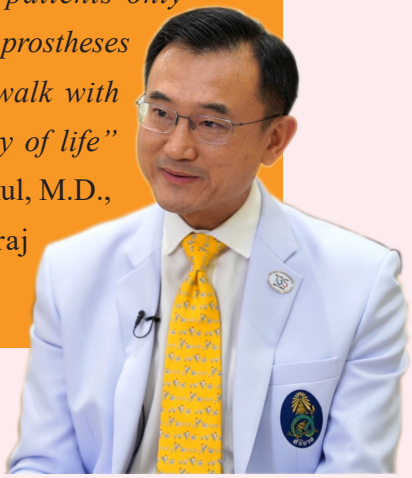
SSPO continuously develops innovation assistive devices to improve patients' mobilities.

SSPO Advancement: A Geopolitical Anchor for Global Health Care Equity Mission

As the patient's journey unfolds, the intricate pieces of puzzle converged to reveal the holistic integration at the heart of SSPO. The second piece of the puzzle illustrates how SSPO works as a cohesive unit, seamlessly linking primary care, specialized interventions and community engagement. Patient referral plays a crucial role in the effective co-ordination of services and bridges gaps across various health settings[5].

As the patient's journey unfolds, the intricate pieces of the puzzle seamlessly to reveal the holistic integration that lies at the core of SSPO. The second facet of this intricate puzzle illuminates the cohesive functioning of SSPO by providing a seamless link between primary care, specialized interventions and community engagement. The pivotal role of patient referral is proving to be the linchpin in the effective coordination of services and bridging gaps across various health settings.

"Patient referral is very important. Despite the geographical separation between SSPO and the Faculty of Medicine Siriraj Hospital, we have established an effective system for coordinating and referring patients, ensuring that they receive prostheses or orthoses tailored to their needs. Cases are referred from several clinics such as orthopedic surgery, general surgery, vascular surgery or pediatrics. Some patients only require physiotherapy, while others need prostheses or orthoses to help them to sit, stand, walk with stability, in order to improve their quality of life" emphasized Prof. Apichat Asavamongkolkul, M.D., Dean of the Faculty of Medicine Siriraj Hospital.



Prof. Apichat Asavamongkolkul, M.D., Dean of the Faculty of Medicine Siriraj Hospital, Mahidol University

SSPO recognizes the importance of a community in fostering health and well-being. This integrative approach ensures that the puzzle is not confined to clinical settings but extends into the fabric of daily life. In terms of geopolitical anchor for SSPO's global healthcare equity mission to develop a vigorous medical device system is a best practice example for other countries, especially those in conflict-ridden regions. SSPO's research and development work is influenced by the geopolitical context of each country, as evidenced by their focus on developing prosthetic and orthotic devices that can be manufactured domestically[6].

"In our research at SSPO, we focus on developing innovative prostheses and orthoses that are more accessible and affordable, using components that can be produced domestically to reduce production costs," said Assoc. Prof. Gulapar Srisawasdi M.D., Director of SSPO.

Assoc. Prof. Gulapar Srisawasdi M.D., Director of SSPO, Faculty of Medicine Siriraj Hospital, Mahidol University

SSPO's geopolitical anchoring for the global mission of healthcare equality includes collaboration with organizations in many countries such as the Nippon Foundation in Japan. Prosthetic and orthotic research is aligned with the geopolitical context, with a focus on accessibility and affordability, particularly in conflict regions.

SSPO's study on the effectiveness of the Space Dynamic Prosthetic Foot serves as the basis for decision to include it in the benefits package under the Universal Coverage Scheme (UCS). The establishment of the SSPO Center of Excellence for Research and Innovation aims to develop a vigorous domestic medical device industry.

Unified Connectivity between Social Responsibility and Patients for Social Equity

The diagnostic journey moved effortlessly from the outpatient department to the advanced imaging facilities. The healthcare team gained a comprehensive overview of Mr. Chobkaew's health using the latest technology and a high degree of precision. Like a well-calibrated jigsaw puzzle, SSPO ensures that every piece fits together precisely.

In education and research, SSPO is committed to high-quality training in the field of prosthetics and orthotics. The school offers specialized distance learning courses, collaborates internationally and conducts innovative research, including the

education and training of people from resources limited regions and diverse backgrounds such as Croatia, Afghanistan, and Myanmar. According to Thanatat Charatrungolan, the Deputy Director of Public Relation of SSPO, student centered learning approach is emphasized to ensure professional standards and the benefits of students.

"Building collaborative education programs is pivotal in harnessing the knowledge of our PhD students and professionals. Through active engagement with the stakeholders, addressing challenges, and motivating upcoming generations of professionals, we can cultivate a stronger community and enhance services for the university and the entire nation. Considering equity and geopolitical factors, this holistic and inclusive strategy highlights our dedication to excellence in all our endeavors." said Miss Nang Myat Moe, a 1st year doctoral student from Myanmar.

Miss Nang Myat Moe, a 1st year doctoral student of SSPO, Faculty of Medicine Siriraj Hospital, Mahidol University from Myanmar

The learning program enables students from underserved areas with access to comprehensive training in prosthetics and orthotics, ensuring a clear understanding of the patient's condition for personalized care[7]. Assoc. Prof. Gulapar Srisawasdi, M.D., Director of SSPO, highlights the uniqueness of the school, "*which combines education, service and research in one center, setting it apart from most prosthetic and orthotic schools. This integration provides a clear development picture with patient-centered principles*."

Learning Program of SSPO, Faculty of Medicine Siriraj Hospital, Mahidol University

Patient-Centric Navigation

SSPO turns the complex journey through the healthcare system into a patient-centered experience. The third piece of the puzzle is the navigation process, which guides patients through services with the expertise of experienced navigators. At Siriraj,

patients actively participate in their healthcare and are supported by dedicated navigators who ensure seamless transitions between consultations, examinations and procedures. This personalized approach speeds up healthcare processes and empowers patients to make informed decisions about their well-being.

The healthcare system into a patient-centered experience

Empowering Resilience to Social Equity Innovators

The final piece is empowerment, where SSPO does not only diagnoses and treats, but also empowers patients to develop resilience. SSPO works with stakeholders, including universities and research institutions, to promote innovation and minimize waste in prosthetics and orthotics[8].

