Their majesties

Bhumisiri mangalanusorn

Bhumisirimangalanusorn

The Stream of Life ✚ The Preservation of Forests

Bhumisirimangalanusorn:
The Protective Canopy of Their Majesties

The Stream of Life ✚ The Preservation of Forests

The Bhumisirimangalanusorn Building


อาคารภูมิสิริมังคลานุสรณ์

A New Dimension of Giving...to all Life

Message from Secretary General of the Thai Red Cross Society

King Chulalongkorn Memorial Hospital is under the authority of the Thai Red Cross Society and was founded on May 30, 1914. It has given continual service to sick patients for over 105 years, keeping to its core mission of providing medical treatment for nourishing, and strengthening the health of the patient. It has provided programs in preventive health care to the general public and specialized programs to people with disadvantages. At the same time, the hospital is continually developing and expanding its services to become a very trustworthy institution, having responded to the gradual and growing demands of patients both locally and globally.

It is with great pleasure and rejoicing to acknowledge that the King Chulalongkorn Memorial Hospital has moved forward in its development project by the building of two massive interconnecting buildings of 29 floors each, to establish in one place a complete medical treatment center able to cure all diseases; and at the time, serve as a research centre for excellence in medicine. Adding greater joy to this success was the gracious benevolence of the Late His Majesty King Rama IX who named this building, “Bhumisirimangalanusorn,” meaning the auspicious memorial building of Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother.

The purpose of this building is to integrate all the scattered services previously located in separated buildings, and unify them conveniently under one roof, such as, the Admissions Unit, Operating Rooms, and Intensive Care Units. Consequently, each unit can attain greater efficiency and effectiveness by being able to share central resources among themselves and deliver the best facilities with greater safety measures to patients.

I would like to take this auspicious occasion to humbly pray for the blessing of the Threefold Refuge and all sacred entities that you believe in, to protect all of you, every administrative personnel of the hospital, the doctors, nurses, staff and all personnel working for King Chulalongkorn Memorial Hospital. May it bring you happiness and success in life, that you receive everything wished for, complete with good health, physical and moral strength, and wisdom, to enable you to perform the advances of medical service offered in King Chulalongkorn Memorial Hospital under the authority of the Thai Red Cross Society, and so, to attain its goal of medical excellence with sustainable achievements.

Phan Wannamethee

Phan Wannamethee
Secretary General

Message from Chairman of
King Chulalongkorn Memorial Hospital Steering Committee

The King Chulalongkorn Memorial Hospital of the Thai Red Cross Society is a major-sized health care institution that cures rare and complicated diseases. The hospital was founded 105 years ago, and since then has continually developed its ability and competency to administer better treatment to patients by seeking out new studies, research and analysis on health care subjects. As a consequence, The King Chulalongkorn Memorial Hospital today is very advanced in medical services. One reason to best explain this success is the structure of its management. The hospital and the Faculty of Medicine of Chulalongkorn University are managed by the same administrative committee. Therefore, the coordination between the two organizations runs very smoothly, and in the same direction. The proof can be witnessed by the completion and establishment of the Bhumisirimangalanusorn Building. It was designed to combine all hospital administrative services and medical treatments into one center for excellence; the one location greatly facilitates delivery of quality services and benefits to patients. Also, the arrangement provides more flexibility for personnel to give better service, each within their suitable, allocated compound. All medical personnel in King Chulalongkorn Memorial Hospital are trained to give mindful service from their heart and soul. The ethical model of the hospital is “Integrity, Responsibility and Generosity.” This is the guiding principle of Virtue for the Hospital of the School of Medicine for Thailand.

On the occasion of the opening of the Bhumisirimangalanusorn Building, together we celebrate the Building that represents the memorial of the auspiciousness of Their Majesties, King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother. Everyone should embrace this auspiciousness and always remember their royal benevolence to all of us. This memorial serves as an inspiration to later generations to further advance the prosperity of our nation in the future.

Kasem Watanachai

(Prof. Emeritus Kasem Watanachai, M.D.)

Chairman of King Chulalongkorn Memorial Hospital Steering Committee

Remarks from Director of

King Chulalongkorn Memorial Hospital

The King Chulalongkorn Memorial Hospital is under the authority of the Thai Red Cross Society has been opened for treatment to the public for more than a century. With a strong determination to continually strengthen its development in all aspects, it sought to bring its progress to international standards. The establishing of this Building, the Bhumisirimangalanusorn is another form of development originating from the great intention of the hospital to give the general public a full cycle of medical services, including medical research to support the medical treatment, and to follow the aspirational path of every one of our beloved Kings in the Chakri Dynasty. The inspiration has led to the founding of this Medical Center of Excellence which offers a complete cycle of medical treatment. The building has graciously been granted the name, "Bhumisirimangalanusorn," for the auspicious memorial building which honors His Majesty King Rama IX The qreat and Her Majesty Queen Sirikit The Queen Mother.

With the significant meaning of the building, the great virtues of Their Majesties, and the strong determination of everyone who works for the hospital executives, staff and personnel alike, this Building's great achievement is that it meets the needs of people at all levels, from all races and beliefs. It becomes the hospital that is fully equipped with medical equipment, modern technologies, highest security, and all of these are surrounded with great facilities.

The success of the establishment of the Bhumisirimangalanusorn Building is greatly due to the gracious support of Her Royal Highness Princess Maha Chakri Sirindhorn, the Executive Vice President of the Thai Red Cross Society and Chairperson of the Construction Committee of the Bhumisirimangalanusorn Building. Tribute should also go to the unified powers and souls of all Thais for coordinating support for the construction of the Building to the benefit of the general public.

On behalf of the Director of King Chulalongkorn Memorial Hospital, I would like to thank everyone from all sectors who was involved in the process of the project. Most importantly, it complies with the royal initiation of His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother for enhancing improvement for all Thais to have good health and a good quality of life. In Their Majesties' mind, The people are the most important resource in the development of the country.

At the same time, I hope that this book: "Bhumisirimangalanusorn: The Protective Canopy of Their Majesties" will be academically beneficial to the public. It serves as the means to declare that King Chulalongkorn Memorial Hospital is prepared to give everyone outstanding medical and heartfelt service throughout time.

Prof. Suttipong Wacharasindhu, M.D. MRCP, FRCPCH

Director

King Chulalongkorn Memorial Hospital

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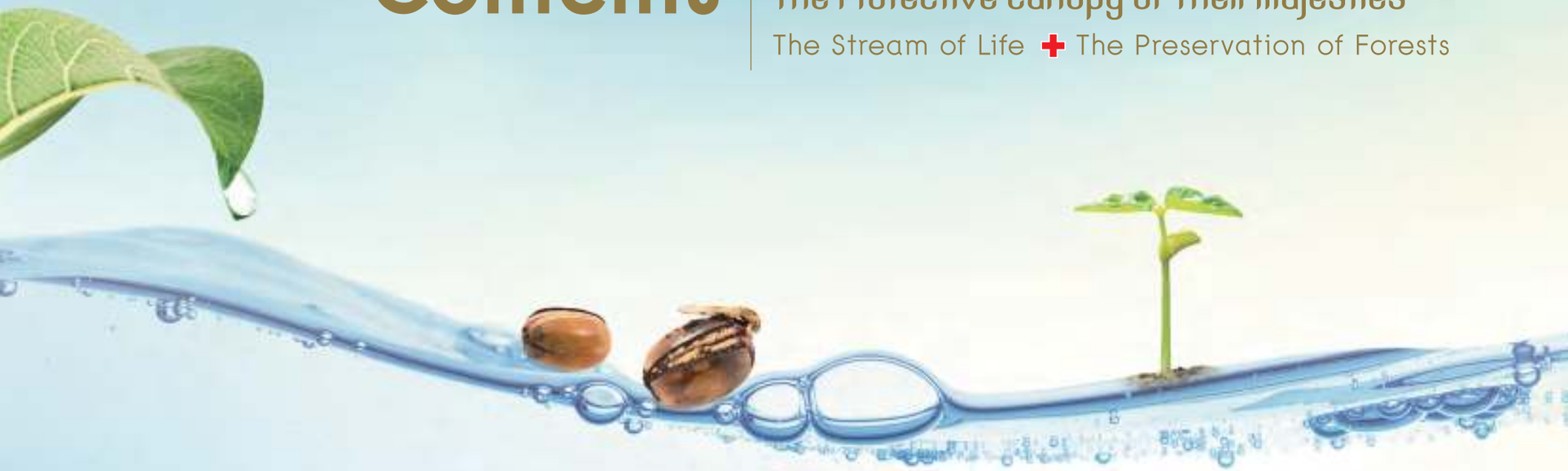

The Bhumisirimangalanusorn Building

The Stream of Life ✚ The Preservation of Forests

His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother have always been the center of love given by all the Thai people. They look after every Thai, as if they are an extensive canopy of sky, giving shade of clear happiness to life underneath. The royal couple demonstrate their interest for the well-being of their people in the way they live, their education and by maintaining concern for the state of the nation's health. Their royal intentions are to increase better living standards for everyone, so that a person can be independent and reliant on oneself, thereby reducing suffering and making for sustainably happiness.

"The Stream of Life and The Preservation of Forests"

As a ***"stream"*** of water nurtures life on earth, so did His Majesty King Bhumibol Adulyadej The Great nurture his people. He recognized this natural fact when he emphasized the importance of water as an essential substance for human life, from consumption to its utilization for cultivation. Consequently, His Majesty diligently managed to develop many sustainable water resources, urging awareness in the people by enlisting their help in recognizing the importance of preserving this natural resource for future generations. As he mentioned many times in his royal sayings: ***"Men can live if there is water; without water, there will be no living men."*** Under His Majesty's thoughtful guidance, many royal initiative projects were started.

Her Majesty Queen Sirikit The Queen Mother his beloved wife, shared his dedication and responsibility in wanting to elevate the living standard of Thai people in general. Her Majesty saw that in order to achieve development of his many royal initiative projects in sustainable water resources, the “natural forest” element needed to help in protecting and preserving his desired “stream.” With this prospect in mind, in a speech she said, ***“If His Majesty is considered as “Water,” I will be the “Forest” and the “Forest’ will always be supportive and loyal to “Water.”*** Within her royal vision, many royal initiative projects were created in the same manner as those of His Majesty King Bhumibol Adulyadej The Great. Some examples of the projects are: The project “Pa Rak Nam” (Forests Love Water), which later became known as the “Wilderness Society of Thailand” and the "Little House in the Big Forest” projects.

The royal couple, King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother are considered an inseparable pair, existing like an eternal connection between the two natural resources, ***“Stream and Forest,”*** providing nourishment to the hearts of all Thai people and likened to delivering great fertility to the land so that it may prosper.

The name, Bhumisirimangalanusorn Building, was graciously granted by His Majesty King Bhumibol Adulyadej The Great. It derives from the combination of the abbreviation of the Majestic names, ***“Bhumi”*** of His Majesty King Rama IX and ***“Siri”*** of Her Majesty Queen Sirikit The Queen Mother. The extension of the name ***“mangalanusorn,”*** is a compound word from the two separate ones: ***“mangala”*** or ***“mongkhol,”*** meaning ***“auspicious”*** and ***“anusorn,”*** meaning a ***“memorial.”*** When the two words are combined together, its means ***The Memorial to Their Majesties’ ‘Auspiciousness’.*** Thus, the building is considered doubly-blessed with the names of Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother in its dedication.

Given the distinction of having Their Majesties’ names on the building, this Medical Centre of Excellence stands as a meaningful presence to the auspicious and endless concern of Their Majesties King Bhumibol and Queen Sirikit toward the welfare of the Thai people. Their royal kindness as well as their wise royal concept of ***“The Stream of Life and Preservation of Forests”*** will always give guidance to the ongoing development of sustainable, consistent, and excellent professional medical care and nursing services in Thailand.

ที่ รส ๐๐๐๑.๔/ ๒๖๑๔๗

สำนักราชเลขาธิการ
พระบรมมหาราชวัง กทม. ๑๐๒๐๐

๑๖ พฤศจิกายน ๒๕๕๒

เรื่อง พระราชทานพระบรมราชานุญาตให้ใช้ชื่อธนาคาร "ภูมิสิริมังคลานุสรณ์"

เรียน เลขาธิการสภากาชาดไทย

อ้างถึง หนังสือสภากาชาดไทย ที่ กร. ๖๖๔๖/๒๕๕๒ ลงวันที่ ๒๔ สิงหาคม ๒๕๕๒

ตามหนังสือที่อ้างถึง ขอให้นำความกราบบังคมทูลพระกรุณา ขอพระราชทานชื่อธนาคารรักษาพยาบาลรวม และธนาคารศูนย์ความเป็นเลิศทางการแพทย์ ซึ่งเป็นอาคารที่เชื่อมต่อกัน ขนาดความสูง ๒๙ ชั้น โรงพยาบาลจุฬาลงกรณ์ สภากาชาดไทย เพื่อเฉลิมพระเกียรติเนื่องในโอกาสมหามงคลเฉลิมพระชนมพรรษา ๘๐ พรรษา ๕ ธันวาคม ๒๕๕๐ ในการนี้ สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี ทรงเสนอชื่อประกอบพระราชดำริ ว่า "ภูมิสิริมังคลานุสรณ์" มีความหมายว่า อนุสรณ์ที่เป็นมงคลของมหามงคลยิ่ง ความละเอียดแจ้งอยู่แล้ว นั้น

ได้นำความกราบบังคมทูลพระกรุณาทราบฝ่าละอองธุลีพระบาทแล้ว พระราชทานพระบรมราชานุญาตให้ใช้ชื่อธนาคารดังกล่าวว่า "ภูมิสิริมังคลานุสรณ์" ตั้งแต่วันที่ ๑๑ พฤศจิกายน ๒๕๕๒

(ท่านผู้หญิงนุศรี วีระไวทยะ)
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ด่วนที่สุด

ที่ วธ ๐๐๐๙/ส.ศ.ศ

สำนักงานราชบัณฑิตยสภา
สนามเสือป่า เขตดุสิต
กรุงเทพฯ ๑๐๓๐๐

๓๗ พฤษภาคม ๒๕๕๗

เรื่อง ขอความอนุเคราะห์ใช้คำ "ภาษาถิ่นอุบล" ของอาคาร "อุบลิศิลปสาธุการ"

เรียน คณบดีคณะแพทยศาสตร์ อุบลราชธานีมหาวิทยาลัย

อ้างถึง หนังสือคณะแพทยศาสตร์ อุบลราชธานีมหาวิทยาลัย ที่ ปชส ๐๐๐๐/๒๕๕๗
ลงวันที่ ๑๗ มีนาคม ๒๕๕๗

ตามหนังสือที่อ้างถึง สถาปนิกได้ออกแบบอาคารเรียนอาคาร "อุบลิศิลปสาธุการ" ซึ่งปัจจุบันยังไม่มีคำเฉพาะที่ภาษาถิ่นอุบล คณะแพทยศาสตร์ อุบลราชธานีมหาวิทยาลัย จึงขอความอนุเคราะห์ดำเนินการประสานสถาบันราชบัณฑิตยสภาพิจารณาคำเฉพาะที่ภาษาถิ่นอุบลของอาคารดังกล่าว ความละเอียดทราบแล้วนั้น

สำนักงานราชบัณฑิตยสภาได้ตรวจสอบคำเฉพาะที่ภาษาถิ่นอุบลของอาคารดังกล่าว ปรากฏว่าไม่มีคำที่ใช้ในภาษาถิ่นอุบลของอาคาร "อุบลิศิลปสาธุการ" ดังนั้น จึงขอเสนอคำว่า "ปราสาทแสงธรรมอุบลราชธานี"

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(ปราสาทแสงธรรม ศุภัสนะ)
เลขาธิการราชบัณฑิตยสภา

ที่ วธ ๐๐๐๙/ว.๑๔๒

สำนักงานราชบัณฑิตยสภา
สนามเสือป่า เขตดุสิต
กรุงเทพฯ ๑๐๓๐๐

๓๗ พฤษภาคม ๒๕๕๗

เรื่อง ขอความอนุเคราะห์ใช้คำ "ภาษาถิ่นอุบล" ของอาคาร "อุบลิศิลปสาธุการ"

เรียน คณบดีคณะแพทยศาสตร์ อุบลราชธานีมหาวิทยาลัย

อ้างถึง หนังสือคณะแพทยศาสตร์ อุบลราชธานีมหาวิทยาลัย ที่ ปชส ๐๐๐๐/๒๕๕๗ ลงวันที่ ๑๗ มีนาคม ๒๕๕๗

ตามที่ท่านได้มีหนังสือให้ราชบัณฑิตยสภา สมาคมภาษาและหนังสือแห่งประเทศไทย ฯ สถาบันภาษาอุบลราชธานี ออกเสียงภาษาอุบลราชธานี ภาษาถิ่นอีสานเหนือ ภาษาลาวอีสาน ภาษาลาวเวียงจันทน์ ภาษาลาวพวน ภาษาอุบลราชธานี ไทยพวน ภาษาอุบลราชธานี สถาบันภาษาไทย ฉบับภาษาไทย จำนวน ๒,๐๐๐ เล่ม และฉบับภาษาอังกฤษ จำนวน ๕๐๐ เล่ม เพื่อมอบให้แก่ผู้มีอุปการคุณ และผู้มาชมงาน ความละเอียดแล้วนั้น นั้น

ขอบคุณมาเพื่อทราบ

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(อุบลผู้ยอยศ ศิลปสาธุการ)
รองอธิบดีกรมส่งเสริมวัฒนธรรมภูมิภาค ฯ สถาบันภาษาอุบลราชธานี

กองศิลปวัฒนธรรม
โทร. ๐ ๒๒๘๘ ๑๕๕๖-๑๕๑ ต่อ ๒๑๑๕๔, ๒๑๑๕๕
โทรสาร ๐ ๒๒๘๘ ๑๕๕๕
ไปรษณีย์อิเล็กทรอนิกส์ opubgroyan.go.th

กองศิลปวัฒนธรรมและส่งเสริมวัฒนธรรมภูมิภาค ฯ สถาบันภาษาอุบลราชธานี
โทร. ๐๕ ๒๑๑๐, ๐๕๒๕๖ –๗ ต่อ ๒๑๑๕๔, ๒๑๑๕๖, ๒๑๑๐
โทรสาร. ๐๖ ๒๑๑๐ ๐๖๗๗

Continuation of
Royal Support to all Thais

The original foundation of the King Chulalongkorn Memorial Hospital of the Thai Red Cross Society began in the reign of King Rama V. His Majesty, with his thoughtful and considerate mind, had foreseen early on that public health was a basic need for all Thai people. Therefore, when the Red *Unalom* Society was established in 1893, he accepted the society to be under his royal patronage. The society later changed its name to The Siam Red Cross Society which today is The Thai Red Cross Society.

Further development was in the reign of King Rama VI, when His Majesty accumulated the donated funds from the royal family, sons and daughters of His Majesty King Rama V, and combined it with the budget of the Red Cross Society to build the first hospital for the Thai Red Cross Society. His royal intent was to support the most beneficial medical care to the Thai people. He also wanted it to be known that Thai medical care was advanced, as seen by this modern hospital, and was at as accomplished a level as found in other civilized countries. His Majesty King Rama VI named this hospital after his Father, “Chulalongkorn Hospital,” in honor of His Majesty King Rama V. His royal intention was evident as it appeared in his royal speech, given on the opening day of the hospital on May 30, 1914.

"....It is our hope that this hospital, founded through the wishes of all of us, as sibling patrons, would create something of great benefit and service to the whole society; this is what we donors put our faith in. In addition, our hope and expectations are that the hospital would become renown, demonstrating we are as competent as others, and that our reputation is secure in that ...we can cure our patients. The hospital adds greatly to the prestige of Siam, as well as being of great benefit to all people. ..... Whatever is beneficial to the public is also our happiness because when the people are happy, that happiness returns as a comfort to us all...."[1]

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[1] "The Royal Speech at the opening ceremony of King Chulalongkorn Memorial Hospital" from **the Royal Gazette Volume 31**, June 14, 1914, page 570 -571.

In the reign of King Rama VII, His Majesty continued the initiatives of His father King Rama V and his elder brother King Rama VI. He confirmed the importance of medical care and public health in Thailand for the benefit of the Thai people and the country. He also took the position as the Royal Patron of the Thai Red Cross Society.

1

2

His Majesty King Rama VIII gave his royal initiation for the founding of a medical school in Thailand to train and provide medical personnel for health facilities throughout the country. Henceforth, he established the Faculty of Medicine at Chulalongkorn University in conjunction with The King Chulalongkorn Memorial Hospital.

When His Majesty King Rama IX came to the throne, one of his main royal concerns was for the betterment of health and sanitary conditions of the Thai people by attempting to improve living standards. He supported the development and advancement of doctor and nurse training. His Majesty accepted the position as Patron of the Thai Red Cross Society, and encouraged the expansion of various activities of the King Chulalongkorn Memorial Hospital by his support for many projects. He presided over the opening of the new medical buildings within its premises; he paid royal visits to the hospitals to observe medical operations, and he gave moral support to patients. On many occasions, His Majesty donated his private royal funds for the development of several pursuits of the hospital. His royal patronage has been of great benefit to the development of King Chulalongkorn Memorial Hospital.