Research to promote innovation and minimize waste in prosthetics and orthotics

SSPO collaborates with universities, companies and research institutions to improve its capabilities and promote innovation. Mr. Charatrungolan expressed the importance of incorporating regional contexts and constraints into research. Partnerships with organizations such as PENTA and SCG help to minimize waste and ensure access to prosthetics and orthotics for those in need.

Shalida Rattananipakul, a 3rd year student at the SSPO, has chosen this specialism to support people with disabilities through modern technology and innovation to improve their quality of life.

Ms.Shalida Rattananipakul, a 3rd year student at the SSPO, Faculty of Medicine Siriraj Hospital, Mahidol University

Ongoing Project and Future Plan

The SSPO collaboration endeavours to shape a more equitable global health landscape, but certain challenges hinder its potential as a geopolitical anchor for the SSPO's mission. These critical missing pieces include:

1. Fragmented healthcare landscape: Inefficiency, siloed stakeholders, and a lack of coordination in rural areas hinder effective collaboration and resource allocation. This hampers effective collaboration and resource allocation[9].

2. Limited visibility and support: SSPO's impact needs to be recognized by key global health stakeholders to ensure the necessary support and commitment.

3. Inconsistent partnerships: Varied strength and commitment levels in some collaborations undermine long-term sustainability and impact[10]. This inconsistency creates an unstable foundation for sustainable progress.

4. Funding vulnerabilities: Inconsistent funding jeopardizes the foundation of SSPO initiatives and hinders the flow of resources.

5. Capacity misalignment: SSPO's internal capacities may need to be expanded to fulfil the ambitious scope of the mission and avoid bottlenecks in project management.

To address these challenges and establish SSPO as a geopolitical anchor, the following measures are recommended:

1. Develop a coherent strategy with objectives, target

groups and measures that are aligned with international health priorities.

2. Enhance visibility and advocacy through proactive engagement with decision makers, global health organizations, and media representatives.

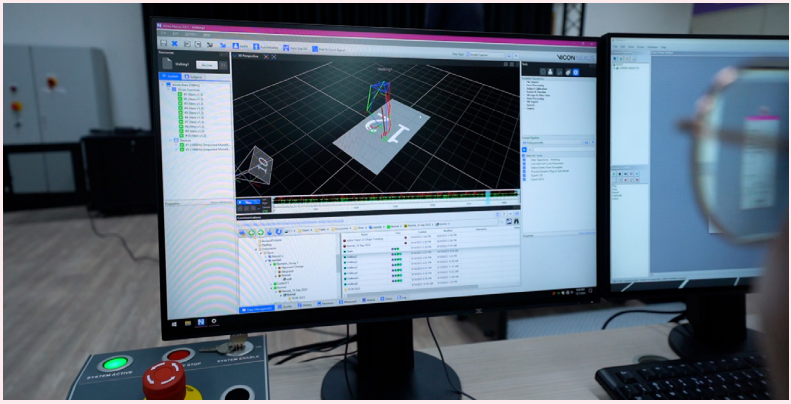
3. Forge strategic partnerships with influential institutions, negotiate long-term agreements and secure promised funding.

4. Diversify funding sources by exploring alternative mechanisms such as public-private partnerships and philanthropic donations.

5. Invest in capacity building through recruitment, training and knowledge sharing networks.

6. Leverage technology for collaboration, knowledge sharing and data exchange among partners.

7. Monitor and evaluate collaboration progress regularly and adjust strategies based on data-driven insights.



Ongoing Project and Future Plan for the SSPO, Faculty of Medicine Siriraj Hospital, Mahidol University

The strategic implementation of these measures can create a strong image of SSPO as a force driving global health equity. The proposed plan aims to identify the missing pieces, ensure proper placement, and solidify SSPO's role as a leading force for health equity globally.

"The SSPO's mission is connecting the current world and to the future and linking the quality of life to restore normalcy." said Lecturer Thanatat Charatrungolan, CPO., Deputy Director of Public Relation, Sirindhorn School of Prosthetics and Orthotics, Faculty of Medicine Siriraj Hospital, Mahidol University

Lecturer Thanatat Charatrungolan, CPO., Deputy Director of Public Relation, Sirindhorn School of Prosthetics and Orthotics, Faculty of Medicine Siriraj Hospital, Mahidol University

Challenges and Ways Forward

The SSPO collaboration, while holding immense potential to advance global health equity, faces challenges in solidifying its role as a geopolitical anchor for SSPO's mission. These challenges include:

1. Limited resources: Budget constraints, lack of specialists and inadequate infrastructure affects the ability of prosthetists to provide the necessary care.

2. Knowledge gaps: Sparse access to specialized training and knowledge sharing in small towns leads to outdated practices and limited awareness of new prosthetic orthotic technologies.

3. Affordability barriers: Despite awareness and knowledge, access to affordable prostheses and orthoses remains a major barrier in resource-limited settings. High costs prevent persons with disabilities from realizing their full potential, leaving a missing piece in the puzzle of comprehensive care.

4. Isolation and collaboration: Prosthetists and orthotists in small towns work in hidden corner, which hinders knowledge sharing, dissemination of best-practice, and collaboration in research. They exist as separate pieces of the puzzle and prevent the creation of a robust prosthetic and orthotic care system.

5. Sustainability challenges: It is difficult to find and retain qualified prosthetists and orthotists in small towns due to limited career advancement opportunities and lower salaries. This leads to a cycle of limited expertise and weakens the prosthetic and orthotic care system. It's like a puzzle piece that keeps falling out and hinders the completion of sustainable prosthetic and orthotic care.

Prof. Asavamongkolkul expressed that *"The distribution of prosthetists and orthotists is crucial. Currently, most prosthetists and orthotists work in big cities due to many factors.*

...The government, especially the Ministry of Public Health, should pay attention and find a way to distribute prosthetists and orthotists to cover more areas. There are probably many prosthetists and orthotists who would like to work in their hometown and stay close to their families. That would be a good thing."

Addressing these challenges requires strategic measures, for example:

1. Improving resource allocation and infrastructure,

2. Facilitating specialized training and knowledge sharing opportunities,

3. Implementing measures to make prostheses and orthoses more affordable,

4. Promoting connections and collaboration among prosthetists and orthotists, and

5. Incentivize qualified prosthetists and orthotists to work in smaller communities.

SSPO collaboration, while holding immense potential to advance global health equity

Addressing challenges, SSPO empowers prosthetists and orthotists in small towns to make an important contribution to global healthcare equity. Every person who regains their mobility through affordable, high-quality prostheses is an important building block on the puzzle of a world with truly accessible health. SSPO's limited capacity may require more staff, expertise and infrastructure to effectively manage large-scale projects. Despite all the obstacles, achieving SSPO's vision of creating a world with universal access to quality healthcare remains a daunting challenge.

In conclusion, SSPO is more than a healthcare model; it is a symphony of compassion, precision, and resilience. Through the patient's journey, we witness a remarkable puzzle unfold that strengthens not only the healthcare system but also the fabric of collective well-being. The SSPO's blend of academic excellence, research, and service commitment to health equity makes it as a compelling subject of interest for health policy experts concerned with the convergence of health, education, and geopolitics.

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3. Lecturer Thanatat Charatrungolan, CPO., Deputy Director of Public Relation, Sirindhorn School of Prosthetics and Orthotics, Faculty of Medicine Siriraj Hospital, Mahidol University,

4. Miss Shalida Rattananipakul, the 3rd year student of Sirindhorn School of Prosthetics & Orthotics,

5. Miss Nang Myat Myat Moe, a doctoral student from Myanmar, and

6. Mr. Prateep Chobkaew, a patient of Sirindhorn School of Prosthetics & Orthotics (Transfemoral prosthesis user).

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Medical Technology in the Current Geopolitics: Competition, Collaboration, and Technology Transfer

Medical Technology in the Current Geopolitics: Competition, Collaboration, and Technology Transfer

Sukjai Charoensuk
Yupawan Thongtanunam

Introduction

Medical technology has dramatically improved due to digital innovations and has significantly impacted various healthcare areas, such as diagnostics, treatment modalities, accessibility, and patient care and safety. However, in the current global health context, the development and utilization of medical technologies have been determined by geopolitics among the nations that develop, distribute, adopt, and utilize such innovations.

The intersection of medical technology and geopolitics has far-reaching consequences for global health and international relations. On the one hand, countries could use medical technology and healthcare innovations for global health diplomacy to promote their relationships and strengthen their soft power. On the other hand, geopolitical tensions can create barriers that deny certain countries access to learning and adopting cutting-edge medical technology. These geopolitical dynamics also influence

international collaborations in medical innovation, where nations may engage in cooperation or confrontation, influencing the exchange of health-related intelligence and resources.

This site visit explores the complex issues of medical technology in the current geopolitics by using the case study of how a Thai medical school, Mahidol University's Faculty of Medicine Ramathibodi Hospital, navigates the competitions, collaborations, and technology transfer to implement the cutting-edge medical technologies to medical education and health services systems within the context of current global and regional geopolitics.

The Faculty of Medicine
Ramathibodi Hospital, Mahidol University

Background of the Faculty of Medicine Ramathibodi Hospital and the Global Geopolitics

The Faculty of Medicine Ramathibodi Hospital of Mahidol University is one of the leading medical schools in Thailand. The school was established in 1964 by the Thai government and academically supported by the Rockefeller Foundation from the USA. This international collaboration was found after the China Medical Board (CMB), one of the early major programs of the Rockefeller Foundation later became an independent foundation, withdrawn from operating the Peking Union Medical College in Beijing, China in early 1951 after the Chinese's communist revolution in 1949. The development of medicine was thus closely linked to global geopolitics from the very beginning.

Although the Western countries have never colonized Siam or Thailand, the Rockefeller Foundation and its Western mental models of medical education and healthcare delivery systems have left an indelible mark on the country's development in terms of medical technology utilization. While there has been a traditional reliance on Western technologies, recent advances in Thailand and other Asian countries could offer more cost-effective alternatives but also present challenges and opportunities.

The Faculty of Medicine Ramathibodi Hospital faces challenging tasks of navigating between collaboration and competition amidst the current geopolitical tensions of producers and users of such medical technologies. We discuss how the Faculty of Medicine Ramathibodi Hospital navigates the complex interplay of collaboration and competition in adopting and transferring medical technology amidst current geopolitical tensions and how this impacts its role in advancing global health and international relations.

Evolution of Medical Technology Landscape

In the dynamic realm of healthcare, technological advances have become an integral part of the quest for better patient outcomes, improved diagnostics, and more efficient treatment modalities. The landscape of medical technology is constantly evolving, driven by the convergence of innovative research, cutting-edge technology, and the ever-expanding frontiers of medical science. This transformation is changing the traditional healthcare paradigms and providing unprecedented opportunities to address longstanding challenges in diagnosis, treatment, and patient care.

Assoc. Prof. Sith Phongkitkarun, M.D., the Department Chair, Department of Diagnostic and Therapeutic Radiology.

"The Department of Diagnostic and Therapeutic Radiology employs state-of-the-art and continuously evolving techniques, enabling accurate and swift diagnostic procedures for patients," said Assoc. Prof. Sith Phongkitkarun

In global health, two areas of advanced medical technologies can clearly illustrate such dynamics: biotechnology and digital health. The Faculty of Medicine Ramathibodi Hospital is an example of a medical school and a university hospital contributing to the evolving landscape of medical technology and optimizing patient outcomes through innovative treatments. Therefore, an example of how the medical school uses digital health solutions, such as United Imaging/Proton Therapy, Stereotactic Body Radiation Therapy (SBRT), and Robotic Surgeries, as well as pharmaceutical technologies such as Epoetin alfa (EPO), in the current geopolitical contexts will be discussed.

Proton Therapy

Experiences of Using New Technologies for Treatment

Ramathibodi Hospital's adoption of cutting-edge technologies, such as Stereotactic Body Radiation Therapy (SBRT), proton therapy, and the da Vinci surgical robot, demonstrates the institution's commitment to advanced patient care. These technologies have improved treatment efficacy, reduced patient recovery time, and increase healthcare quality.

Assoc. Prof. Putipun Puataweepong,M.D., a radiation oncologist at the Department of Diagnostic and Therapeutic Radiology

Assoc. Prof. Putipun Puataweepong explained that the advantage of Stereotactic body radiation therapy (SBRT) is that the radiation dose can be increased as needed to the specific area of the tumor or cancer. The precision of this therapy minimizes side effects, reduces the number of radiotherapy sessions, and increases the likelihood of cancer remission. Similarly, the da Vinci surgical robot enhances surgical precision, reduces patient pain, accelerates recovery, and lower healthcare costs.