Furthermore, His Majesty King Rama IX also graciously appointed Her Majesty Queen Sirikit to assume the position as the President of the Society on August 12, 1956, following the precedent of Somdetch Phra Si Sawarinthira, Phra Phan Watsa Ayika Chao, Her Majesty the Queen Grandmother. Under her royal leadership, the work of the Thai Red Cross Society

3

4

progressed. Her royal activities as the Council President continually gave valuable assistance to the hospital's humanitarian efforts. Her Majesty also puts her focus on the promotion and improvement of living standards. She has given patronage to many people in sickness. Her royal activities gained the support of many individuals and international organizations, as well as from all levels of Thai society. As a result of her great leadership, the King Chulalongkorn Memorial Hospital, as the core organization unit of the Thai Red Cross Society, has continued in its development to this day.

1. *His Majesty King Ananda Mahidol (Rama VIII) with the presence of Her Royal Highness Princess Galyani Vadhana, Kromma Luang Naradhiwas Rajanagarindra and His Majesty King Bhumibol Adulyadej Borommanathbobitra (when he was titled as the Prince Brother of King Rama VIII) on a royal visit to the King Chulalongkorn Memorial Hospital on December 23, 1938. They were greeted by Somdetch Phra Si Sawarinthira, Phra Phan Watsa Ayika Chao, Her Majesty the Queen Grandmother, the President of the Society then.*
2. *His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother presided over the opening ceremony of the Samakkhi Phayaban Building on February 2, 1953.*
3. *His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother presided over the opening ceremony of the Mongkut-Phetcharat Building on November 24, 1967.*
4. *His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother presided over the opening ceremony of the Bhor Por Ror Building on December 23, 1989.*

1

His Majesty King Rama X, the present monarch, has shown his royal interest by seeking ways to help his people while he was still the Crown Prince of Thailand. He realized and witnessed first-hand the effect of the lack of doctors and public health services in remote provinces of Thailand. Thus, when he accessed the throne, he proceeded with royal activities and help to relieve the suffering of the people from various disasters. The merciful kindness that His Majesty brought to the hearts of his people has brought happiness to Thailand, in the same way as his royal ancestors.

Thus, His Majesty King Maha Vajiralongkorn Phra Vajiraklaochaoyuhua has continued to pass the Royal Support onwards from the previous Monarch. From the day that the King Chulalongkorn Memorial Hospital was founded, more than a century ago, it has been granted with generous royal support from every King in the Chakri Dynasty.

Also generously giving in her support and care has been Her Royal Highness Princess Maha Chakri Sirindhorn, who has served on the council with Her Majesty Queen Sirikit, as the Executive Vice-President of the Thai Red Cross Society. She continually practiced her royal activities for the advancement of the organization. Her Royal Highness has contributed useful advice and suggestions to the management of the Thai Red Cross Society and the King Chulalongkorn Memorial Hospital over all aspects. Consequently, the hospital was able to extend its services to a broader base, expanding in its growth and progress. A modern phase of medical and public health service in Thailand has been introduced by the improved delivery of medical service and technology, in conjunction with a new systematic style of management, improvement in skills of personnel and better working environments. The quality of the hospital services has been well acknowledged by the public, locally and globally. However, the hospital still continues to strive forward by conducting new medical research with diligence and creative thinking, and in seeking practical ways to enhance better health for all the Thai people.

2

In addition to her already mentioned activities, Her Royal Highness Princess Maha Chakri Sirindhorn also accepted the position as Chairperson of the Construction Project of the Integrated Medical Services Center, and the Medical Center of Excellence, in Honor of Their Majesties King Rama IX and Queen Sirikit, in order to establish the excellence of all aspects of public health in Thailand. This project was to inherit the royal initiation of previous Chakri Kings to insure that Thai medical standards achieve the level of world standards. Her Royal Highness Princess Maha Chakri Sirindhorn later proposed the name of the center to His Majesty for his consideration and was granted permission to name it “Bhumisirimangalanusorn Building.” The name represents the auspicious memorial of the royal kindness of Their Majesties King Rama IX and Queen Sirikit that has been graciously and equally extended to all Thais.

“All Thais are so fortunate to have been born under the royal umbrella of The Royal Virtues”

1. His Majesty King Bhumibol Adulyadej Borommanathbobitra The Great (King Rama IX) presided over the 5th charity off-season offerings of robes and other needs to monks, to raise funds for the installment of medical equipment into the Bhor Por Ror Building, at Wat Bovonniwet Vihara on October 22, 1989. Somdet Phra Nyanasamvara, the 19th Supreme Patriarch of Thailand, acknowledged receipt of robes.

2. Her Royal Highness Princess Maha Chakri Sirindhorn presided over the final concrete-pouring ceremony indicating the completion of the construction project of the Bhumisirimangalanusorn Building on September 3, 2012.

From Drops of Water a River Flows, From Sprouted Seeds a Forest Grows

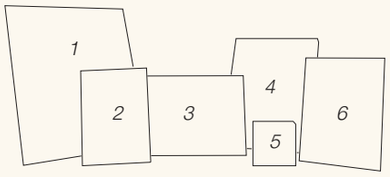
Royal compassion has been bestowed by each King in the Chakri Dynasty out of concern for the well-being of his subjects, beginning with Rama I and continuing through the reign of King Rama IX. This benevolence and caring flows as freely as water and, like water, serves as a nourishing presence over the centuries. As drops coalesce forming streams, and streams become a mighty river, water's presence causes seeds to sprout, and land to grow into fertile fields and healthy forests. As seeds bloom from water's flow, so do people prosper and bloom from the nourishment provided by the King's' concern, care and benevolence towards his subjects. The nourishing concept inspired the very foundation of the project establishing the Bhumisirimangalanusorn Building of King Chulalongkorn Memorial Hospital. The medical institution aims to offer a continual "flow" of medical services, spreading health and excellent treatment equally and efficiently to all its patients. By encompassing so many medical services within the premises of one building, an efficient and integrated "one-stop" medical hospital service is now possible. The center will be used as a prototype for hospitals in Thailand in the future.

History of King Chulalongkorn Memorial Hospital

His Majesty King Rama V, taken with His Royal Highness the Crown Prince, Chaofa Maha Vajiravudh and Prince Chakraphongse Bhuvanat, in Geneva, B.E. 1897.

The Kings of Chakri Dynasty sought modern methods of Western medicine and hospital treatment. It began in the reign of King Rama V, who was involved in reengineering the structure of the nation and began developing every aspect of the country to meet an international standard. As a consequence, the Red Unalom Council of Siam was founded in 1893 during the Franco-Siamese War incident to heal wounded soldiers. In 1906, His Majesty initiated the building of a hospital for the Red Unalom. However, the project was temporarily delayed due to not finding suitable land for its construction. His Majesty King Rama V passed away before further progress could be made. As Crown Prince, the future His Majesty Rama VI, had already been aware of the importance and necessity of seeking improved medical treatment and preventive healthcare within the country. On his return after finishing his education abroad, he travelled through Japan where he saw that the Japanese Red Cross Society had opened a hospital of their own to deliver medical services. He realized that the Red Cross Society of Siam was not being operated according to international standards

A pleasant view of King Chulalongkorn Memorial Hospital in the past. The bridge in the photo is Phahol Yothin Bridge that crossed Khlong Charoensi, the Poshayananda Building appears on the right and the Ratana Sangwan is on the left.



1. *Major General Phraya Wibun Ayurawet (Sake Dhammasarot,) Director of King Chulalongkorn Memorial Hospital (May 30, 1914 - September 18, 1917)*
2. *A Group of Orphans at King Chulalongkorn Memorial Hospital*
3. *Destitute Patients Ward*
4. *Taking Orphan Babies for a Walk, B.E. 2469*
5. *Scenery between the Two Banks of Khlong Charoensri. The Singhaseni, Chiraprawat and Ratana Sangwan Buildings are seen on the left, while the Laundry, Sala Chulathikan and the Pantry building are on the right.*
6. *Student Nurses of King Chulalongkorn Memorial Hospital*

and regulations. His Majesty took it upon himself to restart the project initiated by His Majesty King Rama V and established a hospital for the Red Cross Society of Siam by giving his own private property of 141 rais and 48 square 'was (approximately 56 acres), located on Phra Ram 4 Road. The cost of construction was raised from the donations from the 42 sons and daughters of King Rama V, to the sum of 122,910 baht. The construction began on June 18, 1911. His Majesty King Vajiravudh (King Rama VI) came to preside over the opening on May 30, 1914. At the opening, His Majesty said:

"...When I travelled through Japan, I had the opportunity to see their Red Cross Hospital, which was a very impressive institution. I felt mentally embarrassed and disappointed that our medical establishment had not managed to achieve the same standard. After some consideration, I realized it might be because we went in the wrong direction from the beginning. Therefore, I discussed this matter with Krommaluang Nakhonchaisi for quite some time until coming up with a plan to accomplish these goals. The plan had been been delayed due to investment requirements, but finally, we came up with a good solution. Now that His Majesty the King has passed away, I think it is the right time that we, brothers and sisters, should offer merit by building this Red Cross Society Hospital in tribute to our dear father..."[2]

[2] The Royal Speech at the opening ceremony of King Chulalongkorn Memorial Hospital from the Royal Gazette Volume 32, June 14, 1914, Pages 568 -569.

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1. A Ward for Special Patients
2. Baby Feeding in the King Chulalongkorn Memorial Hospital
3. Sewing Room for Bedding and Patients' Materials
4. Destitute Patients Ward
5. Pathology Laboratory, King Chulalongkorn Memorial Hospital
6. Gynaecology Examination Room

From that day onward, the hospital has continually developed and improved in all aspects of medical treatment and academic research. It added many additional buildings. Its rapid growth was crowding the grounds of the original hospital. Throughout each period of growth, however, the Executive Committee, maintained their determination and vision that the hospital would always strive to be the most modern institution of its time and to consistently offer top quality medical service. By continually seeking medical excellence, the Executive Committee of King Chulalongkorn Memorial Hospital Committee launched a building project establishing an 'Integrated Medical Service Center.' It was to be a "Medical Hub" wherein a complete range of medical services and treatments could be offered to a patient within the same building in honor of Their Majesties King Rama IX and Queen Sirikit and the Medication Center of Excellence. The building was given the deeply respected auspicious name of the Bhumisirimangalanusorn Building. Due to the enormous size of the project and the high investment cost, its actual completion took a very long time and the responsibility for its planning and supervision was therefore spread over many periods of hospital management. However, consistent throughout was the clear mission that the new hospital was to achieve high international standards in organization and excellence, both in medical treatment and medical services. Each time period of management expressed its vision as follows:


Bird's Eye View, Chulalongkorn Hospital

October 1, 1999 - September 30, 2003, under the directorship of Professor Doctor Bhirom Kamolrattanakul. The statement reads: *"Offering Outstanding Public Service, Academic and Scientific Advancement, Expert Management with Emphasis on Quality of Life,"*

October 1, 2003 - September 30, 2005 (2nd Term of Professor Doctor Bhirom Kamolrattanakul): *"King Chulalongkorn Memorial Hospital is the Hospital and Medical School of Excellence, for Academic Research and Medical Care, Placing First in ASEAN, with Good Governance and Good Quality of Life Personnel,"*

October 1, 2005 - September 30, 2007 (3rd Term of Professor Doctor Bhirom Kamolrattanakul): "King Chulalongkorn Memorial Hospital Ranks First in ASEAN in 2007,"

October 1, 2007 - September 30, 2011, under the directorship of Professor Doctor Adisorn Patradul: *"King Chulalongkorn Memorial Hospital is recognized as one of the Leading World Class Institutions."*

October 1, 2011 - September 30, 2015, under the leadership of Associate Professor Doctor Sophon Napathorn: *"King Chulalongkorn Memorial Hospital of The Thai Red Cross Society is the Core Pillar of Public Health in the Country and a Leading International Medical Hub,"*

October 1, 2015 - present, under the leadership of Professor Doctor Suttipong Wacharasindhu: *"King Chulalongkorn Memorial Hospital is the Role Model for a Medical Center of International Standards with Integrity and Quality."*

Through the combined visions of the executive directors of the hospital, the Bhumisirimangalanusorn Building came to a magnificent completion, built to honor and commemorate Their Majesties, King Rama IX and Queen Sirikit. Its two main centers, the Integrated Medical Services Center and the Medical Excellence Center, are both located in the one huge building. Here, a complete range of medical services meeting high quality standards are now opened to the public. Capable of treating all medical needs in one building, King Chulalongkorn Memorial Hospital is the leading medical center nationally as well as being acknowledged globally. Its success is attributed to the joint effort of everyone at the hospital throughout every period of its development - the executive committees, doctors, nurses, personnel of every unit in King Chulalongkorn Memorial Hospital, the Thai Red Cross Society and the Faculty of Medicine of Chulalongkorn University. They have been instrumental in carrying out the royal initiation of the Chakri Kings, who are dedicated to healing misery and nourishing happiness in their people. The hospital also operates under the guiding principle of the Thai Red Cross Society, which is to render service to everyone at all levels, with no exception as to nationality, race, caste or religion, These have been the fundamental principles of King Chulalongkorn Memorial Hospital, the hospital for the general public.

The Fundamental Idea Behind the Development Plan for the Establishment of the Bhumisirimangalanusorn Building Project

The continual growth of business at the hospital resulted in the need for more expansion to meet the growing number of patients. Earlier, the extensive construction of many new buildings took place in a very limited space around the initial hospital building, while at the same time, unavoidably, medical services were in progress. Problems and limitations occurred in the hospital environment. Lacking a systematic plan for the entire land use from the beginning made the whole compound crowded, resulting in less efficient service. In addition, the foundations of many buildings began to weaken, and were becoming an obstruction to present or future development. Also, the hospital needed to be well equipped, and

ready for emergencies, to be alert for any public hazards and accidents. Therefore, the idea for a new phase of development was planned.

The development process began when Professor Doctor Pirom Kamolrattanakul was director of the hospital. During the planning process, many projects were specified, including: a substantial, integrated, quality control system evaluating the performance of personnel, checking the excellence of medical services, as well as an improved quality in delivering hospitality and administrative service. These last mentioned projects were aimed at building the best reputation for King Chulalongkorn Memorial Hospital, and for it to become the favorite hospital in the minds of its patients. The development plan included not only the improvement of the performance of personnel but also the building of morale and support for them. The development task fortunately had great continuity under the leadership of Professor Doctor Bhirom Kamolrattanakul, who had been the chief executive officer of the hospital for two consecutive terms for a total of eight years. He describes his goal:

> ***“ My intention was set on finding ways to make King Chulalongkorn Memorial Hospital become the institution of excellence in medical treatment, and to insure that the quality of service given to patients was intertwined with love, faith, and mercy, and delivered at a most satisfactory level. Consequently, the hospital would win over the hearts of all its patients. ”***

Professor Emeritus Pirom Kamolratanakul, M.D.
Director of
King Chulalongkorn Memorial Hospital
(October 1, 1999 - September 30, 2007)

Kitchen Unit and the Staircases on the bank of Charoensi Canal

The executive committee of that period assembled to produce a development plan to create a next generation of hospital. Through brainstorming sessions, they sought to relieve the problems they had been facing. These problems can be grouped into the following categories:

1. Disorganized Site that prevented an integrated delivery of medical service due to the scattered locations and distances between buildings.

Originally when the hospital was established in 1914, there were only 4 buildings, constructed in the modern architectural style of its day:

- Headquarters (Administration Building at present)
- Surgery Building
- Phahurat Building
- Wachirunahit Building

Two wooden Buildings added were:

- Temporary Kitchen Unit
- Temporary Laundry (Later was renovated into a semi wooden-concrete building and the name changed to the Pantry and Clothing Laundry Building)

Miscellaneous Buildings were:

- Restrooms (male/female)
- Walkways from Headquarters to Phahurat and Wachirunahit Buildings

Gradually during various periods, many more buildings were added to the hospital compound. Several were from donors who would voluntarily contribute funds for the building of additional patient wards, but these were built in a scattered manner throughout the hospital grounds. Consequently, the result was that more than 80 buildings of different sizes were packed within the hospital grounds. The environment of the hospital became very crowded and disconnected. There was no free space and no green areas.

Moreover, the scattering of patient wards caused great inconvenience, congestion, and time-wasted in the transfer of patients. Unnecessary risks occur in medical operations because of the separation of treatment units that should have been located together in the same area. For example, in a case when a newborn infant needed to be operated on immediately following delivery, the location of the delivery room was at a far distance from the infant surgery unit causing severe risk. Or, in a case of the separation of a cardiac catheterization laboratory from a critical care unit, etc. There were inconvenience and disruptions in service also. For example, there were not enough deluxe, single rooms for inpatients, there

Phahurat Building

Surgical Operation

Walkways inside the hospital compound

was a lack of a proper environment and appropriate equipment for elderly and disabled patients. Above all, most older buildings were only two or three floors in height; only a few were high-rise buildings, making integrated renovation quite impossible.

2. The Insufficient Number and Scattered Locations of the Surgery Operating Rooms, Critical Care (CCU) and Intensive Care Units (ICU)

Although King Chulalongkorn Memorial Hospital, at the time, was in possession of numerous Surgical Operating Rooms, Critical Care (CCU) and Intensive Care units (ICU), they were located in many different buildings. Therefore, it was not possible to efficiently share resources of personnel and equipment, wasting opportunity, time, and unfortunately, increasing the cost of operation. At the same time, many of these facilities were quite ancient and could not be adapted to use newer technologies and equipment, such as an endoscope, etc.

Furthermore, there was recognition that the eight operating rooms in the hospital at that time could not sufficiently serve the amount of patients needing medical treatment in the hospital. In addition to the deficiency of number of surgical rooms, the 14 units dedicated to critical and intensive patient services were scattered among individual, separated centers, such as in surgery, internal medicine and pediatric areas, etc.

3. The Limited Space in Emergency Room Areas Caused Sub-standard Service

The Emergency Room of the hospital had been designed for use long ago, and was situated in a structurally outdated building. It did not have appropriate capacity for dealing with present day conditions. Adding an extension to it became untenable as the passageways were too narrow and there was insufficient space to add room for the growing numbers of patients. Furthermore, specially equipped rooms were needed for cases, such as, chemically poisoned patients, isolation wards needed for epidemic diseases, such as severe acute respiratory syndrome (SARS) and psychiatric patients, etc.

Patients Ward

Wound Dressing Room

Patients Ward

Emergency Room

Operating Room

4. Preparedness for Emergency Response in Public Health Cases of Accidents and Disaster Incidents

The ability for receiving mass casualties from public hazards was quite impossible due to restrictions in the structural layout of the hospital areas. Patient care from these types of incidents could not be supported, although the potential in personnel and management of the hospital was more than sufficient.

5. On the Path to Becoming an Academic, Service and Research Center of Excellence

Statistical Indicators show that King Chulalongkorn Memorial has a highly competent medical faculty and doctors, fully equipped with modern medical tools. The accomplishments of the hospital both academically and professionally are well known to the public. The institution holds the largest number of professors of medicine in Thailand. Through the work of its professional staff, the institution is the origin of many incredible innovations, and, as a consequence, several doctors have been recognized with many national and international awards. Today, the hospital has the potential to take a leap forward to develop as a model center of knowledge skillfully serving the needs of the public. However, due to the severe constraints of the dense, crowded and jumbled compound, an integration of medical service was very hard to achieve.

6. A Systematic Plan for Land Use

The congestion of buildings in the compound made new planning for coherent land use impossible to carry out. The first plan of renovation aimed to divide the area into separated zones, for health treatment, for medical school and for residences of doctors, nurses and staff. The original plan called for the health treatment center to be in the front part, the medical school of the Faculty of Medicine, Chulalongkorn University, in the middle, and the residences and recreation area were to be in the back. But the ground connections between existing buildings were so very narrow and winding, that

it was difficult to even consider this kind of renovation and expansion. So to address that problem, a new idea was proposed to make raised platforms and use these new aerial routes for the transfer of patients between buildings in order to reduce risks.

7. The Need to Extend Service Space for Patients and Relatives and to Allocate Space for Residential Facilities and Recreational Areas for Hospital Personnel

Much consideration was given for the appropriate proportion of space for services to patients and their relatives, and, concurrently, for the functional space needed for the work of medical personnel. It was urgent that a new plan address readjustment of land use in the hospital. As a result, additional service space was allocated, using about 40 percent of the whole compound, to create more parking space for patients and relatives, food vendors and shops, restrooms, rest areas and green space.

Importantly, it was agreed that a renovation plan must include good facilities for the personnel of the hospital. These would effectively strengthen staff morale by adding to their quality of life, which in turn, would lead to more effective staff performance in rendering service and care to patients. Therefore, many facilities for personnel, such as dormitories, welfare and recreation centers, sports center and convenience stores, were also put into the project's plan.

With these considerations in mind, many brainstorming sessions followed, aimed to overcome the aforementioned problems. The intent was to design a facility with systems suitable for the delivery of beneficial hospital service that was adaptive, and capable of delivering good medical service for every possible situation. Thus began the project for construction of one massive Building that was to become an Integrated Medical Services Center and Medical Center of Excellence in Honor of Their Majesties King Rama IX and Queen Sirikit.