Stereotactic body radiation therapy (SBRT)

The da Vinci surgical robot is developed and marketed by Intuitive Surgical Inc. The first machine was put into operation in Europe in 1997, and the first surgical procedure was reported[1]. The system has technical features that significantly augment the quality and control of the visual field, thereby increasing the surgeon's dexterity. It provides the surgeon operating the console with high-quality three-dimensional (3-D) vision. This technology enables intuitive telemanipulation with tremor suppression, motion scaling, and endo-wristed instruments.

Robotic Surgery

The benefits of using robotic arms in minimally invasive surgery include less pain for the patient, faster recovery, and a shorter hospital stay. This technology has also decreased the need for surgeons to counteract the shortage of experienced surgeons in some fields. In addition, surgical costs have also been reduced, and the quality of patients after surgery has improved. Most patients who undergo minimally invasive surgery can return to work quickly, which benefits the economy of the patient's family and the country. Advanced medical technology not only refers to modern devices but also includes pharmaceutical technology such as Epoetin alfa (Epo). It has become one of the most widely used drugs and is produced using recombinant DNA technology. This involves creating an almost identical form of a substance that naturally

occurs in the body - in this case, erythropoietin - by replicating human DNA in the laboratory. Epo is used to treat anemia, a deficiency of red blood cells.

Impact on Healthcare Outcomes

Geopolitics significantly impacts the adoption of medical technologies, affecting healthcare systems and patient outcomes. Collaborative efforts in Thailand, particularly in minimally invasive surgery, diagnostic radiology, and pharmaceutical advancements, positively impact patient safety, reduce hospitalization periods, and contribute to better healthcare.

Advanced medical technologies improve patient outcomes by enabling precise treatments, reducing side effects, and enhancing disease control. The da Vinci surgical robot, for instance, not only decreases medical expenses but also fosters equality in the utilization of medical services.

Prof. Kittinut Kijvikai, M.D., a urological surgeon at the Department of Surgery

"Many medical university hospitals or large private hospitals in Thailand applied the minimally invasive surgery technology to optimize treatment outcomes. For example, this technology has been used in cancer patients for kidney, liver, biliary tract, heart, urinary tract, and reconstruction surgery. To date, many robot prototypes like the Endo Assist and the FIPS endo-arm have been developed to expand the robot's functions and increase its utility." said Prof. Kittinut Kijvikai. This statement reflects the widespread adoption of minimally invasive surgical technologies, demonstrating the collaborative spirit in the Thai medical profession.

Assoc. Prof. Pavit Pienvichit, M.D., a Deputy Dean for Mission Support and Corporate Communication

Assoc. Prof. Pavit Pienvichit also said that “as technology became more mature, other countries…were able to produce similar devices. Some companies are adding new technologies to existing devices, making their products cheaper than Western ones. More choice and competitive products, more bargaining power…Overall, we have saved costs while improving our patients’ healthcare.”

Geopolitical Factors Shaping Medical Technology

Thailand's geopolitical history, collaborations with Western countries, and recent advances in Eastern countries have led to challenges and opportunities in adopting medical technology. Despite global tensions, Thailand remains open to cooperation and values equity and accessibility in medical technology.

Geopolitical factors have played a significant role since the beginning of modern medical science, following the footsteps of Prince Mahidol. Many Thai doctors and nurses have been allowed to study abroad through royal scholarships and government grants. Since then, Western medical knowledge and technology have been brought to Thailand. Geopolitical dynamics are influencing international collaboration between Thailand and Western countries, especially the United States, in education, research, and services.

Although geopolitical dynamics positively impact knowledge transfer in education and research, trade for medical technology consumption has never been compromised. Due to the high cost of technology, the issues of equity and accessibility must be considered.

Prof. Piyamitr Sritara, MD.,
Dean's Advisor of the
Faculty of Medicine
Ramathibodi Hospital,
Mahidol University

Prof. Piyamitr Sritara, a dean's advisor of the Faculty of Medicine Ramathibodi Hospital, suggested that to make healthcare more accessible to the general population, we should mitigate the constraint of a monopoly provider. Nowadays, many countries in the East, especially China, have successfully developed high technology in the medical field, intensifying competition in the medical technology market.

"I believe that within 5-10 years, we will see more biological products and advanced medical technology from China, making more choices for consumers…," said Clinical Prof. Artit Ungkanont.

Clinical Prof. Artit Ungkanont, M.D.
Dean of the Faculty of Medicine
Ramathibodi Hospital, Mahidol
University

On the threshold of the twenty-first century, global geopolitics has changed significantly, with China playing a prominent role on the worldwide stage. China has pursued a policy of expanding its technology to Southeast Asian countries. This opens opportunities for Thailand, particularly the Faculty of Medicine Ramathibodi Hospital, to collaborate in transferring new technologies. However, we need to learn more about the regulatory framework, intellectual property and patents, trade policies and tariffs, and the development of healthcare infrastructure that significantly influence the development, distribution, and utilization.

Regarding geopolitics, Prof. Kijvikai believes that Thailand could be a significant focal point for the development, distribution and use of medical technology in Southeast Asia. The country's location, a national policy of medical hubs, recognition of competent staff, and Thai hospitality are supporting factors. Therefore, Thailand must navigate the complex interplay of collaboration and competition in adopting and transferring advanced medical technology to improve the quality of life and ensure accessibility to the general population. He said, "In Southeast Asia, Thailand is a leading country to use robotic surgery… we can collaborate with surgeons in other Asian countries…we also have a nice hospitality…."

Strategies to Manage the Challenges of Collaboration and Competition in Medical Technology

To address the challenges posed by collaboration and competition in the field of Medical Technology, it is essential to contemplate adopting strategic approaches that encourage collaborative efforts and facilitate the exchange of knowledge among the countries. In the South-South collaboration perspective, partnerships, cooperation, and exchanges between countries or regions should be promoted.

Faculty of Medicine Ramathibodi Hospital travelled to Shanghai, Harbin, and Beijing People's Republic of China to negotiate cooperation with hospitals and universities, including leading medical equipment and robot manufacturers.

These collaborations involve sharing resources, expertise, and knowledge among developing nations to address common challenges, promote sustainable development, and enhance socioeconomic progress to foster solidarity and self-reliance among developing countries while promoting joint efforts for inclusive and equitable development. If such initiatives were challenging for the older generations of medical technologies, such as chemicals in the pharmaceutical products, it would be even more difficult with advanced technologies, such as digital health and biotechnology.

"We need to consider strategies for decolonization and decreasing dependencies, advocating for inclusive and fair collaboration among countries, including promoting more South-South collaborations," said Assoc. Prof. Borwarnsom Leerapans.

Assoc. Prof. Borwornsom Leerapan, M.D., Ph.D., Director of the Ph.D. program in Health System Science, Faculty of Medicine Ramathibodi Hospital

Transfer should be based on mutual understanding, shared goals, and recognition of the unique development needs and experiences of countries in the Global South. Patterns of knowledge transfer may be driven through collaborative convergence between companies, academia, and supportive government programs. An excellent example of technology transfer in Thailand that can produce essential medications and vaccines by adopting technology from Western countries is Siam Bioscience, a local biotech firm that recently manufactured the COVID-19 vaccine locally for both domestic use and for distribution to countries within the region under the authorization for World Health Organization Emergency Use.

Ultimately, we should recognize that geopolitics do exist and affect our health care systems. Thus, we should take advantage of these conflicts. Decolonizing medical technology usage and promoting technology transfer can evolve technological competition, resulting in consumer benefits.

“Technology transfer is a crucial aspect that we should promote to have more companies capable of such production in Thailand. This would allow us to access various drugs at better prices. Currently, the country spends up to 200 billion baht annually on purchasing original drugs. Using this medical technology transfer to produce generic drugs would significantly reduce the country’s expenses.” said Prof. Sritara

Future Trends and Considerations

The medical technology landscape is dynamic, characterized by dramatic advances and the constant emergence of new technologies. The relentless pursuit of ever more sophisticated medical technology promises to improve health outcomes and the individual's quality of life.

As these technological advances unfold, geopolitical differences between nations pose ethical challenges regarding equity, access, and utilization of advanced medical technology. Finding the right balance between cooperation and competition becomes imperative as the rapid development of Eastern technologies intensifies competition in the medical technology market. This encourages a critical review of the traditional donor-recipient relationship between Western and Eastern countries and paves the way for a more cooperative and mutually beneficial partnership.

Thailand is at a crossroads from being a consumer to a producer of advanced medical technology on the global stage. More significant investment in research and developing a solid healthcare infrastructure is required to meet this challenge. Strategically positioned, Thailand has the potential to become a focal point for the distribution and utilization of medical technology in Southeast Asian countries, further cementing its role in the ever-evolving landscape of global healthcare.

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Harmony and Peaceful Land between Local and Migrants to Sustain Economic and Equitable Health Accessibility

Harmony and Peaceful Land between Local and Migrants to Sustain Economic and Equitable Health Accessibility

Panarut Wisawatapnimit
Yupaporn Tirapaiwong

Samut Sakhon Province at a glance

Samut Sakhon Province

Samut Sakhon Province is in the central region, which is 30 kilometers from Bangkok and two kilometers away from the sea, with an area of 872.347 square kilometers. Samut Sakhon means "Sea and River" because it is found at the mouth of the That Chin River and the Gulf of Thailand. This province is renowned as the Thai center for the production and processing of fisheries and agricultural products. There are 9,578 factories and a total working-age population of approximately 996,349 persons, including 253,934 migrant workers. Most of them are Myanmar, with 238,043 people, followed by 8,177 Laos, and 7,672 Cambodians (Samut Sakhon Province worker, November, 2023) [1]. Therefore, factories and migrant workers have influence over the economy and development plan of this province.

The goals of the 5-year provincial development plan (2023 – 2027) of Samut Sakhon Province are to become "the high value economic, eco-industrial, sustainable development and well-being city"[2]. Since the complexity of local and migrant population, multiracial cultures, and economic condition, to achieve the provincial goals needs effective strategies to secure the geopolitics and international relations, sustain economy, maintain harmony and peaceful lives of local people and migrants, as well as promote equitable health and education accessibility.

Perception transformation toward migrant workers from discrimination to acceptance for sustaining the economy

Win Win Khaiing, translator and migrant health volunteer

"I'm happy to be in Thailand. Thai people are friendly. They like to teach and give opportunities to the Myanmar people... We wanted to study in our country but we didn't get any support. We couldn't choose where we were born." stated Win Win Khaiing, translator and migrant health volunteer. She graduated from Grade 9 in Myanmar and moved along with her older sister who came to work in a factory located in Samut Sakhon. She continued her studies in the non-formal educational system in Thailand until she graduated with a bachelor's degree in Marketing. She can speak four languages, including Burmese, Mon, Tawai, and Thai. Currently, she works as a translator at Samut Sakhon Hospital. She has also volunteered as a migrant health volunteer (MHV) to take care of the health of migrant workers living in the same dormitory with her. Miss Win Win Khaiing is a notable example of a migrant worker who moves from her country to Thailand for new opportunities in studying, working, and living.

The perceptions of Thai locals on migrant workers have changed from discrimination to acceptance because they now have gained a better understanding of how important migrant workers are to

the local and national economy. Mr. Pipob Kangpanich, Village Headman, stated that *"for about 30 years, agricultural, cold storage and processed food industrial factories have increased in this area. The community has become an industry area and more rented houses. Since Thai government policies have permitted migrants to work in factories and establishments, Samut Sakhon is one of the first places that migrant workers are interested in coming to work. In the past, the community was anti-migrant workers. But nowadays, we know that the business sector and the community are inseparable. We need migrant workers. If we are without them, the establishments or factories cannot operate".*

Mr. Pipob Kangpanich, Village Headman

Migrant workers in Samut Sakhon were susceptible to discrimination. There were many factors, including cultural differences, economic competition, fear of change, stereotypes, and lack of legal protection. For example, migrant workers might be perceived as competitors for jobs, leading to resentment or fear among local people. Differences in language, customs, and traditions could also contribute to misunderstandings, and prejudice against migrant workers.