United Force for Making New Historic Phase of the Hospital

The new phase for the redesign of the King Chulalongkorn Memorial Hospital began with a series of discussions in which personnel from every related sector participated. The resulting survey of needs served as guidance for the architectural design of the new building, determined the budget it needed and defined the management required for its successful operation. The master plan was to provide “one-stop service” in the building, to be called the Integrated Medical Services Building

The brainstorming committee in charge of producing the master plan for the new building was composed of the Director and Deputy Director of King Chulalongkorn Memorial Hospital, the Vice Dean of Faculty of Medicine, and faculty members from the Department of Architecture of Chulalongkorn University, executive committee members from the Thai Red Cross Society and other personnel.

The architectural design called for converting the current horizontal or spread-out service into a vertical styled building to deliver the medical services. A tall, multi-floored skyscraper structure was decided to be the best design to efficiently deliver all-inclusive medical treatment services in one location. At the same time, the plan was expanded to include facilities to support a research and development program called The Medical Center of Excellence where the best medical practices could be tested and developed. Thus, the building project was launched, incorporating into one building both the Integrated Medical Treatment Center and the Medical Center of Excellence. Landscape planning was to be included to make the

compound into a coherent whole. According to the master plan, the project tasks were divided into five main lines of work:

Group A Development and management of living spaces that provide facilities for the housing, welfare and recreation for the main staff of the hospital, especially for overnight and specific duty staff, the lecturers, alumni ,and also, outside participants attending academic conferences. Spaces are to include dormitories (for nurses, medical students, doctors in residence), auditoriums (for conferences and meeting rooms), and welfare and recreation centers for staff, including a sport center, indoor stadium and swimming pool. The idea is to make a convenient, pleasing garden town, a 'home away from home," specifically designed to enable efficient and effective staff performance.

Group B Organizing proper maintenance systems in support of the environmental landscape so that safe, clean and pleasant settings are provided to be enjoyed by doctors, staff and patients. Unaesthetic and hidden corners are to be replaced with attractive garden designs, selecting plants suitable for each environment.

Group C Providing better traffic and movement management systems for both staff and hospital clients. Two levels of pathways are to connect all main medical treatment buildings and provide efficient, and systematic transfers of people and supplies. These will extend between the dormitories in the back to other buildings in the compound, such as to the Bhor Por Ror or the outpatient department (OPD) Building, the Inpatient Department (IPD) Building, the Bhumisirimangalanusorn Building (Integrated Medical Services and Excellence Center in Honor of Their Majesties King Rama IX and Queen Sirikit), the So Ko Building of operating rooms and the Intensive Care Units (ICU). Two parking buildings are to be built, providing storage areas on the upper floor for office and medical supplies, etc. Transportation and traffic flows for personnel and clients will be more convenient.

The Bhor Por Ror Building was renovated by providing additional escalators and a pathway connecting to the outpatient Chakrabhongse Building. A ramp now connects Phor Por Ror Building to the Bangkok Mass Transit System Public Company Limited (BTS) and Mass Rapid Transit (MRT) to facilitate the transportation of patients and to avoid accidents.

Group D Establishing centers for the sterilization of medical tools and equipment, and for a laundry headquarters. The Nutrition Center at the Uppakan Wetchakit Building will have connecting pathways to all other buildings so it is easily accessible within the hospital, thereby facilitating support to all sectors.

Group E By the updating and relocating related departments and resources together, more efficient systems of service are enabled throughout the hospital. For example, by moving the forensic laboratory, autopsies and ritual buildings into their own contained area, it provides ease of movement, especially for the movement of body, organ and blood donations, and coordination of information services. The opening of an additional building to patients for after-hours will decrease the congestion during the official open hours. The landscape renovation throughout the whole compound was included in the planning.

The master plan was set to be completed within 15 years (2006-2021). During this time, the Executive Committee has made several trips to Asia and Europe observing and collecting useful data, and returning with best examples in architecture and technology in order to develop a more efficient and complete action plan for the project.

Besides the process of making the best master plan pos-

Professor Adisorn Patradul, M.D.

Director of King Chulalongkorn Memorial Hospital

(October 1, 2007 - September 30, 2011)

> ***"After the budget proposal was approved, the project began. Substantial fund-raising took place and we have had good support from many external donations... Different meetings took place throughout the period of construction to create a unity of understanding among staff, trying to reduce the disruptive effect of the construction on patients and clients, as well as the staff. Most of all, was the emphasis on the benefits to be derived by the hospital and to everyone after the construction is finished. Everyone understood and was willing to sacrifice for a better future."***

sible, another important issue, essential for the subsequent success of the project, is the budget.

To begin the process of planning the budget for the building project, the executive committee invited Mr. Somnuk Phimonsathian, Deputy Director of the Budget Bureau, to be an advisor to the committee, which he kindly accepted because he saw the importance of the hospital's duty in offering health services to the public and also in producing medical personnel for the country.

However, the estimated budget for this project was very high due to the ambitious scale of the master plan. The Committee soon realized that it would be impossible to depend solely on government funding. Therefore, it sought additional funds by soliciting donations from organizations and individuals. Their requests were based on the public's faith in its excellent reputation and good work that the hospital had established on a national and international level. For the donors, they envisioned the ambitious plan by illustrating the great improvement and benefit gained by the public from the development of a modern hospital system.

When the funding was finally obtained, construction was begun according to the action plan. The appropriate site was cleared of the existing

“ The "Bhumisiri Mangalanusorn" Building is a massive structural undertaking. There are complexities both physically and systemically that impact its services to the public. Therefore, the committee was set up for coordination on every matter: architecture, construction, planning for medical services and maintenance support systems, for pharmacy and medical equipment systems, for information systems, etc. There were always information updates on the development and hindrances of the project. This committee worked diligently and hard, meeting every week in order to make the planned systems work properly and efficiently. ”

buildings, and the building of the combined Integrated Medical Treatment Center and Medical Center of Excellence began. The area of construction was approximately more than 200,000 square meters or approximately 4.5 rais (1.8 acres.) The call for opening bids was sent to construction and engineering companies according to the rules and regulations required.

To conclude the fundamental background story of this building, it must be clarified that the success of this project was due, not only to finding enough funding for the budget, but also, and of equal importance, to managing the process and integrating all related matters. It was a difficult and long-drawn out undertaking; it needed a unity of understanding among staff, beginning with the need to dismantle old buildings while continually to brainstorm together to determine the needs of each department. It involved the directors, doctors, nurses and staff, while aiming to create the best and most functional plan for all. Innumerable meetings were held regarding management and integration of departments from the scatter of older buildings on the compound. Difficulties were smoothed along the way, so the long-time endeavor and sought-after completion was finally able to be achieved.

Associate Professor Sophon Napathorn, M.D.

Director of King Chulalongkorn Memorial Hospital

(October 1, 2011 - September 30, 2015)

A New Dimension of Giving...to all Life

As previously described, the construction process of Bhumisiri Mangalanusorn Building passed through many different directors. Each of them was responsible for a variety of different tasks during their term that included: brainstorming for a master plan layout, demolishing the old buildings, processing the construction from foundation to the completion, transferring patients and medical equipment, including the installation of every system. These tasks were completed with a united effort and dedication from every personnel in the hospital. Each task can be arranged into phases:

From October 1, 1999 - September 30, 2007: The master plan development period,

From October 1, 2007 - September 30, 2011: The period of fund raising, removal of old buildings and beginning of construction,

From October 1, 2011 - September 30, 2015: Final stages of construction to its completion and turning over the building to the hospital,

From October 1, 2011 - present: Interior and exterior designs, installation of equipment, operational and management systems, planning the opening to the public.

“ If you compare the growth and development of Bhumisirimangalanusorn Building to the growth of a tree, it was already a huge, fully-grown tree, ready to bloom and produce fruit, when I took on the job as the director of the hospital. ”

No matter how many phases it took in the process of establishing the building, everyone involved told the same story that the success came from the unification of effort, from the collective power of multiple ideas, from the body and soul of everyone in the hospital, involving every doctor, nurse and staff. Everyone held to the same goal to make the building the best medical institution possible, offering stable, safe, and sustainable benefits to our clients. With this success, we can now say that Bhumisirimangalanusorn Integrated Medical Treatment Center achieves a new dimension of “one-stop-service” in offering all levels of medical treatment, and stands ready to serve the public. Moreover, with its modern structure and up-to-date equipment, the hospital has the potential to be at world standard levels in the near future, and that is a great reassurance to all of our patients.

Professor Suttipong Wacharasindhu, M.D. MRCP, FRCPCH
Director of King Chulalongkorn Memorial Hospital
(October 1, 2015 - present)

From River to Streams, Branching to Distributaries, Nourishing Lives and Growth throughout the Land

The establishment of the Bhumisirimangalanusorn Building is likened to a branching out from a river. There are never-ending numbers of distributaries that enable nourishment for growing crops on the land. In the same way, the intention of creating this massive building is to make it "nourish" the finest development of a health center, able to cure everyone equally and thoroughly, as inspired by the royal determination of Their Majesties King Bhumibol Adulyadej the Great and Queen Sirikit The Queen Mother. Both our beloved King and Queen believe that the wise use of water resources brings fertility to seeds and preserves forests which thereby enhance and improve living standards for the people. To the same ideal, the creation of the best Integrated Medical Services Center with on-going medical research offering continual updates for staff training, can become a prototype for a model health center in the country. The concept is the same as growing a seed from water, but the "seed" in this case is the rapid growing of a combined medical research and health services center.

Sending Roots for Stability

The Location of Bhumisirimangalanusorn Building

The project to establish the Bhumisirimangalanusorn Building resembles a never-ending flow of the main stream of a river into its branches or distributaries. Water from these distributaries help nourish healthy growth in all plants and trees touched by it, which is similar to the expected outcome of this project, better health for all the Thai people. The building is designed to be an advanced medical center, both in functionally and technologically, whose aim is excellence as a medical center serving all people throughout the country. It is the metaphorical equivalent of "water resources and forest preservation," the key objectives of Their Majesties King Rama IX and Queen Sirikit, in that its wise use brings the Thai people up to a better standard of living. By its design and function, this building is the best prototype for a modern medical center, best in hospital treatment, best for ongoing research, best in modern medical training and school facilities, and all was established on the university campus at the same time. Consequently, this development is comparable to the 'fruit' coming from a completely grown 'plant' that was started from a medical and public health 'seed.'

Bhumisirimangalanusorn Building is situated in the compound of the King Chulalongkorn Memorial Hospital of the Thai Red Cross Society, at the address: 1873, Phra Ram IV Road, Pathumwan District of Bangkok. The massive building is built as two adjacent yet interconnected buildings. In one building is the Integrated Medical Services Center in honor of Their Majesties King Rama IX and Queen Sirikit. In the second adjacent yet interconnected building is the Medical Center of Excellence, where academic research, medical training and school facilities are located. The selection of a site for this building required very strategic considerations. One consideration was for its potential to adapt for further development in the future. Another major consideration was for selecting a site that had the least effect upon on-going medical operations within the hospital during construction and moving in periods afterwards. After a thorough survey of the hospital property, the Construction Committee of the Medical Hub met together and agreed to build the joint-building on the empty space between the Thai Farmers Bank Building and the Sor Kor Building. The site for the Integrated Medical Services Center is approximately 80 meters x 90 meters. The second adjacent Faculty Building or the Medical Center of Excellence is built on the space of 55 meters X 70 meters between the Internal Medicine (Pathology)

and the Vajiravudh Buildings. The architectural plan was set to have the building situated facing the side of Ratchadamri Road, just across from greenery of Lumphini Park on the east. Clients will be able to enjoy the pleasant and beautiful view from here. It will also serve as a Patient Hub for in/out-patients and for medical emergencies at the same time. Thus the building enables convenience in transportation for patients, communication among patients, doctors, nurses, as well as access to all kinds of services. From this part of the building, another entrance to the hospital is opened, appropriate and more convenient for hospital transport.

After the selection of the location, the next step was to set up a plan for the sequential demolition of some of the old buildings in the selected site. This process needed to be conducted first because of the limited space in which the hospital was situated. Therefore, in order to create a modern medical center, every service needed to be expanded vertically to replace the previous horizontal structure in which medical service was delivered. Beginning in 2009, some of the old buildings, those in the cluster of the internal medicine treatment center and the dormitories of nurses, which were situated in the construction site, were torn down. Patients from these wards, fortunately not great in number, were transferred to other buildings. At the same time, nurses from the demolished dormitories were partly relocated to the 14th Floor Deluxe Inpatients Ward and some needed to temporarily sacrifice their location by staying off campus. However, a building with a 1,000 bed capacity was soon built as a new dormitory for nurses and assistants in the north of the hospital territory next to the Royal Bangkok Sports Club, Pathumwan.

“ I would like to ask those, in good faith of mind, to participate in contributing for the building of the Integrated Medical Services Center in honor of Their Majesties King Rama IX and Queen Sirikit and the Medical Center of Excellence of King Chulalongkorn Memorial Hospital, planned to be completed within 5 years. With your participation in the fundraising, you can all later share together in the great benefits of this building. ”

The Royal Address of Her Royal Highness Princess Maha Chakri Sirindhorn
on the occasion of the opening ceremony for the Establishment Project of the Medical Treatment Hub
in honor of Their Majesties King Rama IX and Queen Sirikit and the Medical Center
of Excellence of King Chulalongkorn Memorial Hospital,
on September 7, 2009.

Government Support and Public Aid

Fundraising for the Construction of the Bhumisirimangalanusorn Building

Recognizing the massive expense for accomplishing the project, the process of gathering voluntary contributions for the construction expense of the Bhumisirimangalanusorn Building was begun in 2008, as part of the master plan. The operation was conducted by coordination of three units: the Thai Red Cross Society, the King Chulalongkorn Memorial Hospital and the Faculty of Medicine of Chulalongkorn University. In the Thai Red Cross Society, Her Royal Highness Princess Maha Chakri Sirindhorn, the Executive Vice-President, graciously formed three committees to be responsible for different tasks of the project.

The Steering Committee of the Project to Establish the Integrated Medical Services Center in Honor of King Rama IX and Queen Sirikit and the Medical Center of Excellence Buildings, Her Royal Highness Princess Maha Chakri Sirindhorn graciously accepted the position as Chairperson.

Mr. Phan Wannamethee

Secretary General of the Thai Red Cross Society

Chairman of the Operation Committee of the Construction Project of The Integrated Medical Services Center in Honor of King Rama IX and Queen Sirikit and The Medical Center of Excellence Buildings

"The year 2007 is the auspicious period of His Majesty King Rama IX's 80th Birthday. Therefore, it is a great opportunity for the Thai Red Cross Society, the King Chulalongkorn Memorial Hospital and the Faculty of Medicine of Chulalongkorn University, to honor this special occasion by following his royal path whose aim is to improve the service for public health to all Thais, with no exception based on race, class, caste, faith or religion, and is carried out with the support from every sector of the Thai people in the entire kingdom. The project for this improvement is to establish a new building to serve this purpose. The new building is intended to be offered as a gesture of merit to His Majesty King Bhumibol Adulyadej The Great which is considered as the highest blessing in life."

Her Royal Highness Princess Maha Chakri Sirindhorn kindly appointed Mr. Phan Wannamethee, Secretary General of the Thai Red Cross Society, to be the Chairman of the **Operation Committee of the Construction Project of the Integrated Medical Services** in Honor of King Rama IX and Queen Sirikit and the Medical Center of Excellence Buildings,

M.R. Priyangsri Watanakun, the Assistant Secretary General of the Thai Red Cross, was appointed Chairperson of the **Fundraising and Public Relations Committee of the Construction of the Integrated Medical Services Center** in Honor of King Rama IX and Queen Sirikit Building

The first budget estimation for this project, which covered the cost of construction, interior design and installation, all medical equipment and Information Technology systems, was proposed to be 12,000 million Baht. The contribution to the budget from the government was 4,000 million baht and the hospital needed to raise the remaining funds within 5 years to proceed with the projected master plan.

Different factors relating to the construction project were analysed with a study of fundraising projects for construction of high-cost buildings in the past, to find the best strategic plan for this time. An approach to the Government Lottery Office was made to seek support for the launching of a special Red Cross Lottery as an additional source of funding. The collected information was reported to the Fundraising and Public Relations Committee and helped guide in making a decision for the best strategy. The committee finally agreed upon a strategic plan following an international model of fundraising, which divides donors into 3 categories:

"In planning to raise funds for a building project of this large scale, international methods were brought in for strategic planning purposes to meet the goal. This strategy had never been practiced in Thailand before. In the past, whenever funds were needed, each organization normally sought sources of funds in their own way. However, considering the large amount of funds needed, the internationally known model of Capital Campaign Fundraising became our strategic plan. A chart of donors is developed in the form of a pyramid, divided into three parts. Targeted donors are categorized for in each layer and a list is composed. Lead donors are placed on top, major donors in the middle and general donors at the bottom of the pyramid. And this is how we succeeded in our fundraising program for this project."

M.R. Priyangsri Watanakun,
Assistant Secretary General of the Fundraising Bureau of the Thai Red Cross Society,
Chairperson of the Fundraising and Public Relations Committee for The Construction of the Integrated Medical Services Center in Honor of Their Majesties King Rama IX and Queen Sirikit

Souvenir Tokens Award for Donors

1. Corporate Executive Donors, The fundraising team targeted selected organisations and individuals with high potential to support this project, as the leaders in donations. An informative document on the structure of the project with its benefit for the public was presented to them. As a consequence, many organizations, from state enterprises, private sectors and individuals joined in the donation, led by the Provincial Electricity Authority. There are 22 donors in this category donating the sum of 1,938 million baht.

2. Major Donors, Further fundraising targeting major donors went on continuously, especially when the estimate for building's construction increased to 14,000-16,000 million baht. These donors came from other sectors of individuals, state enterprises, private organisations and companies. Altogether, there are 52 donors with the donation of more than 500 million baht. After combining with the 1st category, the sum came up to 2,530 million baht.

3. Individual Donors The donation announcement went out to the public in order to invite ordinary people to be a part of this project at their convenience. Many charity activities were created, such as concerts, runs or walks and also a direct mailing, etc.

Under these strategies, the committee received funds for the cost of the project not only from these three categorized sources mentioned but in addition, it combined that amount with donations that came from the 6,000 million baht gained from sales of the Thai Red Cross Lottery, and the 4,000 million baht budget granted with permission from the government cabinet. The total sum of funds that the hospital received was 14,152 million baht (14,151,790,000 baht) which was more than the goal based on the original 12,000 million baht estimate.

"The Thai Red Cross Lottery," One Strategy of Fund Raisings

During the fundraising operation, the committee set up two sub-committees to be responsible for minor tasks in order to make the process more convenient and flexible:

The Sub-Committee for Awards is responsible for donor appreciation awards. They prepare coins of commemoration and medical treatment benefits given as awards, according to different categories. For example, golden coins are awarded to donors for 1 million baht, or above, which feature the images of His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother upon it. For a donor of 100 million baht and above, the coin is surrounded with diamonds. Moreover, they will be responsible for the inscription of names of donors on the front of rooms in Bhumisirimangalanusorn Building as regulated by the donation guide.

The Sub-Committee on Public Relations was responsible for organizing various activities to raise public awareness about the Establishment of the Bhumisirimangalanusorn Building.

These two sub-committees must continually report to the Fundraising and Public Relations Committee to keep them informed of each accomplishment or impediment.

Front View

Back View

A Souvenir Token Coin for Donors from 100 Million Baht Upwards

1

The first activity was launched on September 7, 2009 and was called "The Light of Life" program. The inaugural program introduced the public to the Establishment Project of the Integrated Medical Services Center in Honor of Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother and the Medical Center of Excellence of King Chulalongkorn Memorial Hospital, of the Thai Red Cross Society. It was an auspicious gesture and also built moral support for everyone involved in the project. The message that was sent out that day was about the inspiration which created the project. It was stated as:

"His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother are the symbolic light that shine on the hearts of the Thais. The light leads everyone to all the right paths, the light shines upon the lives of all Thais. One of the greatest paths is to access excellent medical and public health. Therefore, to establish the Integrated Medical Services Center and the Medical Center of Excellence is a beneficial way to follow their royal initiations in creating the sustainable happiness to all the people of Siam, and, at the same time, to pledge our loyalty to our beloved King and Queen."

1. *HRH Princess Maha Chakri Sirindhorn graciously presided over "The Light of Life" event at the 18th floor of Phor Por Ror Building.*
2. *HRH Princess Maha Chakri Sirindhorn viewed the Exhibition on the Establishment of the Intergrated Medical Center and the Excellence Center in "The Light of Life" Event."*

2

On that occasion, the hospital humbly asked for the royal attendance of Her Royal Highness Princess Maha Chakri Sirindhorn to graciously preside over the opening of the program, "The Light of Life," which she kindly accepted. Donors with major donations were brought in to receive tokens of award from Her Royal Highness Princess Maha Chakri Sirindhorn. The event was transmitted live on radio and television from the Sotsri Wongthuaythong Convention Center on the 18th floor of the Bhor Por Ror Building by the Government Public Relations Departmen to publicize the developing project to the wider public.

After the project was launched, Her Royal Highness Princess Maha Chakri Sirindhorn, the Executive Vice President, proposed in a letter from the Thai Red Cross Society asking for His Majesty King Rama IX's kind consideration to grant permission to name this building, "Bhumisirimangalanusorn," meaning the Auspicious Memorial Building to honor Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother. His Majesty King Rama IX granted royal permission for use of this name on November 11, 2009.