Thailand has faced aging populations and declining birth rates. Migrant workers can help maintain a balanced demographic structure by contributing to the labor force and supporting social welfare systems. Many industries and sectors face shortages of skilled or unskilled labor. Migrant workers often take on jobs that are difficult to fill locally, ensuring the continued function and growth of key economic sectors, particularly factories, agriculture, construction, fishermen, and housemaids. Therefore, locals perceive that migrant workers play a crucial role in the local economy. They live as a family in rented rooms. They usually do activities together after returning from work, such as playing sports and making merit at the temple every Sunday. They bring diversity to the table, in cultures, languages, and perspectives to Samut Sakhon, enriching the cultural fabric.

Economic sustainability, Thai characteristics, and cultural exchange foster understanding among different communities. However, to maintain the balance of geopolitics, the national policies towards migrant workers are formulated and enforced to ensure the national and health security of both local people and migrant workers.

Migrant workers' jobs

National and health security policies for migrant workers toward equity

Thailand's 20-Year National Strategy (2018-2037) envisions becoming a developed country that provides opportunities for all and creating an emphasis on social equality[3]. The Royal Thai Government acknowledges the importance of a robust, integrated, and modernized social protection system as a key development priority. Thailand's current social protection system is relatively well developed; however, the implementation of programs and schemes involves multiple ministries and various entities at the national and sub-national levels.

Thailand has two official channels for regular migration from Myanmar, Cambodia, Lao People's Democratic Republic and Vietnam: (1) Memorandum of Understanding (MoU) and (2) border pass migrant workers. Illegal migrant workers can periodically regularize their status through a nationality verification (NV) process, which is provided by the Thai Government on an ad hoc basis**.** Thailand has three social protection programs available for registering migrant workers, with differential access depending on the type of regular status the migrant worker has. These are the Social Security Fund (SSF), the Workmen's Compensation Fund (WCF), and the Migrant Health Insurance Scheme (MHIS).

To ensure national and health security, there are laws and regulations for monitoring and controlling migrants to work and live in Thailand. According to regulations of the Thai Government, all migrant workers who register and receive a temporary ID card and apply for a work permit that year are required to buy health insurance. Migrant workers must have a health check before applying for a job. Emphasis is placed on screening such as tuberculosis, malaria, and elephantiasis.

Health System Management Policy for Migrant Workers toward health accessibility and equity

Mr. Surawit Sakdanupab, MD, Provincial Chief Medical Officer of Samut Sakhon

"For public health strategies of Samut Sakhon provincial public health office, we focus on four Excellences and public health for migrants." Mr. Surawit Sakdanupab, MD, Provincial Chief Medical Officer of Samut Sakhon.

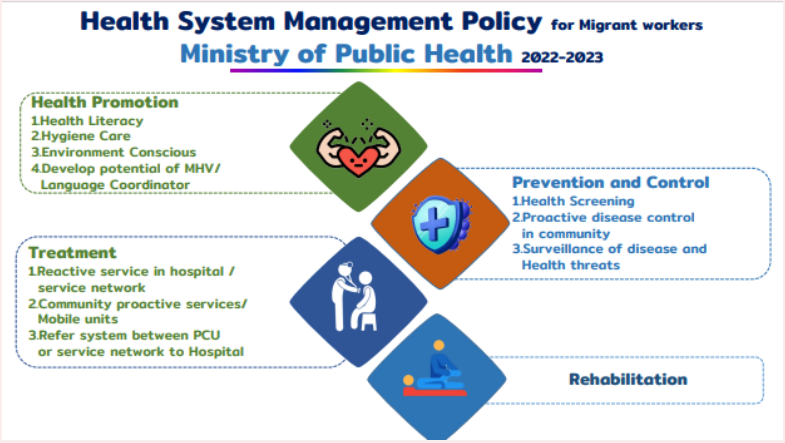

Figure 1 Health System Management Policy for Migrant Workers

Samut Sakhon provincial public health office under the Ministry of Public Health has 4 main strategies that are similar to other provincial public health offices, including 1) promotion, prevention, and protection excellence, 2) service excellence, 3) people excellence, and 4) governance excellence (Figure 1). Policies related to care for migrants are also one of the five main strategies to reduce health impact, prevent diseases, and promote healthy conditions. Health examination before applying for work and annual health checks are applied to all workers. *"The goal of health examination for migrant workers is to detect important serious infectious diseases. This may be a significant problem for our hospital that have to bear more of the burden. We don't focus on profit."* Miss Nahathai Chulkarat, RN, Assistant Director of Primary Services and Foreign Worker Quality Development, Samut Sakhon Hospital.

Health insurance is also restricted to all workers. Social Security Fund (SSF) and the Migrant Health Insurance Scheme (MHIS) are provided. Migrants can also buy health insurance from government or private hospitals. The health insurance for a registered migrant worker of Samut Sakhon Hospital is 2,100 baht per year and 365 baht for 0 – 7-year-old children. For an illegal migrant worker, health insurance is 2,700 baht per year. These cover services on health promotion, prevention and control, treatment, and rehabilitation.

Samut Sakhon provincial public health office provides many health activities and services for migrant workers, including teacher training in child care centers, health education on family planning in the community, DM/HT corners in factories, proactive antenatal care service in factories and communities, home visit for postpartum mother, child development assessment, basic immunization vaccine service, environment protection in the communities, and bilingual health channels and media such as Facebook, TikTok, and Line Group.

Migrant health volunteer (MHV) training and translator training for taking care of the health of migrant workers in workplaces and communities have also developed. MHVs have been trained since 2007 and have had about 6,921 persons since 2007-2022. They play important roles in supporting health system

management policies for migrants with voluntary. Roles of MHVs include 1) providing health knowledge in the community/ dormitory/factory, 2) promoting health and disease surveillance with public health workers in the community, 3) assisting public health workers in promoting health agenda in the community, and 4) reporting their performances and notifying local news in application “MHV Online” and Facebook. MHVs receive knowledge on health issues continuously both in Thai and Burmese. Currently, factories or establishments that have more than 100 employees need to have MHVs.

Migrant health volunteer training

Humanity approach and friendly service provision in hospitals

Mr. Supparit Hengkrawit, MD, Director of Samut Sakhon Hospital

"We focus on humanity and ethics. Therefore, we take care of migrants the same as Thais. For illegal migrants, we also treat them although they cannot pay. The hospital accepts the burden of this cost." Mr. Supparit Hengkrawit, MD, Director of Samut Sakhon Hospital. This provincial hospital is the forefront in taking care of migrant workers in Samut Sakhon. All health personnel in this hospital recognize the important roles of migrant workers in Samut Sakhon on the economy. Therefore, the hospital has improved its services for migrants, such as a one-stop service, and providing friendly services to overcome any obstacles, especially language barriers. *"The main problem in providing service for migrant workers is communication. Therefore, my hospital separated the special clinic for migrant workers. This is not discrimination, but it is a better service to be more convenient and faster. We have translators and use the same care guidelines as Thai people." Mr. Suwatchai Chadklai, MD, Physician of Samut Sakhon Hospital*

Healthcare personnel and patients in outpatient clinic at Samut Sakhon Hospital

Migrant clinic

In the past, migrant workers have faced several challenges when accessing healthcare services in Samut Sakhon. Language barriers were the main problem in which, they could encounter difficulties in communication due to language differences. This could lead to misunderstanding, hindering effective communication with health care providers, and affecting the quality of care. Limited access to healthcare services is another problem that they face barriers in accessing healthcare services, including legal restrictions, lack of health insurance, or financial constraints. This could result in delayed or inadequate medical care.

Nowadays, the hospital provides friendly services for migrant workers. These services include: 1) translators in the hospital 24 hours a day in both outpatient and inpatient departments, 2) an outpatient clinic for migrant workers providing one-stop service with at least two translators (one in the patient screening section and another in the examination room with a doctor), 3) organizing service days in special clinics where services cannot be arranged separately, such as the anti-natal care and tuberculosis clinics, and 4) proactive services in the community such as home visit.

Patient registration by MHV

Health screening by MHV

Health education by MHV

Health translation by MHV in health examination room

Network collaboration for migrant workers

Providing effective healthcare for migrant workers in Samut Sakhon requires collaboration from a network involving government and public health agencies, healthcare providers, village health volunteers (VHVs), MHVs, nonprofit organizations and NGOs, legal aid organizations, employers, and educational institutions.

Public health agencies in Samut Sakhon include three government hospitals, ten private hospitals, and 54 sub-district health promoting hospitals. These public health agencies and their healthcare providers contribute to creating an inclusive and accessible healthcare system that meets the unique needs of migrant workers. They offer language assistance services, such as interpreters and translated materials to overcome language barriers and facilitate effective communication. They also establish mobile health services or community outreach programs that can reach areas with high concentrations of migrant workers, especially those in remote or underserved locations.

Collaboration with various sectors is essential to address the multifaceted challenge associated with the healthcare of this vulnerable population.

- Employers and business sectors provide health insurance coverage for migrant workers, promote health and safety in the workplace, and provide healthcare benefits. For example, factories allow their employees to participate in MHV training on Saturday which is a working day with full wages. Some factories promote the well-being and happiness of their employees by adjusting the work to accommodate pregnancy. These procedures apply to both Thais and migrant workers.

- Legal aid organizations address legal concerns related to healthcare access and immigration status, ensuring the fear of legal consequences does not deter seeking medical care.

- NGOs and community-based groups that specialize in migrant issues enhance outreach and service delivery. For example, the Raks Thai Foundation promotes knowledge about the rights of migrants. IOM Thailand supports the health of migrants and MHV training. Labor Protection Network (LPN) improves the lives of migrant laborers by addressing the injustice brought on by discrimination and inequality. PROUD Association promotes health and family planning of migrants and education in children.

- Faculty of Tropical Medicine, Mahidol University has organized health education training for MHVs on the specific health needs of migrant populations to empower them with health knowledge, ensuring that they can help healthcare providers to take care of migrant workers in their communities. The counseling center for migrants' right, health and education is also established by collaboration between Faculty of Tropical Medicine, Mahidol University, Bang Krachao Subdistrict Administrative Organization, communities, Thai locals and migrants in Pakbo – Nuam temple community.

Migrant health volunteer training by Faculty of Tropical Medicine, Mahidol University

The counseling center for migrants

- Educational institutions provide education for migrant children.

- Technology companies develop application platforms that provide health-related information in multiple languages.

A whole-of-society approach: the key to battle COVID-19 outbreak in Samut Sakhon

In 2020, Samut Sakhon faced with COVID-19 outbreak. A whole-of-society approach was used to battle COVID-19 and maintain the business of factories and establishments. Mr. Surawit Sakdanupab, MD, Provincial Chief Medical Officer of Samut Sakhon stated *"For example, a large canned fish industry company with three to four branch companies composed of three or forty thousand employees. During COVID-19 outbreak, the companies still operated while controlling this disease simultaneously. It was not affecting their export business and products. All sectors collaborated. Samut Sakhon governor was a leader of this mission and collaborated with the Provincial Chief Medical Officer, hospitals, companies, factories, NGOs, local people, and migrants. Health screening, factory isolation, bubble and seal policies, limited traveling back and forth between residence and work only, and the COVID-19 vaccine were used as effective strategies. Many sectors also donated money and materials for 2,000-bed field hospitals."*

COVID-19 management and control during outbreak

All network plays important roles in this whole-of-society approach to managing and controlling COVID-19 and surveillance of other emerging diseases. For example, last year, there was a monkeypox outbreak. The Provincial Chief Medical Officer of Samut Sakhon distributed information to all networks to report the cases to health personnel. The monkeypox outbreak could be controlled rapidly. Therefore, this approach needs to be further developed to ensure preparedness for health situations and apply in normal situations.

Equal access to learning opportunities

"Similar to Thai people, migrant children born in Thailand or following their families to Thailand can study and receive financial support for food and milk until grade six."

Mrs. Siriluk Phanbanlamp, President of Bang Krachao Subdistrict Administrative Organization

Mrs. Siriluk Phanbanlamp, President of Bang Krachao Subdistrict Administrative Organization. Migrant children have learning opportunities for both children who move to Samut Sakhon with their parents or children born in Thailand. The government schools accepted migrant children to study from kindergarten to grade nine free of charge as Thai children. Children can also continue their studies according to their needs. After they graduate grade nine, they will receive a quota to continue studying in vocational or high schools as Thai students. However, most of them choose to continue their studies in a vocational field.