Also, upon the occasion of the 96th anniversary of the founding of King Chulalongkorn Memorial Hospital, the Thai Red Cross committee humbly asked for donations from the royal family. Personal belongings were given from His Majesty King Maha Vajiralongkorn Phra Vajiraklaochaoyuhua (King Rama X) when His Majesty was the Crown Prince, Her Majesty Queen Sirikit The Queen Mother and many other royal family members participated by donating items to be auctioned on a special fundraising program on Modern Nine TV Channel on November 28, 2010.

1

Throughout the construction period of the Bhumisirimangalanusorn Building, the Sub-Committees on Public Relations and Awards continually reported the progress of the project to the public via different platforms of mass media: newspapers. magazines, radio and television. As a consequence, donations from all levels of donors, major, individual and general, kept pouring in. Subsequently, by the Royal Command of His Majesty King Bhumibol Adulyadej The Great, Her Majesty Queen Sirikit The Queen Mother represented His Majesty King Rama IX in presiding over the ceremony of laying the foundation plaque of the Bhumisirimangalanusorn Building on December 9, 2010. The hospital continued with the fundraising campaign by inviting many different organisations to join in the fundraising programs on various occasions. For some programs, donors were rewarded with the acquisition of a commemorative coin of King Rama V, or a special issue medallion of King Rama IX upon the occasion of the 100th anniversary of King Chulalongkorn Memorial Hospital. There were invitations to participate in special fund-raising occasions, such as the musical charity concert, "Too Much- So Much- Very Much" or "Bird...Asa Sanook" by Thongchai "Bird" McIntyre, which was presided over by Her Royal Highness Princess Soamsawali Krom Muen Suddhanarinatha, and a charity walk-run, etc. On September 3, 2012, HRH Princess Maha Chakri Sirindhorn presided over the initial concrete-pouring ceremony to mark the beginning of the construction project. Fundraising programs continued to be conducted on several occasions afterwards, for the acquisition of different medical equipment and tools.

3

4

One such program was an invitation to the public to participate in the off-season charity offering of 84,000 sets of robes and other needs to monks, celebrating the occasion of the 100th anniversary of Somdet Phra Nyanasamvara, the 19th Supreme Patriarch of Thailand, on October 3, 2013. Other successful fund-raising programs were: the Charity Gala Dinner, "Artists Join to Celebrate the 100th Anniversary of King Chulalongkorn Memorial Hospital," an event called "Beautiful is GIVING," and an event of "Sharing of Happiness by Giving" with HELLO! magazine on July 24, 2014.

2

1. *Her Majesty Queen Sirikit The Queen Mother graciously laid the Foundation Stone of the Bhumisirimangalanusorn Building, December 9, 2010*
2. *HRH Princess Soamsawali Krom Muen Suddhanarinatha graciously presided over the Gala Dinner, "Artists Join to Celebrate the 100th Anniversary of King Chulalongkorn Memorial Hospital," and observed the Support Foundation work under the Royal Patronage of Her Majesty Queen Sirikit The Queen Mother, at the Plaza Athenee Hotel, Bangkok.*
3. *The Commemorative Coin of King Rama V, The King who gave Birth to "The Red Unalom Society of Siam,"*
4. *Medals with His Majesty King Rama IX's portrait on the Occasion of the Celebration of 100th Anniversary of King Chulalongkorn Memorial Hospital*

Important Events

Bhumisirimangalanusorn Building

July 27, 2019
His Majesty King Maka Vajiralongkorn Phra Vajiraklaochaoyuhua and Her Majesty Green Suthida Bajrasudhabimalalakshana preside over the opening of the Bhumisirimangalanusorn Building

20

September 28, 2017
A Press Conference on the activities on the occasion of the Opening Day of the Bhumisirimangalanusorn Building and introducing the activities of "Station Clinic," which offered basic medical services in a medical unit that served six clinics on six Saturdays at six MRT stations.

19

September 1, 2016
The Song of Bhumisirimangalanusorn Building, "Tha Khu Fa Bhumisirimangalanusorn" was written by Boyd Kosiyabong and sung by Rudklao Amratisha and Kiitinan Chinsamran.

18

March 27, 2015
The Beautiful is GIVING for Bhumisirimangalanusorn Building event is a thank you reception for celebrities who donated their cherished gifts on behalf of the sale for fundraising, at the Plaza Athenee Hotel.

17

July 24, 2014
The opening ceremony of the "Beautiful is GIVING" charity event, sharing the giving with celebrities, who donated personal and cherished belongings for sale for charity.

16

May 28, 2014
H.R.H. Princess Maha Chakri Sirindhorn, Executive Vice-President of the Thai Red Cross Society presided over an invocation ceremony to mint medallions with His Majesty King Bhumibol Adulyadej The Great portrait at Wat Bowonniwetwihan, Bangkok.

15

March 13, 2014
HRH Princess Soamsawali (The former Title) presided over the Charity Gala Dinner, "Artists Join to Celebrate 100th Anniversary of King Chulalongkorn Memorial Hospital," where sculptural works of nationaland young artists and individucollections were opened for auction to raise funds for theconstructionand acquisition of medical equipment for Bhumisirimangalanusorn Building at the Plaza Athenee Hotel.

14

March 11, 2014
A Press Conference on the creation of a Commemorative Coin of King Rama IX on the occasion of the Centennial Anniversary of King Chulalongkorn Memorial Hospital, the Thai Red Cross Society.

13

February 7, 2014
"King Chulalongkorn Memorial Hospital's Centennial-Whole-Hearted Care and Services" Event, marking the centennial celebration of King Chulalongkorn Memorial Hospital, the Thai Red Cross Society at Bhumisirimangalanusorn Building.

12

October 3, 2013
HRH Princess Maha Chakri Sirindhorn chaired the Buddhist ceremony of offering off-season charity donations of 84,000 sets of robes and other needs to monks, on the occasion of the 100th anniversary of Somdet Phra Nyanasamvara, the 19th Supreme Patriarch of Thailand. The occasion provided funding for the acquisition of medical equipment to be installed in the Bhumisirimangalanusorn Building.

11

1 **September 5, 2008**
An auspicious ritual ceremony of worship at the beginning of the construction of the Building.

2 **September 7, 2009**
HRH Princess Maha Chakri Sirindhorn presided over the "The Light of Life" event to mark the opening of the Project, the Bhumisirimangalanusorn Building.

3 **November 11, 2009**
His Majesty King Rama IX graciously granted permission to name the Building, "Bhumisirimangalanusorn."

4 **November 28, 2010**
A special television program on Modern Nine Channel TV, "96th Anniversary of King Chulalongkorn Memorial Hospital...Creating Happiness for People." The Royal Family Gifts for a fundraising Charity Auction in 2010 to support the Construction of the Bhumisirimangalanusorn Building.

5 **December 1, 2010**
His Majesty King Rama IX graciously granted permission to create a commemorative coin as a token for donors for the construction of the Bhumisirimangalanusorn Building.

6 **December 9, 2010**
Her Majesty Queen Sirikit, (the former Royal Title) representing His Majesty King Rama IX, presided over the ceremony of laying the Foundation Stone of the Bhumisirimangalanusorn Building.

7 **February 26, 2011**
HRH Princess Soamsawali (the former Royal Title) attended the charity concert of "Too Much- So Much- Very Much" or "Bird...Asa Sanook" at IMPACT Arena, Muang Thong Thani.

8 **March 2012**
Medals with His Majesty King Rama V's portrait given to donors upon the launching fundraising drive for the construction of Bhumisirimangalanusorn Building.

9 **September 3, 2012**
HRH Princess Maha Chakri Sirindhorn presided over the ceremony of concrete-pouring indicating completion of the construction project.

10 **March 21, 2013**
A Press Visit Program. Journalists were given a tour by Associate Professor Doctor Dr Sophon Napathorn, the Executive Director of King Chulalongkorn Memorial Hospital

Improvement and Changes in Accordance with Development Plans

The project involved the building of a massive medical establishment in the middle of an area of many old existent buildings. The construction time period needed to include time estimates for construction of the new building as well as to demolish the old ones, and to determine the sequence of these actions. The time to completion was estimated to be approximately 5 years.

Demolishment plan of 14 old buildings was divided into 3 sections:

Section I: Dismantling began in March and July of 2009 of:

- Chao Khun Thahan Dormitory (Six-floor Nurse Dormitory)
- The Government Lottery Dormitory (Four-floor Nurse Dormitory)
- The Electricity Company Dormitory (Two-floor Nurse Dormitory)
- The Khui-Bun-Chui-Wong Dormitory (Two-floor Nurse Dormitory)
- Santiwan Building
- Jiraprawat Building
- Singhaseni Building (Two-floor Building of Dermatology Division Administration, Lung Diseases, Department of Medicine)
- Sukri-Supha Phothirattanangkul Building (Two-floor Building of the Office and Critical Care Unit of Department of Medicine
- Phanit Bhakdi Building (Two-Floor Building of Internal Medicine Wards)

Section II: Dismantling began in May 2010 of:

- Chulalai Dormitory (Ten-floor Nurse Dormitory) In demolishing these nurse dormitories, two of the reception rooms were also removed, the "Chu Soi Pin" and the "Somsri Charoen-Rajapark."

Section III: Dismantling began in March and August of 2013 of:

- Medical Building (Four-floor Building of Medical Wards for Male - Female and Critical Care Patients)
- Prasit - Tu Phromphan Building (Three-floor Building of Medical Wards for Male - Female Patients and Gastroenterology Unit)
- Kasikorn Thai Bank (Three-floor Building of Nephrology and Hematology Patients)
- Vajirayana Samakkhi Phayaban Building (Six-floor Wards of Nephrology and Endocrinology Patients)

• Chao Khun Thahan Dormitory

• The Government Lottery Dormitory

• Sukri-Supha Phothirattanangkul Building

• Phanit Bhakdi Building

• t

• Chulalai Dormitory

• Prasit - Tu Phromphan Building

• Internal Medicine Building

• The Electricity Company Dormitory

• The Khui-Bun-Chui-Wong Dormitory

• Santiwan-Jiraprawat- Singhaseni Buildings

he "Chu Soi Pin" Reception Room

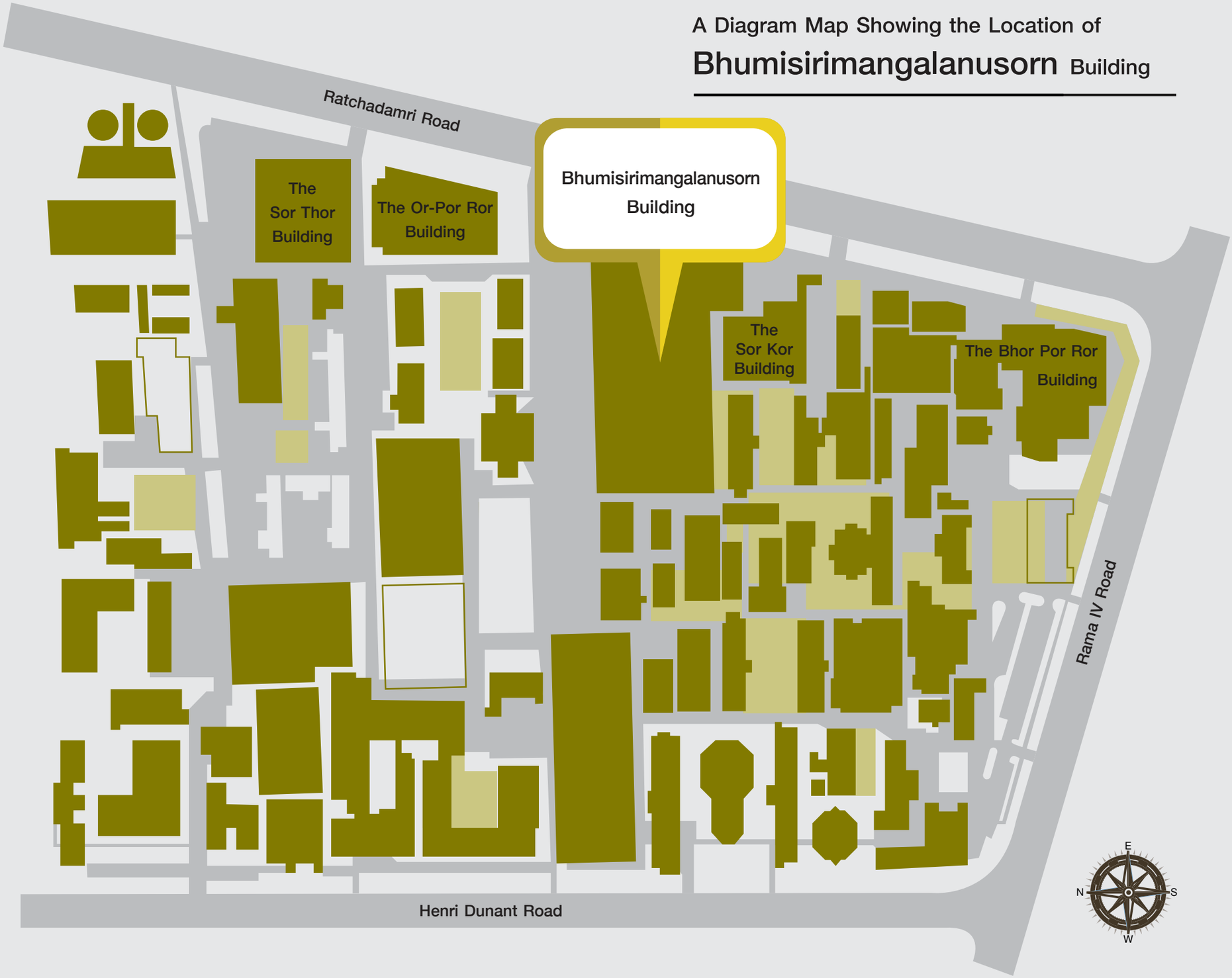
14 Dismantled Buildings

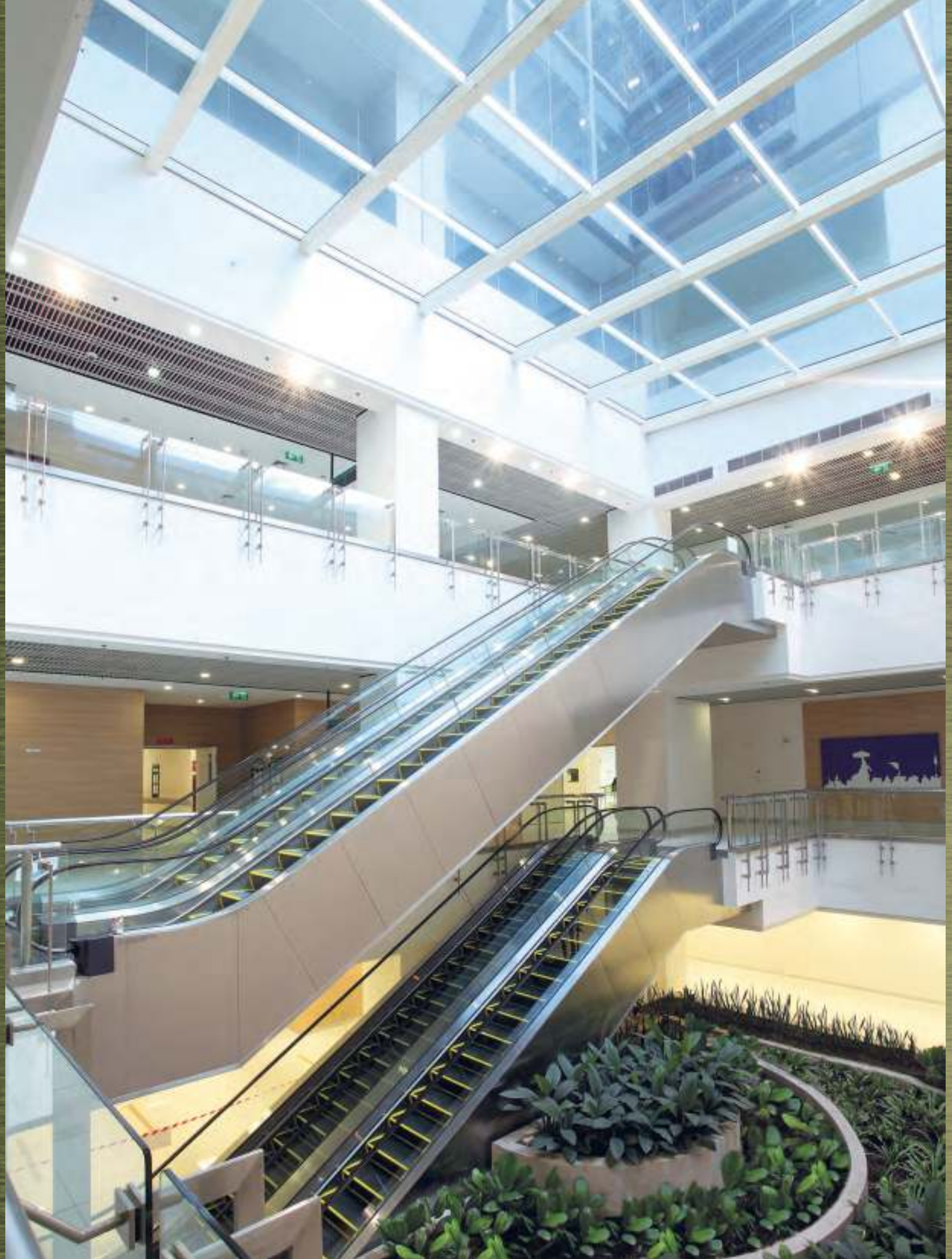
• Kasikorn Thai Bank Building

• Vajirayana Samakkhi Phayaban Building

Sending Roots for Stability

A Diagram Map Showing the Location of **Bhumisirimangalanusorn** Building





Sending Roots for Stability
Attractive, Modern and Safe Environments

The Architectural Conceptual Design

• Architectural Design

The idea behind creation for the architectural design of this building came from a confluence of concepts. It was to incorporate an attractive, modern, and well equipped structure, that was integrated with systems compliant with high standards of medical practice, and able to handle complicated cases as well as able to adjust to new technological developments in the future. The design centered on what was of most benefit for the patient's care. The building is intended to serve as an architectural prototype model building of medical service that meets international standards in hospital care. Thus, the principle concept was centered on a dynamic design that could adjust to every condition and time.

Ideas were collected directly from all medical personnel in each branch of science. These ideas were brought together in brainstorming sessions during the initial design phase. Architects, engineers, and interior designers were involved in the project throughout. The process aimed to enable the best solution for each space to function while creating the greatest benefit to patients and clients. Moreover, its concept as a "green building" should include saving energy and being environmentally friendly in its design. Its objective was to be the largest and most modern medical services building in ASEAN.

The contemporary design-styled building is of 29 levels, with the total internal space covering an area of approximately 220,000 square meters. Functionally, it is divided into two modules within one building. One block of the module is called the “Integrated Medical Service Building”, which has 14 floors, each floor 42 x 42 square meters. The other module is called “Center of Excellence” for medical research and analysis; and educational use by the Faculty of Medicine, which also has 14 floors, floor 60 x 80 square meters. The High Zone from the 15th Floor is designed for inpatient wards with a capacity of 1,200 beds. The wards are designed to have each floor connected by circulation core passage. The space on each floor is divided into 4 blocks, a unit for patients care is located in the center. The remaining three blocks of space are used for patient wards. Each inpatient block is designed for 1-2 wards, depending on the room type.

Fire Proof Walls and Doors

The reinforced concrete building’s structure is solid, strong and durable, and meets engineering specifications on safety; its design included protection from earthquakes and strong winds. Great emphasis was placed on the proper installation of the expensive, high-tech medical equipment and tools when they were installed in the high-rise structure. Sensitive medical equipment was further protected by its enclosure in a specially designed underground walled structure that was 68 metres deep, comparable to a twelve-floor building, that prevents damage to the enclosed equipment in the case of a severe earthquake tremor. The deep reinforced structure houses certain areas, such as, the Radiation Protection and X-ray Zone, in order to prevent radiation from penetrating out to external areas. Also, consideration was made for waterproofing the four underground layers of basement floors, where B 1 is reserved for medicine storage and B2-B4 are for parking spaces. These underground spaces included a design plan for sealing off water from penetrating into the areas.

Each floor is 6,400 square meters, giving plenty of space for services in each section with no interference between them. The floor structures are designed with beams or with flat reinforced concrete plate systems, depending on the appropriate usage of each area. All the floors are designed with stability and strength standards that can carry the weight up to 120-150 kg/m^2 especially the areas where heavy-weight medical equipment was to be installed. The water and sewerage piping systems were designed with caution, concentrating on the best drainage systems with consideration for convenience in maintenance. Another outstanding characteristic of this building is its fire prevention system. Each extra thick wall along the fire escape is fully fireproofed. As a result, the evacuation time can safely be extended to four hours.

For the medical treatment building to rise to such great height, construction plans included the making of pre-fab structural components. Pre-cast concrete and aluminium frames were prefabricated from the factory before being assembled on site. This system was more convenient, fast and beautiful. Glass enclosures on the building walls were used to prevent disturbance from birds clinging on to the architectural structure. Some previous buildings were designed with verandas, which let birds fly through and they sometimes nested inside the building, a circumstance which created dirt and possible disease contamination in the environment. Besides, the concrete wall needed to be cleaned and repainted at least every five years, which was costly. While the glass wall is designed to be opened partially only to be able to control the temperature and save energy, it will mostly be closed because the interiors are mostly air-conditioned.

In order to determine the best type of insulated glass for the whole building, an analysis of the amount of sunlight shining on each side of the walls was made. Hence, the whole building uses insulated glass; but on the southern and western walls where the sunlight is stronger; these walls are covered with Low – E Insulation glass to further reduce heat. All are composed of a laminated safety glass, which is composed of two layers of glass held together by a laminated film in between. When laminated safety glass is broken, it is held in place by the interlayer that prevents the glass from breaking up into large sharp pieces. The structural glass wall system has been tested to prevent fire, heat, water and noise, therefore, it is safe for the people inside.

As frequently mentioned, the enormous size of the building affected all design to service it, including the choice for elevators. These had to facilitate every type of transportation needed as well as include a good system of controls for coordination of the elevators. In all, there are 45 elevators installed in the building. The ones in the most central area indicate specific usage, such as, for patient transportation, for services, for doctors and nurses, and for the general public. Elevators to transport hospital wastes, garbage or contagious objects are located elsewhere, generally in the back of the building. The system can move from top to bottom within 36 seconds. In elevators for patient transport, necessary equipment for life-saving emergencies have been installed inside too.

The rooftop of the building was designed to have a helipad for delivery of patients in cases of emergency or evacuation. The prepared space of 800 square meters has a capacity of 15 tons, therefore it can support the landing of an extra large- sized helicopter with the maximum weight of present models. The connection between the building and helipad space is designed as a double-layered insulated structure, creating a 'vacuum' space in the middle, to prevent transfer of UV radiation from the hospital and noise pollution from the helipad. Flying drills are conducted regularly for preparedness, following international standard regulations, certified by the Civil Aviation Training Center.

The parking lots are located on the basement floors of B2-B4, and carry the capacity of 438 vehicles to facilitate the demand in parking space from patients, visitors and staff.

The designers of the Green Building found ways to reduce energy use overall. An outdoor garden on the 14th floor of the building needs no air-conditioning and enriches the area by its peaceful green surroundings. All sanitary wares were selected by the quality of their water savings. Because the building is on service for 24 hours, all electronic and electricity needs, such as in lighting and air-conditioners, are designed to be controlled automatically from the Maintenance Center. Initially, the system may be costly to install but will be economically advantageous for its savings in the long run.

• The Interior Design

Conceptual design for the interior is inspired by the meaning of the name of the building, ***Bhumisirimangalanusorn,*** which are part of the royal titles of His Majesty King Bhumibol Adulyadej The Great (King Rama IX) and Her Majesty Queen Sirikit The Queen Mother. The word “Bhumi” meaning “the Land,” “Siri” meaning “Prosperity” and “mangalanusorn” refers to the “Auspicious Memorial” of Their Majesties. When combining the whole name together, the concept was set for:

“The auspicious and prosperous land,

With trees, flowers and plants,

That thrive and grow,

On the abundant water flow.”

With this concept in mind, King Chulalongkorn Memorial Hospital wishes to transmit the message of this inspiration to the public as broadly as possible. The interior design of this building is to remind people that the origin of the building symbolises "***The Tree that both Their Majesties shared in planting to become the Shelter for the people."*** Therefore, the tree design blends with nature. It also symbolizes a modern building that has risen up from among many older and conserved historic buildings. Therefore, it is necessary to decorate its modernity with some of this historical and natural aspect, so that people who come for services feel the pleasant, warm and friendly atmosphere of nature. The symbolic design for the hospital is divided into 3 parts: ground, water and plants. The bottom part of the hospital is considered as the base or root of a tree, therefore, the dark color of brown is used to represent the land or earthen layer. When ascending to medium level of floors, the design begins to use more green and other bright colors to refer to a trunk of a tree that branches out into leaves. Climbing to the top part, where flowers of the tree bloom, design focuses on flowers, using lots of floral decoration to represent the idea. The use of colors is one way for patients to remember their departments contacted. The choice of colors is based on the psychological use of colors, so patients will not be too excited or depressed; for example, the ICU department is painted in blue, Obstetrics and Gynecology department is pink, etc. However, for certain areas, international standard colors are still use for professional procedure such as ER zone is red, the treatment zone is yellow and Emergency Department Observation Unit zone is green. Because the building is quite big, remembering each section by name may cause confusion, therefore colors of royal birthdays of the royal family are being used to identify each zone in order to easily remember.

Zone A: The color used is **Yellow,** which is the color of His Majesty King Rama IX's Birthday.

Zone B: The color used is **Blue,** which is the color of Her Majesty Queen Sirikit The Queen Mother's Birthday.

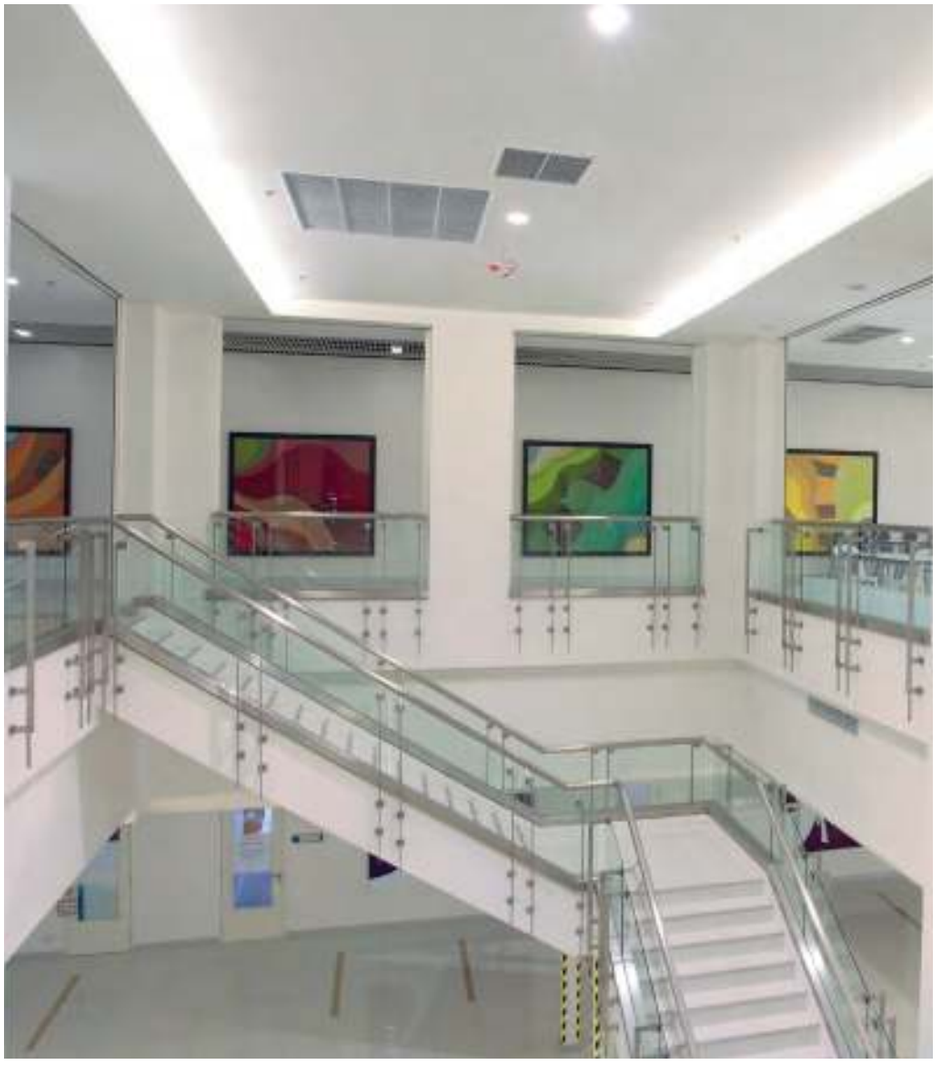
Zone C: The color used is **Purple,** which is the color of Her Royal Highness Princess Maha Chakri Sirindhorn's Birthday.

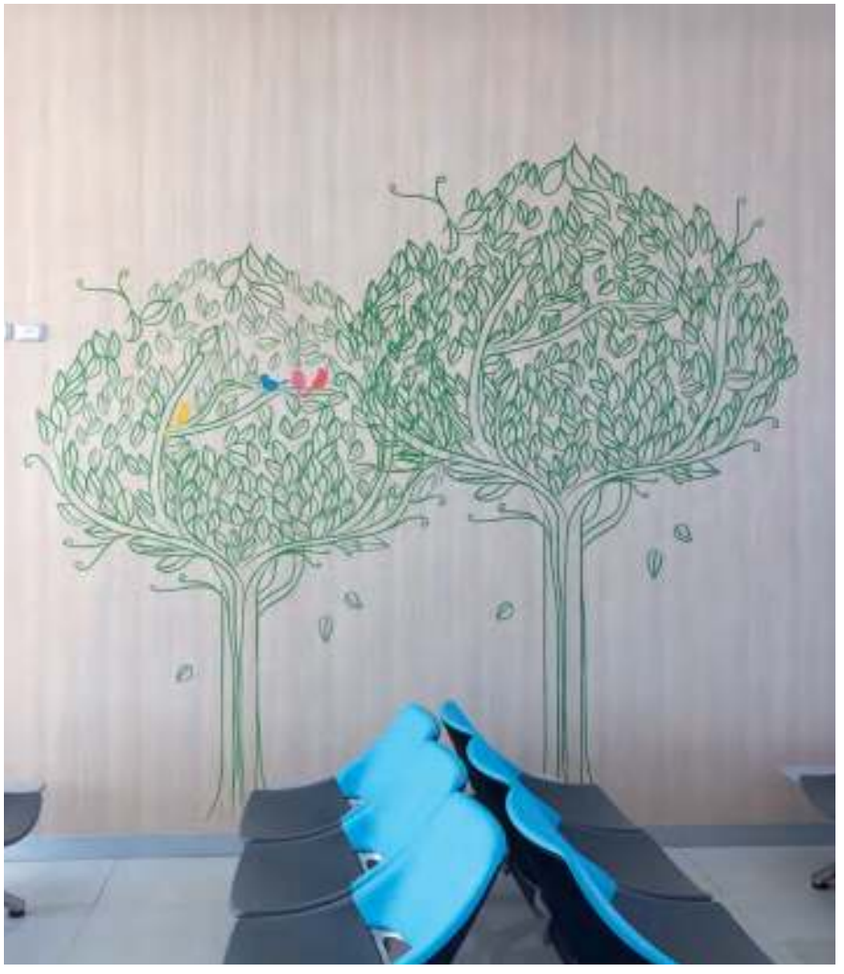
Zone D: This zone is an area for general collaboration such as staff and resident doctors' rooms, etc. therefore, a plain and not too striking color of **Grey** is used.

Art work, created from inspirations of Their Majesties King Rama IX and Queen Sirikit decorate many parts of the building. Some of these works of art are, for example, an installation featuring the first lines of His Majesty King Rama IX's musical notes of the song "Near Dawn," books written by His Majesty, royal barges painting and ethnic textiles motifs, etc. By presenting these works of art, patients and clients who come for services here can appreciate the royal kindness of Their Majesties King Rama IX and Queen Sirikit.

His Majesty Rama IX's royal philosophy on "sufficiency" is another core concept of the building design. Its characteristic is expressed as simplicity but royally appropriate to honor the building for Their Majesties. The architectural design is focused on the functional use of space, consistent with the engineering systems.

Because it is a medical treatment center, therapy for the mind is also another conceptual idea for its design. It is believed that a nice environment is a good remedy and helps a cure be more effective. Therefore, a relaxing ambience with pleasant tones of color, with stimulating décor in artwork is designed into the interior of the building. It aims to make people feel at home, not only the patients but also the doctors, nurses and staff. When everyone is happy, it invigorates the effectiveness of the services and in return, appreciation by the people.





Simple Design that Answers All Functions

The principle of “Universal Design” is that everybody, with no exception for gender, age and conditions of ability, can have equal access and benefit in the design of this building. However, access can be a problem as prevention of contagious diseases must be one of the major concerns so that patients who come for treatment to the hospital are not infected from others. Consequently, designers must be careful in the selection of systems and materials used. One good example is entrance and exit doors; these are designed as an automatic system, preventing the need for touching the door surface in order to reduce contamination. The decorative materials used must be contamination resistant. They must be hygienic, slip-resistant (with a textured skin surface, not too smooth), yet easy for cleaning, durable and do not collect bacteria. Possible materials considered were vinyl leather or laminated plastic. The same concept goes into the consideration of the paints. Painted surfaces need to be easily cleaned. After every patient admission, the hospital staff needs to thoroughly clean the room after its use every time to kill all the germs. Finally, but importantly,

the furniture is designed with rounded edges to prevent all kinds of accidents.

Furthermore, it is understood that the systems set up for today, the interior designs, the control integrated systems of medical equipment may, in the future, need to be changed due to developments in technology. For example, in the current monitoring of the patient, data is sent from his bedside to the central monitor in order to have an effective observation alert on the patient. This monitor enables nurses and doctors to have immediate access to patient data. Perhaps in the future, the transfer of the data will go directly to the doctor's mobile device instead, which would be a useful advance.

When the interior decoration was close to completion, the medical tools and equipment were ordered by cost-effectiveness, and installed. Shortly after, different departments from the old buildings began moving in. Every system was tested in preparation for the official opening.

Advancing Development to International Standards

A good management system was needed to bring ever higher quality to the Bhumisirimangalanusorn Building, for proper administration of its new infrastructure that was designed to deliver excellent medical service. The management system must oversee the infrastructural use and development of human resources. Metaphorically speaking, this building was like a big tree, already rooted firmly into the ground, but it needed to be nurtured on a regular basis in order for it to grow and fully bloom with flowers.

The Management of the Building Facilities

The hospital established the **Facility Management Unit** for supervision of all the infrastructural systems in the building in order to achieve the best quality medical service practices, certified to international standards. Its mission is divided into two responsibilities: writing a manual of the Standard Operating Procedure (SOP) of the building, and, most importantly, to have a full control and responsibility of all the facilities in the building.Control of facilities is divided into **3 divisions: Buildings Division, Utilities Division and Environmental Services Division.**

Buildings Division is divided into two sections:

- **Cleaning Section** - for housekeeping and waste management.

It is responsible for the cleaning of all the areas, according to the Infection Control Standards. Areas of responsibility include surgery operating rooms, clinics, and patient wards. Contaminated waste and recycled waste disposal require special handling.

- **Security Section** - are managed by both human personnel and technology. The system covers the use of closed circuit cameras, CCTV and access cards to enter premises in order to increase the efficiency in security measures.

Utilities Division is an engineering service section. The huge scale of the medical services building calls for a wide variety of specialized engineering expertise to serve the great variety of medical engineering needs. Utilities Division plans for the regular maintenance of mechanical, electrical and plumbing (MEP) systems, yet special care is given, for example, to support Medical Gas Systems such as those designed for oxygen vacuum, nitrous oxide, carbon dioxide, etc.

- **Logistics, also called the Central Transportation Management Section** is a specialized system for internal transport and transfer of objects, such as specimen collection from patients, medicine, medical supplies and documents, etc. from one area to the other. The Central Transportation Management Section has the responsibility of making certain that transportation within the medical compound is efficient, safe, and prompt in reaching its destination. Official personnel determine the type of transportation suitable for the condition of each mission and the software installed supports the working of all transport systems. The physical transportation **is divided into three systems:**

A Telecar Transportation System

• **Pneumatic Tube Transport System** is a system for transporting documents and materials within the building by compressed air or by partial vacuum through the tube line installed in the form of a network linking all the various sending and receiving stations at the speed set at 3-6 meters per second. This system is set to support a parcel not to exceed 2 kilograms which takes approximately 2-15 minutes per trip.

• **Telecar Transportation System** is an internal transportation system within the building. It is a self-propelled electric track conveyor that can move horizontally and vertically at the speed of 0.4-0.6 meters/second. It can transport an item up to 15 kilograms per load.

• **Manual Delivery System** that uses people to deliver within and between departments located in the Bhumisirimangalanusorn Building.

The logistics system enables equally of treatment for all patients and must meet with standards set by hospital policy. The transport systems are categorized according to function:

1. Clinical Transportation assists in movement of medical supplies and lab samples used in treatment and analysis. It assures prompt, safe, and correct delivery meeting the required standards. Every staff must have training in basic knowledge of equipment and tools used in the transportation of certain items in order for the system to operate smoothly and correctly, such as in the transport of medicines, specimen collection, blood and urine samples, medical supplies, sterile supplies, medical tools, saline solutions and oxygen pipes, etc.

2. **General Transportation** services the patient wards and the internal support units within Bhumisirimangalanusorn Building. The transportation must reach each destination quickly, precisely as scheduled, accurate in quantity and quality, and up to standards. Example materials for this category are clothes, parcels, requisition or invoiced payment papers, maintenance and repair forms, patient supplies for delivery and scheduled return of materials.

3. **Food Transportation** is a system to provide food delivery for inpatients and staff in Bhumisirimangalanusorn Building serviced according to quality control standards. The transportation is expected to arrive at the correct destination, safely, on time and with quality delivery of foods.

4. **Storage of Stock and Supplies Transportation** division. Previously, each ward has its own storage for stocks on reserve, such as paper, gloves, medical tools, different types of solutions and printing ink, etc. Some had never been used. Now in this new medical building, the updated ward system is designed to only store enough stock for a buffer situation. Twelve (12) centralized storage depots of stock have been established. Each storage area is responsible for supporting service to two floors in the building. With an efficient system of transportation, each patient ward does not need to reserve large amounts of stock anymore. All supplies can be requested quickly from the central storage, which in turn greatly helps save on the budget.

The **Uninterruptible Power Supply (UPS) system** within the Building is a very stable system of an electrical backup devices that provide emergency power to a load whenever the main power from Metropolitan Electricity Authority fails. Electricity back-up supply will immediately be available to support all important medical equipment, such as those in surgery operating rooms or in the Intensive Care Units, so as to enable them to maintain regular functioning. This newer system provides a better solution than the former generator backup devices that were installed in older buildings, which take at least 10 seconds before the generation of electricity begins. The old system is not appropriate for medical treatment in which each second counts. Moreover, a new **Water Storage System** is also installed that holds enough water in reserve for emergency provision for one day's use.

Environmental and Services Division is responsible for maintaining the environment and occupation health in the entire building. It controls the waste disposal system, protects the general functioning of the hospital and ensures it is not affected by the shops and restaurants doing business within the building. The Division installs measures to prevent disease carriers such as animals and insects, from entering the building and is responsible for the regular inspection of the quality of water, food containers, storage of food or raw materials used in cooking, etc. The division ensures the care and cleanliness, tidiness and safety of the building and maintains its excellent condition.

Areas are evaluated for their level of possible risk of infection and then controlled and managed to prevent any spread of infection:

1. Very High Risk Area such as a surgery operation room and a delivery room.
2. High Risk Area such as an emergency unit, sterile unit and a laboratory.
3. Medium Risk Area such as an examination room
4. Low Risk Area such as offices and parking lots.

Facilities for conferences, meetings and training rooms are also serviced by the Facility Management Unit. These can vary in capacity from 15 to 370 seats. Doctors, nurses and the hospital staff are able to use these rooms by making a reservation, similar to a hotel booking system. There will be staff on duty to arrange different services, including checking on preparations for the space, air conditioning and housekeeping, etc.

The building is designed to follow the Life-Safety Code Standards, and therefore, has set up access codes and equipment to be used in case of emergency. Staff regularly practice different types of drills for circumstances that may occur, such as in a fire, or in the case of saving a patient in critical condition by taking prompt action. Security personnel are responsible for securing access to the emergency elevator, to enable a team of doctors to arrive at the scene as fast as possible. Or in the case when medicines or blood are urgently needed, another elevator must be separated from regular use to bring the supplies to the patient quickly and on time.

Human Resource Management

Another big challenge in tasks for this project was the fact that all of medical services changed from horizontally spread-out service spaces to that of a vertical axis with 29 levels, and with a great increase in the amount of patient beds. Thus, a human resource management plan needed to be developed. The first question asked was how many personnel were needed in the hospital to accommodate the increase in area and service changes made by this vertical building development? How many people were needed to fulfill the new responsibilities and the growth of different units to be opened for all services? This estimate covered not only the number of nursing staff but personnel for many other related fields.

From the assessment, it turned out that the increase in the number of personnel needed reached to a thousand figures, mainly in nursing staff. However, in reality, it would be impossible to have the number of nurses as calculated due to the immense increase in expense as a consequence. Therefore, even though more positions of personnel were proposed to the Budget Bureau, the human resource management team realized they had to readjust the distribution of tasks and prepare personnel to become more efficient on the job. They were tasked with finding out how it would be possible to maintain performance, yet meet the budget. After a long analysis, the hospital came up by differentiating between "Nursing and Non-Nursing Staff" tasks, such as, coordination, inventory for medical supplies and report on equipment maintenance and repair. Formerly, nurses on each ward had to be responsible for all these tasks, in addition to their main role in nursing duties. This meant that less numbers of nurses were actually on the nursing task. Therefore, the hospital targeted the change for nurses' duties. Those legally qualified according to the professional nursing standards were to be responsible only for the actual nursing-patient jobs in order to fill the gap in numbers of nurses needed. For the non-nursing tasks, the hospital arranged for other personnel, called "ward officers," to replace nurses for those responsibilities. The management team found the solution by putting the right people into the right job. They decreased the repetition in lines of work, by the proper use of its human resources, putting nurses back into the most beneficial use for nurses.