This may be because Samut Sakhon is an industrial city where children can work in the future. *"Thai and migrant students are not separate. They study in the same classes and receive lunch, milk, and vaccines as Thai students. For migrant students who have language barriers for the first period, they will study in the preparation classes to learn Thais before entering the regular classes. Companies and establishments also support educational opportunities for Thai and migrant children."* Miss Rodsawadee Srisukanya, teacher of Watsrisutaram School.

Miss Rodsawadee Srisukanya, teacher of Watsrisutaram School

Thai and migrant students' activities in Watsrisutaram School

Key success factors

Lesson learned from Samut Sakhon showed that situations related to migrants and local people have been better from time to time. To harmonize and develop a peaceful land in Samut Sakhon that mixes Thais and migrants, key success factors are fundamental dimensions of lives and living including well-being, safety, equality, equity, and humanity.

Figure 2 Key Success Factors

To stimulate and encourage migrants to work and stay in this province, well-being, safety, and happiness in working and living are important. Migrant acceptance from local people and employers is crucial. Many migrants stay in Thailand for many years. They become friends with Thais and other ethnic migrants. Some of them were born in Samut Sakhon and have continued to study and live here. Because of their behaviors and alignment

in Asian cultures, especially respect for Buddhism and seniority, as well as service mind, local people feel safe and accept them. *"The small number of migrant workers creates problems. They are very compliant and like to do volunteer activities together in the temple or their communities. We live together in harmony."* Mrs. Siriluk Phanbanlamp, President of Bang Krachao Subdistrict Administrative Organization.

Equality in working for all people is enforced in Thailand. All workers have their rights, wages, and welfare as same as Thai workers. This increases the need for migrants to work in Samut Sakhon and Thailand.

Policies driving health and educational equity are components for migrants to live in Samut Sakhon. They can access health care services using the same standard as Thais although they have or do not have health insurance. Their children can study in local schools with educational opportunities similar to Thai children. These promote equity and accessibility to health and education which are basic and central needs of Thais and migrants.

A humanitarian approach is essential for all people. Thai characteristic is caring and humiliating. These foster migrant living. Healthcare facilities, schools, and establishments concern the humanity of all people. NGOs are also important to support

humanitarian issues. This is shown distinctly during the COVID-19 outbreak. All sectors have been together and use a whole-of-society approach to battle and control COVID-19.

Challenges

Many challenges to maintaining the harmonious and peaceful lives in Samut Sakhon include illegal migrants and coordination and harmony between all sectors.

Illegal migrants still are a main challenge of Samut Sakhon. It makes difficult lives for them and their families. Although Thailand needs migrant workers to drive the Thai economy, national and health security are still a concern of the host country and local people. This problem is complex; therefore, Thailand allows illegal migrants to register and become legal migrants in ad hoc. However, for humanitarianism, illegal migrants can access health care services if needed.

There are many sectors involved with migrants, including public, private, non-profit organizations, and civil sectors. Geo-politics and international relations are also involved. Coordination and harmony between all sectors are still a challenge.

Ways Forwards

The strategies to increase the effectiveness of a whole-of-society approach; make clear roles, responsibilities, and value of migrant health volunteers; coordinate volunteer work between Thai village health volunteers and migrant health volunteers, and drive policies focusing on "the high value economic, eco-industrial, sustainable development and well-being city" and supporting "leave no one behind" are needed for further development to sustain the well-being of all people in Samut Sakhon, and the economy of the nation.

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7. Mr. Thanapat Puangpet, MD, Deputy Director of Samut Sakhon Hospital;

8. Ms. Ubonrat Chaimahapruek, MD, Deputy Director of Samut Sakhon Hospital;

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10. Ms.Thirunda Suttipong, MD, Laboratory Director of Samut Sakhon Hospital;

11. Mr. Suwatchai Chadklai, MD, Physician of Samut Sakhon Hospital;

12. Ms. Nahathai Chulkarat, RN, Assistant Director of Primary Services and Foreign Worker Quality Development of Samut Sakhon Hospital;

13. Ms. Siriporn Charoenpongnara, RN, Director of Nursing Organization of Samut Sakhon Hospital;

14. Mr. Anan Sutthakun, Public Health Technical Officer, Practitioner Level, Samut Sakhon Hospital;

15. Mrs. Siriluk Phanbanlamp, President of Bang Krachao Subdistrict Administrative Organization;

16. Mr. Pipob Kangpanich, Village Headman Moo 8;

17. Ms. Win Win Khaiing, translator and migrant health volunteer of Samut Sakhon Hospital;

18. Miss Rodsawadee Srisukanya, teacher of Watsrisutaram School;

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20. Asst. Prof. Dr. Ngamphol Soonthornworasiri, Faculty of Tropical Medicine, Mahidol University.

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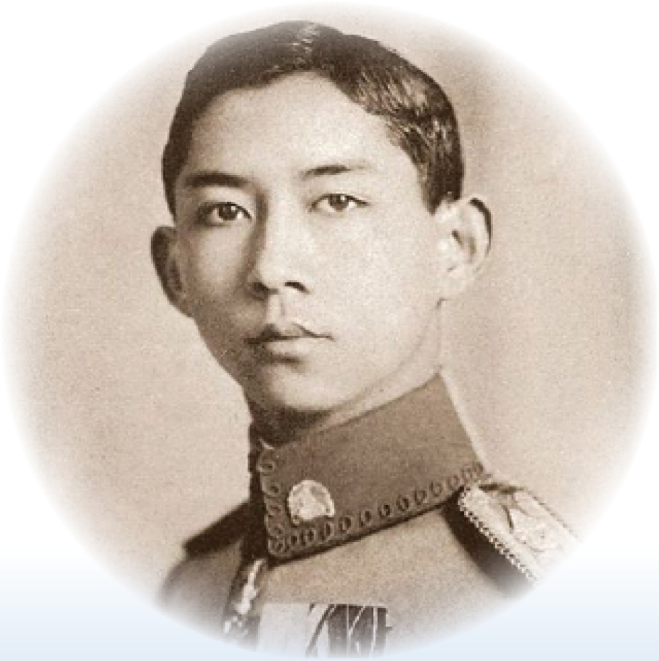

"True Success is not in the learning, but in its application to the benefit of mankind."

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