ทะเบียน/ประชาสัมพันธ์
Registration
109
กิจกรรมบำบัด
Occupational Therapy
ธาราบำบัด
Hydrotherapy

Quality Management of Human Resources

The **Medical Equipment Center** was set up to replace the former task of ward officers who were entirely responsible for the maintenance and repair of medical equipment, such as respirators. At present, ward officers report to the Medical Equipment Center when additional equipment is needed or if there is a malfunction in the equipment. The center has the responsibility for installing and maintaining all equipment on site, meeting good quality standards and checking on a regular basis. Furthermore, when the center is correctly managed, better maintenance of the equipment results in prolonging the period of its use.

The hospital building committee invited medical and support personnel from all sectors to meetings in which they detailed the need of adjusting procedures and behaviors to working within the new 'vertical' styled building, as compared to the previous "horizontal' ground-based procedures. These meetings highlighted problems; and the committee listened to suggestions brought to them for improvements. In the end, an atmosphere of good will was created giving a feeling of equality between all people involved. All felt they had participated and shared the responsibility and respect generated within the organisation. Personnel of the hospital may have received only small compensation for working hard on the development project, but all, including their families, earned great merit for the moral support given to their work.

As a matter of fact, the project to establish the Bhumisirimangalanusorn Building built not only the massive structural architecture, and an important cultural landscape, but also fulfilled its goal of building the finest of Integrated

Medical Services located in the Bhumisirimangalanusorn Building. Management systems were created in parallel with the structure; some were readjusted and some were innovated. All targeted the goal of being able to offer continuing improvements in medical services. The entire operation of King Chulalongkorn Memorial Hospital stands as a prototype offering extensive medical services and serves as a model for other hospitals, medical centers, clinics and nursing homes in days to come.

Stream of the Heart, Shelter for Life

With dedicated, determined royal intention, His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother sought to maintain the richness of natural resources within Thailand. Their Majesties believed that it was the fundamental necessities of water and forests that enabled life to prosper. The thoughtfulness and royal kindness of His Majesty King Rama IX offered to the Thai people is likened to the power behind a water's flowing in a stream. It is likened to the body's heart pumping life-giving blood that flows through the of the body. At the same time, the pairing of royal compassion comes from Her Majesty Queen Sirikit The Queen Mother, who is likened to a sheltering tree giving breath to all life.

In respect to the royal intentions of Their Majesties, our beloved Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother, the King Chulalongkorn Memorial Hospital decided to establish this Integrated Medical Services Building, to be built as a fundamental source for the health of the people. Its concept is likened to a tree that has been planted; we await for the roots to anchor it firmly and for branches to grow and spread out. The center is meant to enhance the growing of medical knowledge throughout Thailand and beyond. Modern research methods will effectively enrich development in medical care. The building is expected to be the most comprehensive place for the integration of medical services to best serve in caring for the health of the public. The building, supported by royal guidance, offers excellence in public health and welfare, and is known as the Bhumisirimangalanusorn.

The concept in constructing a new building came from the need of the hospital to meet the growing demands of patients. Formerly, there were increasingly more problems occurring when medical department services were scattered between different buildings. These were separated over a large area with poorly interconnected pathways, restricting rapid communication, transport and safety. Some buildings had been in use for over a hundred years and had become outdated. Thus, rather than concentrating on renovation and restoration of older architecture, the emphasis became for building one central large building whose architecture could integrate departmental spaces with updated medical tools and equipment, and would allow rapid transport, access and safety.

The need was for a modern, safe and durable building in a functional modern design. With the cooperation of architects, engineers and medical personnel, including experts from each scientific department, the Bhumisirimangalanusorn Building has successfully been established as the medical service building with high international standards. It offers excellence in medical facilities, service with modern equipment and organizational systems. It serves to meet the people's medical needs in health care with efficiency, comfort and safety.

The Building of Diverse Functions

Rooftop	• Helipad platform. Elevators Engine Room. Water Reservoir
29	
28	• **Zone A** VIP Ward
27	• **Zone A** Internal Medicine Special Ward
26	• **Zone A** Internal Medicine Special Ward
25	• **Zone A** Surgery Special Ward
24	• **Zone A** Surgery Special Ward
23	• **Zone A** Gynecology Special Ward
22	• **Zone A** Obstretic Gynecology Special Ward
21	• **Zone A** Orthopedic Surgery Special Ward
20	• **Zone A** Chemotherapy for Hematology Ward /Oncology Special Ward / Pharmacy
19	• **Zone A** General Surgery / Orthopedic Surgery Wards
18	• **Zone A** Childbirth and Neonatal Ward / IMCU Stroke / ICU Stroke
17	• **Zone A** Gynecologg Ward / Nursery / Lactation Clinic
16	• **Zone A** Trauma & Neurosurgical Wards
15	• **Zone A** ENT and Ophthalmology Wards
14	• **Zone A** Food Court / Convenience Stores
13	• **Zone A** Staff Canteen
12	• **Zone A** Lecture Rooms / Conference Rooms
11	• **Zone A** On-Call Doctors' Room
10	• **Zone A** Excellence Center for GI Endoscopy / Respiratory Center
9	• **Zone A** Delivery Rooms
8	• **Zone A** Operating Rooms: OB & GYN / Eye / Ear- Nose-Throat- Neck (ENT)
7	• **Zone A** Operating Rooms : Neurosurgery / Intervention Radiology
6	• **Zone A** Specialized & Orthopedic Operating Rooms
5	• **Zone A** Surgical Operating Rooms / Post-Surgery Recovery Room
4	• **Zone A** Non Invensive Cardiovascular Lab / Cardiac Catheterizqtion Lab
3	• **Zone A** Nuclear Medicine / Medical Equipment Center / Microbiology Laboratory
2	• **Zone A** Nuclear Medicine Center / Imaging Center (Ultrasound / CT, PAC, X-ray)
1	• **Zone A** Emergency Department (ER)
M	• **Zone A** Emergency Pharmacy / Observation Ward / Health insurance Center
B1	• **Zone A** Theater Sterile Supply Unit
B2-B4	• Parking Lots

Bhumisirimangalanusorn is a 29-story Building, facilitated with different core services on each floor. The building is managed by area zones, facing different directions towards the streets outside: Zone A is the area facing East towards Ratchadamri Road, Zone B faces South toward Phra Ram IV Road, Zone C faces West toward Henri Dunant Road and Zone D, facing North, towards Rama I Road, which is the location of the head office. Details of each floor are as follows:

- **Zone B** Day Care Ward
- **Zone B** Internal Medicine Special Ward
- **Zone B** Internal Medicine Special Ward
- **Zone B** Surgery Special Ward
- **Zone B** Surgery Special Ward
- **Zone B** Gynecology Special Ward
- **Zone B** Obstretic Gynecology Ward / Nursery
- **Zone B** Orthopedic Surgery Special Ward
- **Zone B** Chemotherapy Special Ward
- **Zone B** Internal Medicine Ward
- **Zone B** Gynecology Ward
- **Zone B** Gynecologg Special Ward
- **Zone B** Surgical Ward / Male
- **Zone B** Anesthesiology Department
- **Zone B** Prayer Room / Recreational Garden
- **Zone B** Multipurpose Room / Lecture Rooms/ Conference Rooms
- **Zone B** Lecture Rooms / Auditorium
- **Zone B** Department of Pharmacy
- **Zone B** ICU (MED) 1, 2, 3 / In-Patient Cashier
- **Zone B** ICU / NICU (Neonatal) Ward / Social Welfare
- **Zone B** Pre-and Post-Operative Care Ward / Ambulatory Surgery Unit / Cashier
- **Zone B** ICU Neurology 2 / Vascular & Intervention Radiology Wards
- **Zone B** Staff Canteen
- **Zone B** ICU Surgery / ICU OB/GYN
- **Zone B** CCU / ICCU Wards
- **Zone B** Laboratory Medicine / Blood Bank / Parasitology
- **Zone B** Magnetic Resonance Imaging (MRI) Room / Cashier
- **Zone B** Emergency Department (ER)
- **Zone B** Social Welfare / Admission Center / Cashier / EMS / Referral Center
- **Zone B** Pharmacy

- **Zone C** Ward for Monks
- **Zone C** Infection Control Ward
- **Zone C** Excellence Center for Organ Transplantation
- **Zone C** Short Term medical ward / Medical Intervention Word
- **Zone C** Burn Unit
- **Zone C** Cardiac Intervention Care Unit / Ophthalmology Special Ward
- **Zone C** Birth Certification Room / Obstretic Gynecology Special Ward
- **Zone C** Otolaryngology (ENT) Special Ward / Sleep Disorders Ward
- **Zone C** Bone Marrow Transplant Ward
- **Zone C** Internal Medicine Ward
- **Zone C** Internal Medicine Ward / Cashier
- **Zone C** Internal Medicine Ward
- **Zone C** Surgical Ward / Female
- **Zone C** Surgical Ward
- **Zone C** Rehabilitation Medicine Center
- **Zone C** Lecture Rooms / Conference Rooms
- **Zone C** Lecture Rooms / Conference Rooms
- **Zone C** Clinical Skills & Simulation Center (CSSC)
- **Zone C** Hemodialysis Unit (Kidney Dialysis Center)
- **Zone C** Epidemiology Unit / Excellence Center Advanced Therapy Medicinal Products (EC-ATMPs) / Maternal-Fetal Medicine Center
- **Zone C** Nephrology Unit / Excellence Center for Stem Cells and Cell Therapy
- **Zone C** Pulmonary and Critical Care Unit / Excellence Center for Comprehensive Stroke / Excellence Center for Comprehensive Epilepsy
- **Zone C** Chula GenePRO Center / Oncology / Allergy and Clinical Immunology / Rheumatology
- **Zone C** Dermatology / Infectious Diseases Center
- **Zone C** Endocrinology & Metabolism Center
- **Zone C** Hematology Advanced Lab
- **Zone C** Research Centers: Gastroenterology / Department of Medicine / Hematology
- **Zone C** Clinical Hematology / Pharmacy / Cashier
- **Zone C** Cardiovascular Medicine Center
- **Zone C** Pharmacy

- **Zone D** Palliative Care Center (Cheewabhibaln)
- **Zone D** Facility Management Unit (FMU) / Department of logistic
- **Zone D** Heart Failure and Transplant Cardiac Center

The carefully planned allocation of space by zones covers the great diversity of functions and enhances the efficient use of space on each floor. Each floor was divided into 4 zones, A, B, C and D. Each zone is separated by a fireproof wall, but is easily accessible by clients and staff. Three parts, zones A, B, D of the space on each floor is reserved for health and hospital services, another part, Zone C is to be used by Centers of Excellence for an area for research. The intention of managing the spaces in this manner was to enhance the possibilities for clinical personnel in each scientific field to interact and exchange with doctors active in real life clinical experience, enabling a “bench to bedside” approach, with the feedback resulting in better medical treatments.

Establishing the Bhumisirimangala-nusorn Building enables great potential for improved medical services offered by the hospital:

Potential 1

A potential to serve patients in an integrated-service style (One Stop Service)

Potential 2

A potential to be Centers of Excellence for research and treatment of complex diseases

Potential 3

A potential to serve at an international level of modern technology

Potential 4

A potential to upgrade the standard of Inpatient Care in Thailand

Potential 5

A potential to be the Service Center for Accident & Emergency Department (A&E)

Potential 6

A potential to enable researched knowledge to be applied via excellent service centers for public health and medical treatments

Potential 7

A potential to provide wellness programs for physical, mental, social well-being, and spiritual health (Rooms for Religious Practice, Recreation and Gardens)

Fulfilling the Royal Intention by the Development of a Prototype for a Modern Medical Services Building

Bhumisirimangalanusorn Building is considered to have the largest amount of building space available for integrated medical services in the ASEAN region. It offers the patient facilities which use modern technologies and gives the best service at reasonable costs. Seven types of accommodations range from:

1. Standard Room
2. Deluxe Room
3. Deluxe Room
4. Superior
5. Executive
6. Junior Suite
7. Bhumisiri Suite

Besides these categories of general accommodations, there are also in-patient ward services in Intensive Care Units (ICU), Critical Care Units (CCU), Intensive Cardiac-Care Units (ICCU), Neonatal Intensive Care Units (NICU), Cribs and Mini Stroke ICU. These are available in single, double and standard rooms These accommodations and attentive care are prepared for all patients, at a reasonable rate.

With strong determination in fulfilling the royal intentions of caring for people's good health, physically and mentally, and also for developing medical knowledge to the highest levels, the Bhumisirimangalanusorn Building has established Centers of Excellence in all aspects of medical services. Within the building, and by the two modules of the Integrated Health Services and the medical research Centers of Excellence, the building is capable of dealing with every situation, and of becoming much more than any ordinary hospital building.

Number One in Innovation

Centers of Excellence: health problems nowadays have different challenges due to changes in our way of life and our environment. Medical treatment, therefore, has to be appropriate within the present-day context. The establishment of Bhumisirimangalanusorn Integrated Medical Services Building is a major step in thedevelopment of Thai medical services. It brings modern technologies into the medical examining, analysing and curing of patients, including providing for their after-care treatment. To achieve this high standard of medical service Bhumisirimangalanusorn Building hosts the headquarters for medical research in Centers of Excellence comprising six scientific fields. These Centers of Excellence are:

1. Gastro-Intestinal Endoscopy Center of Excellence, King Chulalongkorn Memorial Hospital

Gastro-Intestinal (GI) Endoscopy Center of Excellence at King Chulalongkorn Memorial Hospital provides basic sciences on pathogenesis, molecular biology, immunology, clinical & translational medicine on biomarkers, micro biota and advanced therapeutic endoscopy. Their medical experts are professionally accepted as leaders in the field of Gastroenterology in Thailand. The role of the center is to prevent gastroenteritis disease, promote health care, diagnose and treat intestinal problems through use of endoscopy at the same time. The center maintains its excellent standards by continual research that has led to many medical innovations, which regularly have had international recognition. There are sufficient number of personnel able to perform a variety of endoscopic procedures, so the center can further encourage research projects to successfully prevent, diagnose and treat gastroenterological disease, fulfilling the goal and objectives set by the center. Based on its performance, the center targets its Center of Excellence to become world renowned.

Our gastrointestinal endoscopy center provides full services. In the procedure of an Upper Gastroscopy, an endoscope is inserted to examine the upper digestive tract from oesophagus to stomach in order to investigate the cause of gastroenteritis symptoms. A small sample of tissue can be removed for further diagnosis and tissue removal can also help in controlling or preventing bleeding from first stage polyps, etc. The Colonoscopy is the medical technique of inserting a tube equipped

with video camera to examine the lower bowel, from the rectum to the cecum. The Endoscopic Retrograde Cholangiopancreatography (ERCP) is a technique that combines the use of endoscopy and fluoroscopy to diagnose and treat certain problems of the biliary or pancreatic ductal systems. Through the endoscope, the physician can see the inside of the stomach and duodenum, and inject a contrast medium into the ducts of the biliary tree and pancreas so they can more easily be seen on radiographs. This technique helps to diagnose and also treat the jaundice condition, perhaps caused by a gallstone in the bile duct or cancer. The Endoscopic Ultrasonography: (EUS) uses the Ultrasound Scanning technique to detect and treat biliary tract stones, or other diseases such as pancreatic stones. The Double Balloon Endoscopy: (DBE), is a technique to examine the small intestine with Double Balloon Endoscopy, inserted either through the mouth and/or the rectum to diagnose diseases of the small intestine, especially in cases of bleeding, colitis or polyps on the small bowel.

Other services include Fibro Scan (Transient Elastography) used for measurement of liver fibrosis and fat, Esophageal manometry and Esophageal pH Monitoring. Further operative programs provided are POEM, ESD, and LASER Lithotripsy. GI programs are carried out during are carried out in regular and/or after hours. Emergency diagnosis and treatment for cases of GI Bleeding use an emergency endoscopic technique and is available 24 hours.

2. Chulalongkorn Stroke Center of Excellence, King Chulalongkorn Memorial Hospital

Stroke ranks as the first most common cause of death in Thailand. However, prompt treatment is crucial. Early action can positively minimize death rates, reduce brain damage and potential complications. While the center continues developing its standard of care for stroke patients, the Chulalongkorn Stroke Center is part of a network connected by technology to video conference about the treatment of any patient in any case of emergency. The video conference enables remote hospitals in Thailand with no experience in the treatment of strokes with Fibrinolytic or Thrombolytic drugs to receive quick and clear instruction from this center, via real time “video telestroke.” This technique helps doctors and patients gain access to proper treatment in time. Moreover, the center also accepts cases by transmission for thrombectomy.

3. Diabetes, Hormones and Metabolism Center of Excellence, King Chulalongkorn Memorial Hospital

This center provides excellent care for patients with diabetes, thyroid diseases, high blood pressure and any disease relating to a disorder of the Endocrine and Metabolic systems. It guarantees that the service is of high quality and inclusive, and meets with world standards. In addition, the center's research seeks ways for diagnosing metabolic diseases, finding cures for them, and for sharing the information globally.

4. Epilepsy Comprehensive Center of Excellence, King Chulalongkorn Memorial Hospital

Epilepsy is caused by an abnormally high amount of electrical signals produced by the brain. It can happen to anyone, despite his or her gender and age. Each occurrence of the symptoms is called a seizure or convulsion, but if it repeatedly occurs, it is called Epilepsy. The causes of this disease are varied; such as, from a childhood illness that caused a lack of oxygen to the brain, an accidental traumatic brain injury, brain tumor, brain parasites or a brain infarction in the elderly or sometimes from a genetic form of epilepsy. The center provides a full team of experts in the field. It is equipped with advanced technology of the 256-Channel Dense Array EEG for Precise Epileptic Localization, to locate the exact site of the seizure in the brain so that the doctor can perform the best surgery for the patient. This EEG is composed of 256 channels for the dense array while earlier EEG equipment had only 19-23 channels. In bringing this modern technology to surgery, it helps to reduce any reoccurrence or side effects to patients, and reduces the time stayed in the hospital.

5. Stem Cell Therapy Clinical Center of Excellence, King Chulalongkorn Memorial Hospital

The use of stem cell and gene therapy has gradually become more applied in the treatment of diseases. Thus, the King Chulalongkorn Memorial Hospital has also brought in the advances in stem cell research to be used with our patients. Some of the projects that have been conducted at the center are:

1. The growing of new corneal tissue by stem cell treatment for patients with corneal damage.

2. The application of robotic devices in new mesenchymal stem cell tissue-engineering for knee arthritis (osteoarthritis).

3. The development of cell immunotherapy and stem cell therapy for cancer, beginning with leukemia and extended to different types of cancer.

4. Conversion of a patient's blood cells (Hematopoietic cell) into induced pluripotent stem cells in order to be reprogrammed; seeking a cure for blood diseases, especially in cases where patients do not have a match for a bone-marrow transplant.

5. The culture of colon and lung cancer stem cells in order to find appropriate cure and to further develop a personalized vaccine by coordinating with the Chula Comprehensive Cancer Center and Chulalongkorn University Systems Biology Center.

6. Excellence Center for Organ Transplantation (ECOT), King Chulalongkorn Memorial Hospital

Today, there are a great number of patients who need to be treated by way of an Organ Transplant. King Chulalongkorn Memorial Hospital medical staff has years of experience in transplanting important organs, such as liver, kidney, heart and lung, etc. to treat low-functioning conditions. The Center offers a comprehensive service for Organ Transplant, beginning with an evaluation of appropriate types of transplant, and caring for the patient, adult or child, before and after the transplant.

This transplant center becomes the hope of many patients and relatives by creating "a new lease on life", a miracle to many. The Organ Transplant surgery at King Chulalongkorn Memorial Hospital began in 1972 with the success of the first kidney transplant case in Thailand. Later in 1987, the first liver transplant was conducted here. The King Chulalongkorn Memorial Hospital is considered to be the first and only hospital in Thailand that has considerable expertise in conducting successful operations on various organ transplants, including liver, kidney, heart, lung, and the pancreas, which is especially challenging as it is a solid organ infused with many blood vessels. The Transplant Center in this hospital was the first in Southeast Asia to have a successful heart transplant. On the world stage, King Chulalongkorn Memorial Hospital is one of the leading organizations with many advancements in Organ Transplant techniques. Recently, in 2016, the hospital had another success in performing an Incompatible Blood Type Kidney Transplant operation by using the technique of lymph-washing so that there was no immune system response; it was the first time the technique was used in ASEAN. The continual success of techniques developed for use in organ transplants enhances King Chulalongkorn Memorial Hospital's well-known status and trustworthiness to the public, both nationally and internationally.

As the progress in successful organ transplants continues, there needs to be a provision that allows this costly medical treatment to be equally available for all needy patients.

Besides these various Medical Centers of Excellence, in-house specialists on the clinical side of the hospital's medical service contribute innovations also, making the Bhumisirimangalanusorn Medical Building one of the best hospitals in the country for treating complicated diseases, with prompt and precise analysis and outstanding personal and coordinated care.

Operating Rooms

The floor layout of the Bhumisirimangalanusorn Medical Building enables the King Chulalongkorn Memorial Hospital to improve the pre- and post-operative care and transport for patients, at all stages, from the pre-operative, intra-operative and post-operative stage. This improvement helps an operation to be more effective, focused, and prevents any excessive trauma to patients.

The Bhumisirimangalanusorn Medical Building contains 62 operating rooms filled with modern equipment and supplies. The operating theatres are prepared for different types of surgeries, as follows:

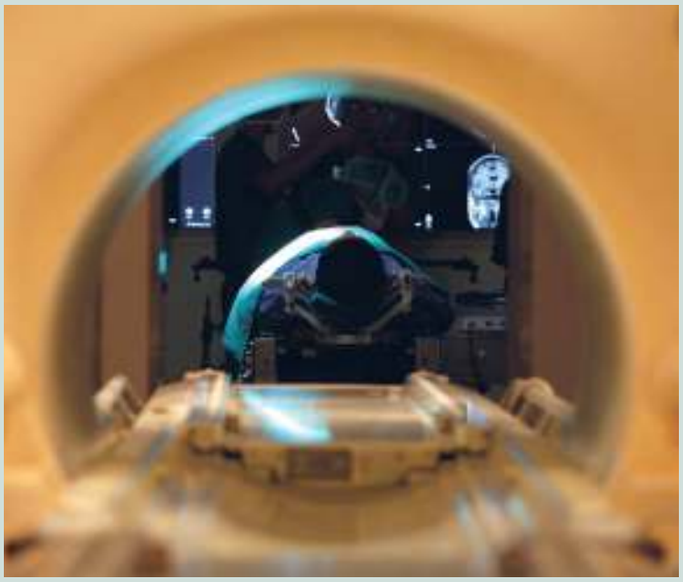
- **Advanced Minimally Invasive Surgery**
- **Image-Guided Surgery and Intervention Radiology**
- **Intra-Operative Radiology**
- **Robotic Surgery,**
- **Laser Surgery.**

These operating rooms are designed to provide doctors with the most advanced assistance for best practices in operations. The operating theatre design reduces unnecessary transferring of patients, pre- intra- and post- surgery, avoiding movement trauma. Emphasis is also placed on the efficient use of all resources available.

In addition, each operating room has an IT Control Center, which integrates all the other technologies installed there. It enables flexibility in the use of equipment under multiple conditions. Therefore, the King Chulalongkorn Memorial Hospital is considered to be the leader in innovative operating rooms in the country.

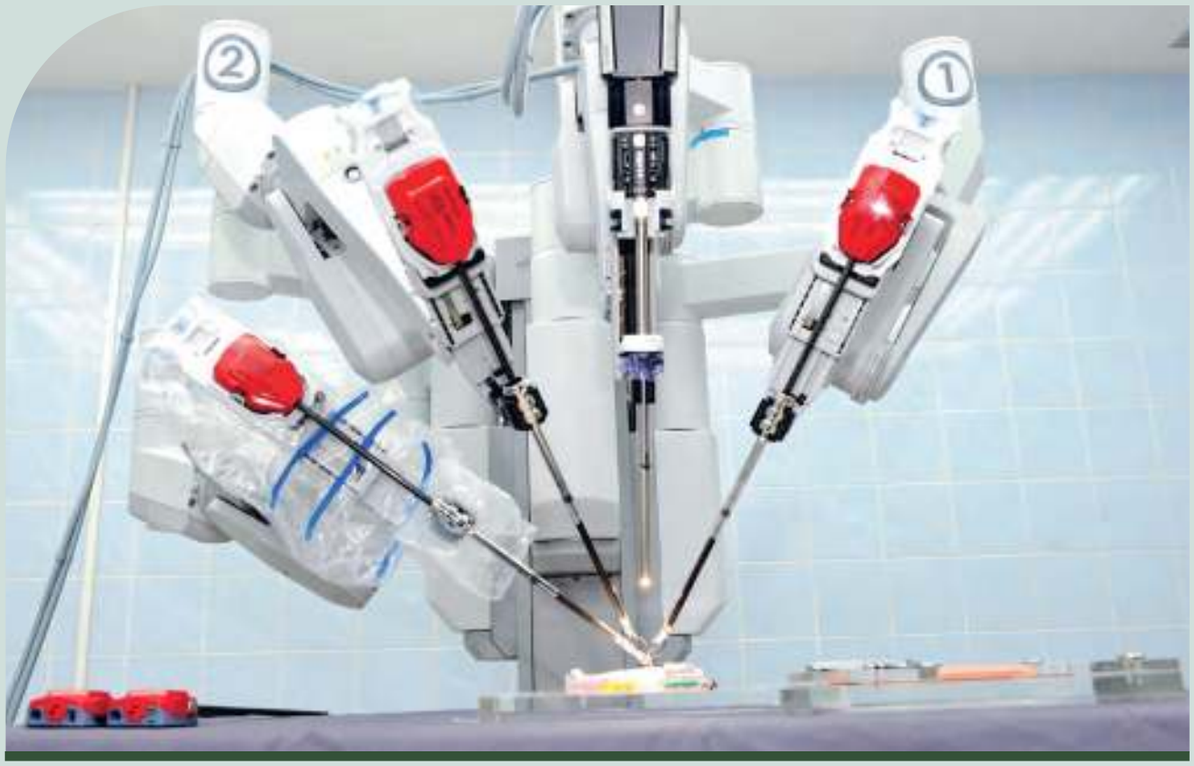
One example is the Hybrid Operating Room. It is designed for use in exploratory disease analysis but if necessary, and at the same time, it can be quickly switched into a fully-equipped surgery theatre, making it an “all-in-one” operational unit. The great advantage is in not moving the patient, especially those with cardiovascular disease, brain and spinal cord diseases, and even for obstetric surgery, where by moving, a patient may lose too much blood. In such a case, it may be necessary to perform measures to reduce the risk of an embolism, by way of advanced vascular interventional radiology technology, before the operation takes place. Operating rooms are also equipped with digital fluoroscopes in a multi-axis system and other technological advances for surgery in Thailand.


Dräger
MAQUET



• **The Neurosurgery Operating Rooms** have the Magnetic Resonance Imaging (MRI) room conveniently located between its two operating rooms. Since MRIs are used for diagnosis and as important references in neurosurgery, the installment of a "Triple-Room," the Intraoperative MRI between the two neuro-operating rooms, is a great improvement, and is the first of its kind in Thailand. For both doctor and patient, it increases efficiency, convenience and reduces transport of patients.

Some operating theatres have X-ray Computer and CT Angiography technology installed within the rooms; these are very useful in the case of chemotherapy for cancer treatment. When chemo drugs are administered intravenously into the patient's blood stream, the X-ray Computer can monitor it; the information helps the doctor evaluate the effectiveness of the treatment, enabling a better efficiency of treatment and less side effects to the patient. In addition, CT angiograph-equipped operating rooms are ready for cardiovascular operations on the heart's major blood vessels, the aorta, and vena cava or the peripheral brachial and femoral arteries where the blood vessels need to be opened and percutaneous coronary intervention may have to be performed. The procedure allows for inspection and adjustment immediately without having to transfer the patient for an X-ray in a different room. Anaglyph 3D images from the X-ray computers, may also be used for surgical assistance. With the well-equipped facilities of the operating rooms, medical treatment can be conducted promptly and efficiently.



• **Robotic Surgery** is a laparoscopic or minimally-invasive surgery where a surgeon makes a small incision and inserts a video camera and robotic surgical instruments to accomplish the operation. The doctor has surgical controls that can precisely turn and bend the robotic arm movements, making the surgery more accurate and easier. The operating surgeon continually sees the procedure projected on a TV console, which is installed in the surgery area. The video pictures on the screen are enlarged ten times in three-dimensional high definition (3D HD) during the operation, enhancing better precision in surgery than in regular laparoscopic surgery. This system of robotic surgery is very efficient, especially in a very minimal surgery case. Patients lose only a small amount of blood, have less post-operative pain and because of smaller wounds, recovery is faster and easier. Robotic surgery is considered the safest system for operations on patients. The robotic surgery system in this building is the best technology of its kind.

The Robotic Surgery System is used in many procedures, such as Genitourinary Surgery (Urology), General Surgery, Colorectal Surgery, Thoracic Surgery and Obstetrics and Gynaecology Surgery.

The robotic surgery was used via tele-conferencing in a transcontinental Tele-Robotic Surgery between the Genitourinary Surgery (Urology) Unit, Surgery Department of King Chulalongkorn Memorial Hospital, and the John Hopkins Medical School in Baltimore, Maryland, USA. The accomplishment of a Tele-Robotic Surgery between the two countries was another success story for international academic cooperation.

In the general treatment for Clogged Arteries Disease, a doctor inserts a long, thin catheter that has a small balloon on its tip. The doctor inflates the balloon at the blockage site in the artery to flatten or compress the plaque against the artery wall, which unblocks the artery and helps to increase the blood flow again; the process is called a balloon angioplasty. Howev-

Excimer Laser System

er, in some specific cases, the arteries cannot be penetrated by the catheter. An example is when arteries are blocked with calcium score, which is harder than normal plaque. A new invention for this type of treatment uses an Excimer Laser System that can eliminate the calcium score and open the way for a balloon catheter to penetrate. This system is also usable for other cardiac diseases; for instance, for patients who have problems with fascia, or scar tissue, growing around Implanted medical parts or tubes inside the body. The Excimer Laser can clean the fascia tissues from those parts, in order to more easily remove the implants after healing has occurred. Its advantage is that regular veins will not be disturbed. The medical procedure also reduces risk and pain during treatment, which is another big advantage,

• **The Replacement of a Heart Valve with minimally invasive surgery.** Valvular heart disease is found frequently in Thai people, especially in the elderly where risk in surgery is higher. Consequently, a new innovation permits a replacement of a heart valve with no need for the previous method of open heart surgery. A doctor will access the heart through a blood vessel in the leg. A hollow tube (catheter) is guided through the veins to the aortic valve. Once it is positioned correctly, a balloon inserts a self-expandable replacement of the aortic valve. The technology helps doctors reduce the high risk of aortic surgery, adds more efficiency to the procedure and greatly reduces recovery time to the patient as a medical treatment.

• **Endoscopic Technology is** brought into Pulmonary Medicine and Respiratory Critical Care treatment. The Department of Medicine of King Chulalongkorn Memorial is the first hospital in Thailand and the third in Southeast Asia to have succeeded in curing bronchial asthma with this technology. The advantage of interventional pulmonology, which uses an endoscopic treatment for bronchial asthma disease, is that it increases patients' quality of life by greatly reducing asthmatic symptoms. After the procedure, patients are able to return to a normal life as there is no need to stay in hospital, no need to use any inhalers or other medicine, nor any steroids for further treatment. Therefore, the procedure saves on expenses and adds greatly to the patient's quality of life. In the endoscopic treatment for asthma, called Bronchoscopic Thermoplasty, a doctor advances a flexible endoscope (bronchoscope) through a person's mouth or nose into the trachea. Then, he applies a heat probe to the walls of the airways of the trachea. The heat destroys the smooth muscle layers whose aggravation contributes to the asthmatic symptoms. This treatment causes no side effects and no disturbance to the lung. This pulmonary intervention is a very good alternative choice for the five percent (5%) of Thai population who are diagnosed with chronic bronchitis to return to regular life again.

In 2017, because it was fully prepared with advanced medical equipment and specialist teams of doctors, the King Chulalongkorn Memorial Hospital was able to be the first and only hospital in Thailand capable of successfully performing a Bronchial Thermoplasty treatment for a severe case of bronchial asthma.

Kidney Dialysis Center

The kidney dialysis center of King Chulalongkorn Memorial Hospital conducts many outstanding services; some are the first of its kind in the country as well as in the world. It was the first hospital in Thailand to initiate using an endoscopic catheter for kidney dialysis. It was the leader in using Icodextrin & Amino Acids as a dialysis solution. Moreover, in order to avoid any malfunction of a catheter, the hospital initiated the use of a Trans-catheter Endoscopic Catheter Salvation in kidney dialysis for the first time in the world. Our faculty has written many research papers for national and international distribution. Thirty five of these have been published in international journals and some have been honored with national and international awards.

Maternal-Fetal Medical Care Center

King Chulalongkorn Memorial Hospital is prepared for a full cycle of services in fetal, maternal and child care. It covers all stages of pregnancy, childbirth delivery, post-delivery and infant care and more at a world standard level. The center is equipped with a 4D Ultrasound Imaging, also known as Sonography or Ultrasonography devices, for use as diagnostic tool. The device is able to determine the sex of the fetus, detect any chromosomal abnormality in the fetal heart, veins or valves, eliminating the need to perform an amniocentesis. It is possible to use this application from fetal 9 weeks of pregnancy onwards, at a much earlier time period when compared to the normal amniocentesis procedure that requires waiting to the fourth month of pregnancy before the examination for abnormalities can be performed and a diagnosis concluded. Due to the increasing numbers of clients, the hospital has invested in four sets of these ultrasound devices in order to better serve our clients with a modern and durable technology that works efficiently and accurately in reducing time for diagnosing and preventing health problems of mother and fetus.

Fully Equipped

with State-of-the-Art Technology

Image Diagnostic Center

The King Chulalongkorn Memorial Hospital Building houses its technological equipment necessary for diagnosis in the Image Diagnostic Center, which retains equipment such as, electromagnetic radiation detector, Computerized Tomography Scan (CT scan) and the X-ray machines, etc. These advanced medical technological tools help make a precise diagnosis of a disease, and along with the expertise of the highly trained medical faculty, patients can rest assured in the efficiency of medical diagnosis and of treatment when checking into this hospital.

Hematology Clinic

The Hematology Clinic offers full services for patients with blood diseases. Care services are provided for different types of blood cancer patients: lymphoma, leukaemia and myeloma, etc. Prime medical care is given to patients under chemotherapy treatment. Under new types of medicines targeting only the malignant cancer, patients may be assigned treatments by stem cell therapy. These patients will receive advice throughout the period of treatment. Besides blood cancer diseases, the clinic also offers services for patients with other blood disorders, such as, anemia, thalassemia and blood clotting disorders, etc.

Management of the Hematology Clinic is accomplished by a modernized computerized system in which all patient data are recorded in one digitized database, giving the patient satisfaction of convenience and quick service. Today, all procedures for treatment are done under one roof in the huge medical building, so patients do not need to move around the hospital grounds as before. Diagnosis, reserve blood, distribution of drugs and prescribed chemotherapy are overseen by the digitalized system, the information easily available to doctors for best patient care. Hence, this Hematology Clinic is used as a model clinic for other clinics in the hospital.

Modern laboratories also support diagnosis and treatment at the clinic by genetic testing and radiation examination by by use of the Emission Tomography (PET)/CT scan, which is quicker than CT scan. The resulting diagnosis gives a precision analysis, which ultimately leads to more successful and efficient treatments.

New Dimension of Medical Sphere

Rehabilitation Services for Patients

King Chulalongkorn Memorial Hospital has a Rehabilitation Center on the 14th floor of Bhumisirimangalanusorn Building to serve patients by giving remediable therapy to regain their movement ability, before or after the need for surgical intervention. Rehabilitation services help to improve the quality of life for patients. The center is composed of an integrated professional team of specialists, including rehabilitation doctors, nurses, physical therapists, speech therapists, psychologists and specialists in prostheses. They will evaluate the condition of a patient before designing a rehabilitation treatment. The specialists in different fields are able to provide a full range of services for patients, covering neurological rehabilitation, musculoskeletal rehabilitation for both adults and children, heart and lung rehabilitation and swallowing rehabilitation. The services include specialized healthcare for diabetic patients, ligament, joint, and muscle disorders in patients. The center is equipped with the most advanced medical tools and technology for medical evaluation and rehabilitation.

Hydrotherapy is another method used in rehabilitation. It employs the qualities of water buoyancy, water flow resistance, and surface tension as forces to exercise the body. Water movement helps to rehabilitate and relax the body, and at the same time, strengthens muscles, blood circulation, balancing ability, increasing heart and lung capacities and reduces symptoms of pain and action force on joints. This use of water also helps patients learn to pace their own movements, which in turn helps them from repeatedly injuring themselves while exercising, and in general movement.

Rehabilitation by Hydrotherapy Method


SIEMENS

New Dimension

in the Medical Sphere

Laboratories (Clinical Medicine)

The laboratories of the Clinical Medicine Department on the 3rd floor of Zone B in the Bhumisirimangalanusorn Building provide medical analysis through clinical pathology tests that are accredited by ISO 15189 and ISO 15190. This department services patients throughout the hospital: in Emergency Rooms, Inpatient Departments and Outpatient Clinics within the premises of Bhumisirimangalanusorn Building. Patient data information, transport and communication systems interconnect each department, and various clinics with the Clinical Medicine Laboratories, enabling them it to provide an integrated and effective performance to all. The previous process of sending written lab order requests delivered by hand was eliminatedonce the hospital's integrated computerized information system was installed. Today, doctors can conveniently order laboratory tests from the computer monitor in their departments. The procedure is more efficient, economical and time-saving. Furthermore, the process of collecting specimens from patients has been modernized. Today, every specimen is labelled with name, registration number and a bar code from the hospital information system. It is delivered directly to the laboratories by a pneumatic tube carrier system. The source of origin might have been the actual patient's ward, or from one of the in-house clinics. The method relieves the need for the patient to move to the lab service, with a concomitant increase in convenience and safety for the patient and speed in specimen delivery to the lab. Once specimens are delivered to the laboratories, the clinical staff no longer wastes time in searching for the patient's details, as they only have to put the bar code under the bar code reader to find what needs to be done. The hospital's integrated information system then transfers the order for the specimen test into the Laboratory Information System, including orders from doctors, test results or checking on the quantity and quality of the specimens. The specimens are then sent for the correct analysis procedure. Here, an automatic diagnosis system is employed, which is connected to the Laboratory Information System. When the specimen's analysis is completed, the clinical staff first verifies the result. Then the result is posted into the larger hospital information system, which then delivers the test result to the doctor. In the case of emergency room patients, the laboratory test result is sent via a computer monitor link within one hour after the laboratory receives the specimen. In general, regular patients can learn of the lab results within an hour and a half.

The physical interior of the laboratories of Clinical Medicine Department are clearly divided into two zones of lab and non-lab spaces. Non-lab spaces are for specimen delivery, offices and meeting rooms. Laboratory spaces are for containment of specimens, testing, and chemical and equipment storage areas. The clear division of spaces insures safety zones for clinical staff, clients and the public. It prevents specimens, equipment and chemicals from external contamination, an important condition as required by the international standards for medical laboratory safety.

Tele-Stroke Robot as Assistant Doctor

A stroke is caused by the flow of blood coagulating and forming a clot somewhere in the circulatory vessels, and blocking blood flow into that part of the body. It needs urgent medical care, especially in the case of thrombolysis, a blot clot in one of the arteries to the brain. Treatment involves the patient receiving an injection of clot-busting drugs through an intravenous line within 4.5 hours after the symptom occurs. Nowadays, help is available through a telecommunication network. For example, if the emergency situation occurs in a hospital in a remote area, at night, or with residents or general practice doctors who have no expertise in this drug use, the attending doctor may call an affiliated hospital for assistance from specialists through this telecommunication network. The specialist physician need not be present in the hospital at the time. In such a case, the specialist doctor can give telecommunication assistance through a robot. This “tele-com” equipment links communication between people in different places, such as a resident doctor with a specialist outside, or a doctor at home with an Inpatient at the hospital. This technology was developed from video conference techniques that provide a more crystal clear picture and have two-way communication. The resolution of the picture can be adjusted to zoom, even onto the iris of the patient, so that the doctor on the other end can make a primary diagnosis, help to decide on a treatment, and whether the patient should be given clot-busting drugs or treated otherwise.

At present, King Chulalongkorn Memorial Hospital has Tele-stroke Robots located in emergency rooms and on the 18th floor of Bhumisirimangalanusorn Building. Doctors access these robotic assistants by logging into their system from a remote location. The robot can be monitored to move to the patient's bed and capture the specific features of a patient which will show up on the screen of the doctor's monitor. On the other end, th patient can see his doctor on his monitor screen at the same time. They can communicate via the robot. Through this Tele-medical assistance, the doctor can ask a patient to move his hands or legs, check his eyes' irises, or observe organ fatigue. By the use of robotic telemedicine, the

condition of patients can be observed, accessed, and enables a prompt decision about the treatment. This technique is also useful for checking results from an X-ray computer or other diagnosis on the screen.

Altogether there are three Tele-stroke Robots. Two immovable ones are in use at the emergency rooms and the walking robot is on duty at the stroke unit. This walking robot is programmed with the ability to move to the ordered destination, avoid barricades and is equipped with a heartbeat monitor.

Stroke paralysis patients, generally are admitted as an inpatient for approximately seven days, then are sent home for further nursing afterwards. Because this group needs a longer recovery period, a "Home Care" system was formed. Instead of sending nurses for a home visit to these patients, a new type of robot was developed for use at home and at a reasonable cost. By this new Tele-medical care technique, patients are in communication with the nursing team through the robotic monitor screen, thus information about his/her condition can be continuously updated to the hospital. The programmed robot can check patient blood pressure and pulse and report back to the hospital. In addition, a timed alarm can be set on the robot, for example to remind patients not to miss an upcoming physical therapy session. This follow-up robot technique offers a new reassurance to patients for having a successful recovery period at home.

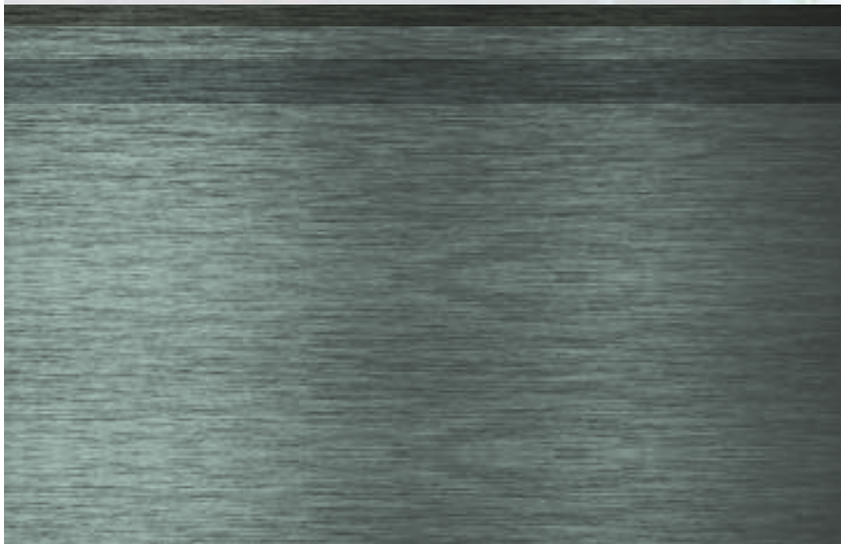
Furthermore, two new computer applications for care service are being developed by King Chulalongkorn Memorial Hospital. The first application is called "CU Stroke." This free downloadable application helps people learn of their self-risk factors, by filling in basic information of weight, blood pressure, smoking or non-smoking, blood sugar level and heartbeat rhythm, etc. The information is calculated into graphic form, so that when the person comes in as a patient at the hospital, this self-information graph saves the doctor time in asking these same questions. Another application in development is to be used for a patient transferred from another hospital. Previously, patient data need to be requested from the original hospital by phone. When this application is completely developed, all primary information can be downloaded, a teleconference can be done between hospitals, and it will be capable of uploading images and X-ray computerized results as well. Therefore, all data on the patient can be recorded in the application, including arrival time at the hospital and time of receiving doses, etc.

Care with Service in Mind

In Service of Excellence

Throughout the past hundred years, the King Chulalongkorn Hospital continually added a great number of medical-care buildings to serve the always-growing number of patients. In the end, there were over a hundred buildings in the compound. While it was sufficient to handle patient admittance and totally covered medical services, the sheer number of buildings became ungainly and proved obstructive to providing a full circle of services. Besides, these buildings were long overdue for renovation and the medical equipment and tools were going obsolete. Consequently, a plan for reconstruction and renovation was initiated to fulfil our vision statement, as “The Role Model of an International Standards Medical Institution with Virtue” that offers full services for medical care. The medical care includes general treatment, specialized medicine, 24 hours emergency care, disease prevention, health care, provision for knowledge training of health, drug usage, explanation and guidance for patients on diseases.

Excellence in Medical Service has been the core vision and the important role of doctors in King Chulalongkorn Memorial Hospital. Therefore, by the construction of an integrated building, the aim of giving fully integrated services would be attainable. Patients would enjoy more convenience and less stress. Complicated cases of patients will be served quicker, instead of risking their life as before, by having to wait in long lines before being treated. The service today has improved to a standard and quality accepted internationally.



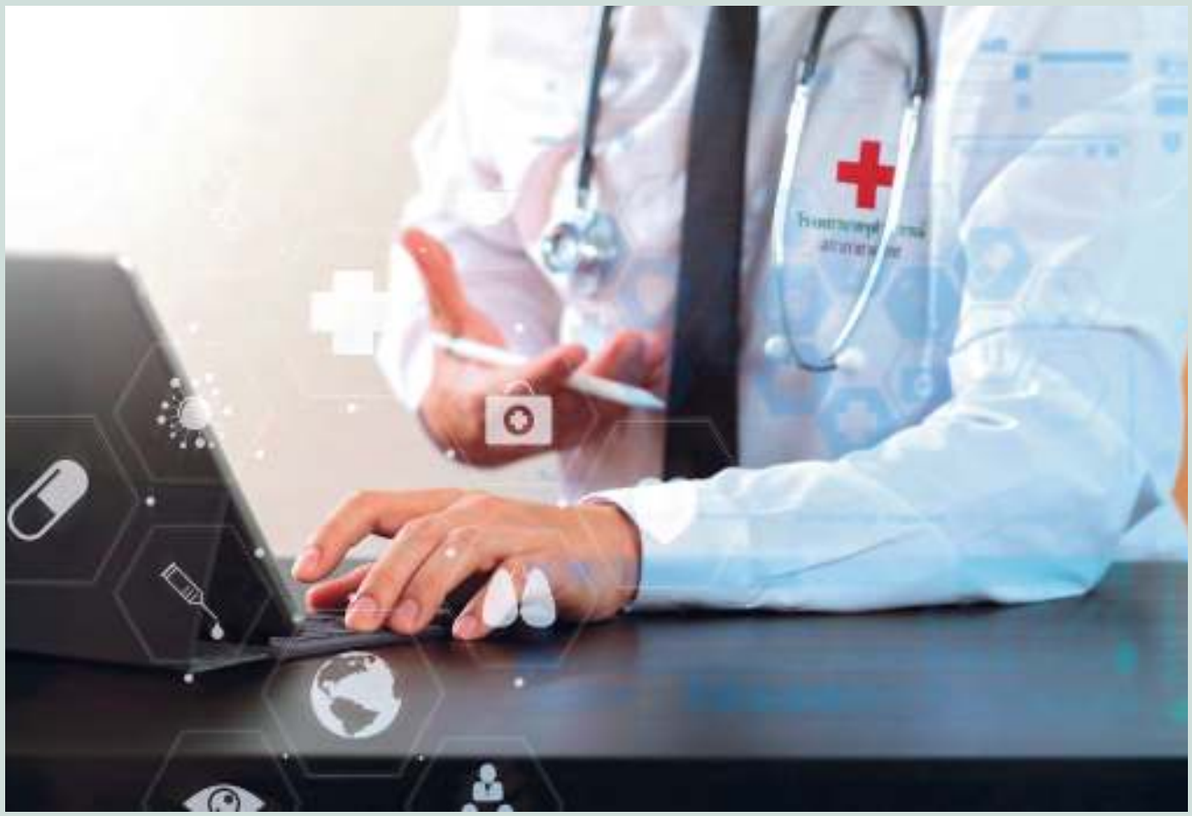
Apart from suitable physical architecture and equipment, another important factor that impresses patients and clients is the service from medical personnel. Every trained and professional nurse at King Chulalongkorn Memorial Hospital has been ingrained to be conscious of the fact that the “key to good medical treatment is to care for the whole body and soul of patients,” and that includes their social and environmental contexts as well. With that principle, the patients and clients will be satisfied with our service. Additionally, the hospital has been producing more nurses and maintaining their knowledge base, to reinforce their ability for giving the best care to patients. Courses on “Nurse Education” are offered to nurses to further fulfil the role in giving excellence of service here at the Bhumisirimangalanusorn Building.

Because patients are the key stakeholders of the hospital, another main service to them is the **Information System.** Patients' data are systematically and safely recorded. Every doctor can access patient data via an on-line system using the computer monitor on his desk. The data is very precise and detailed with all treatment history from the beginning to present. If the patient is treated by many doctors, all prescriptions will be recorded on the system, and therefore, each doctor will have knowledge about any allergy and dosage given to the patient. All expenses, from the cost of treatment to the price of medicines, can be quickly checked, which lessens worries, and helps the patient in planning.

An automated Kiosk facilitates patients, relatives and staff for matters of registering, medical eligibility verification and queue cards to see doctors. This system reduces congestion for registration and time waiting in line. Patients can press for a queue card from a Kiosk. The queue card provides directions on the process and names of contact units for each disease treatment. In the future, queue cards will be digitized with the QR Code of the patients so they can "scan" their card through the application LINE. The application can signal patients when an appointment time is near, save time and energy of patients from sitting around waiting. Kiosks are on service at the Hematology Clinic, in front of the X-ray

room and the Emergency Room. The system is being set to connect to mobile phones so that a patient will know his queue number to a doctor and a web mapping service will lead patients to different service stations in the hospital. It adds great convenience for patients and it assists patients to be on time for medical care without any difficulty in finding examination rooms in each building, which was a big problem before when they were scattered around the hospital grounds.

Hospital payments will be managed by mobile banking also. The hospital plans to convert every analog information system to a digital one. All hospital systems will be digitized by the end of this conversion period.



The Medical Dispensaries, or Pharmacies, have also been improved and are located throughout the building for convenience and efficiency. Serving each medical department as the main supply depot is the Pharmacy Center on the 11th Floor of Integrated Medical Care Wing. Two outpatient pharmacies are on the First Floor. Most of the outpatients in the Bhumisirimangalanusorn Building pick up their prescriptions on the First Floor in the main Outpatient Pharmacy, located in wing of the Integrated Medical Services Center. A second pharmacy in the Center of Excellence wing supplies patients of the Hematology Clinic. The pharmacy on the M Floor on the Integrated Medical Services Center Wing serves patients from the Emergency Room. The medications for hospital Inpatients are from the pharmacy area on B1 Floor. Here in a separated room for the preparation of sterile medicines is the place where, for example, an IV Admixture, (a preparation of a pharmaceutical mixture of two or more drugs into a large bag or bottle of IV fluid) is prepared for patients' wards. The **Central Pharmacy Storage** is also located on B1 Floor to supply medicines to all pharmacies in the hospital.

The pharmacy area and the sterile medicine preparation room in the Bhumisirimangalanusorn Building are designed to modern and high service specifications to qualify under the Professional Standards for Hospital Pharmacies.

In dispensing medication to Inpatients, all medications are managed by the Central Transportation System. Transport of items is divided in orderly rounds to avoid crowding the use of elevators. For emergency, however, medication is transported by a special channel, prepared by the central transportation section. For Outpatient medicines, the doctor writes a Computerized Physician Order Entry, or CPOE, which goes directly into the computerized information system to the pharmacy. Therefore, patients do not need to present a prescription, for price estimation before payment, like in the past. The pharmacy situation in the past for patients was one of overcrowding and time-consuming; now that has been improved and patients are happy and satisfied.

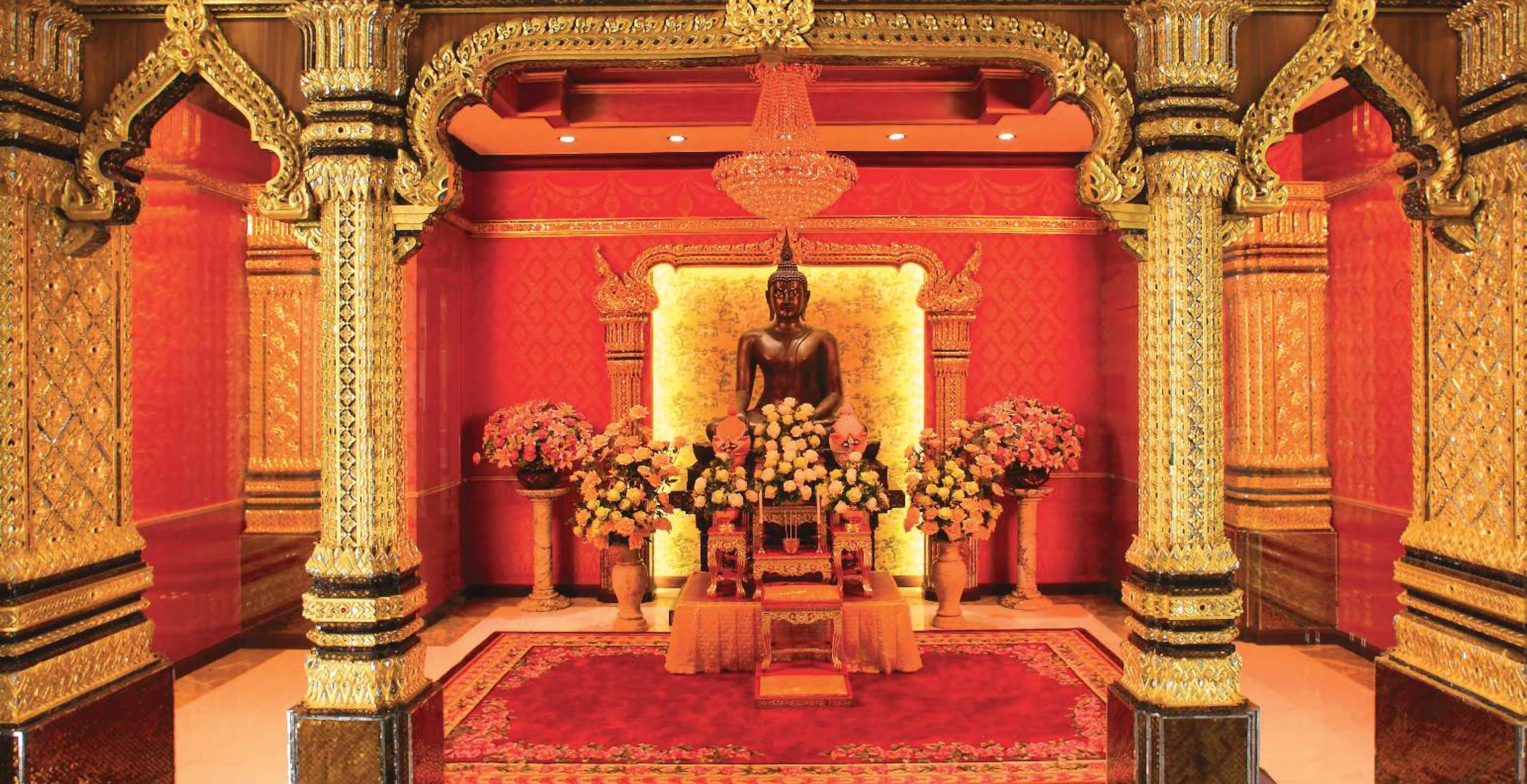
The Pharmacy Center on the 11th Floor of Integrated Medical Care Wing serves as the main pharmaceutical care unit. Its role is to look after all patients, both In- and Out-patients for medicines, and follow up care on adverse reactions to drugs use, and drug allergy assessments, for the safety of patients.

Furthermore, the King Chulalongkorn Memorial Hospital puts an emphasis on ensuring safety in the combination and transportation of chemotherapy drugs. This operation must be carefully managed with meticulous caution needed for the use and transport of chemotherapy drugs, otherwise they can be harmful for the carriers. Training courses for the safety needed upon the combination of chemotherapy drugs are given to the operational staff, so they are aware and alerted to protect themselves and others. It proves that the King Chulalongkorn Memorial Hospital is highly attentive to safety matters over and above the usual standard.

“Good Health is to be holistically balanced in Body, Mind and Spirit.”

Nature and Faith Relaxation

To give the best in health care is to do it holistically, that is, to take care of body, mind, spirit and society. Healthcare in the Bhumisirimangalanusorn Building is for everyone, regardless of race or religion. Our principle objective is to develop good health that includes a mental, spiritual and social balance, with equality for all our clients. Therefore, “Rommani Terrace.” on the 14th Floor, is a space prepared for these different activities. It has two main sections, a religious area and garden area. The Religious Section has prayer rooms for the three main religious practices, in ratio to the data of religious practitioners in Thailand, for Buddhism, Islam and Christianity. The Buddhist Prayer Room enshrines the seated Buddha Image in the position of Subduing Mara, Phra Buddha Thikha Yuramangala or “Luang Pho Dam.” The Image was transferred from the demolished Vajirayan Samakkhi Phayabara Building to be enshrined here as the psychological anchor for Buddhist patients and relatives, and all Buddhists. The Muslim Prayer Room was officially opened by the Chularatchamontri, and is facing west, as is religiously required. Separated male and female wash rooms are prepared for practitioners. For Christian worshippers, a prayer room is also arranged and given the name, “Piamrak Room.” Adjacent to the religious area, the terrace becomes a green area of gardens, a place for recreation and relaxation for patients and their relatives after medical services. This type of arrangement of separated yet contiguous or bordering spaces for nature and faith, is the first of its kind in Thai hospitals.



Nature and Faith

Relaxation

Food centers for patients and their relatives are also offered in the building. All food stalls and restaurants are carefully selected to meet the hospital standards in cleanliness, hygiene, good taste and are reasonable in cost. The food center is managed by a cash card system. The hospital is very strict on environmental and occupational health standards. Every food service contractor must take full responsibility in keeping clean and monitoring their area's impact. They must have good control over insects or disease-carrying animals, quality of water and materials used. Their performance is regularly inspected and evaluated.

In front of these food centers, **convenience stores** are located for personal needs, and consumer goods of hot, cold and fresh items. These, are open 24 hours per day to facilitate the needs and safety of clients and staff at night. Additionally, on many floors of Bhumisirimangalanusorn Building, are small food and snack stalls, distributed in convenient spots. There are plenty of restrooms with a fulltime cleaning attendant inside each.

The Clients' Lifestyle Outreach

The lack of parking space has been one of the biggest problems for people coming to the hospital before, especially in the King Chulalongkorn Memorial Hospital, due to its location in the center of the city and next to many urban centers. Bearing this problem in mind, the new building, Bhumisirimangalanusorn created parking areas on the basement levels from B2-B4, for a capacity for parking spaces for 438 cars. Clients will have use of an indoor parking space for 24 hours. Different parking fees will be charged to prevent the problem of overcrowding in parking spaces. People with no involvement with hospital services are charge one price, while the hospital clients who show required evidence will get a discount fee. The different fee rates is a solution that will help solve the parking space problems.

Different Public Transportation Routes to Bhumisirimangalanusorn Building

To travel to the Bhumisirimangalanusorn Building of King Chulalongkorn Memorial Hospital without driving, you can choose many routes of public transportation:

Public Buses: No. 4, 14, 15, 16, 21, 25, 45, 46, 47, 50, 67, 74, 76, 77, 109, 115, 141, 163, 172, 177, 504, 507, 514 and 547

BTS Sky Train: Sala Daeng Station

MRT Bangkok Metro: Silom Station

Public Boats

- From Khlong Saen Saep, Get off at Pratunam Pier and go further to destination by Public Bus No. 14 or 74 or 77
- From Chao Phraya River, (1) Get off at Si Phraya Pier and go further to destination by Public Bus No. 45. Or (2) get off at Sathorn Pier and go further to destination by BTS Sky Train at Saphan Taksin Station and get off at Sala Daeng Station. Or (3) from Sathorn Pier, take a Public Bus No. 15, 77 and 514




More than Just a Hospital

Bhumisirimangalanusorn Building serves not only as an integrated medical center for the public but also as a **Medical Education Center** for hospital personnel. It is an institution of learning for updates in medical knowledge, increases in efficiency and efficacy in patient treatment. The 12th and 13th Floors of the building provide excellent facilities for medical seminars and conferences, for teaching and practice of medical skills, and the best place for developing medical abilities. Classrooms, lecture rooms, and academic meeting rooms for medical personnel, resident doctors and medical students are located on these floors. From here, students have easy access to go to patients in different floors in different departments for an observation of various conditions of patients. Rooms of different sizes and capacity facilitates many usages:

Classrooms and Meeting Rooms vary from 15 to 200 seats, which are categorized into:

- Three 15-seat meeting rooms on the 12th and 13th Floors,
- One 30-seat meeting room on the 12th Floor,
- Eleven meeting rooms of 60 seats each on the 12th and 13th Floors,
- One auditorium of 110 seats on the 12th Floor,
- Two auditoriums of 150 seats on the 12th Floor and
- Two auditoriums of 200 seats on the 12th and 13th Floors.

Meeting rooms and auditoriums in this building are in continual use as venues for seminars, academic conferences and symposiums at the national and international levels. One of these academic conferences was the “Global Virome Project: Deciphering Worldwide Infectious Virus,” organized by the Information Center for

Emerging Infectious Diseases, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, The Thai Red Cross Society on the World Sepsis Day, in Thailand 2016, under the concept of “Call for Action and Fight Against Sepsis.” Its objective was for exchanging knowledge and raising awareness on the risk of sepsis among medical personnel and the public, in order to reduce the present-day death rate of 30-50%. Another special lecture was on “Moving Prevention Mechanisms from the Bench into the Lung Cancer Clinic.” These meeting rooms hosted the 1st ASEAN Medical Education Conference (AMEC) on “Medical Education: Past, Present and Future,” whose aim was to develop exchanges of knowledge in medical education, research and innovations at an international level. AMEC is the first international conference with participation from many experts from Thailand and the region, such as Malaysia, Indonesia, the Philippines, Myanmar, Cambodia, Sri Lanka and Australia.

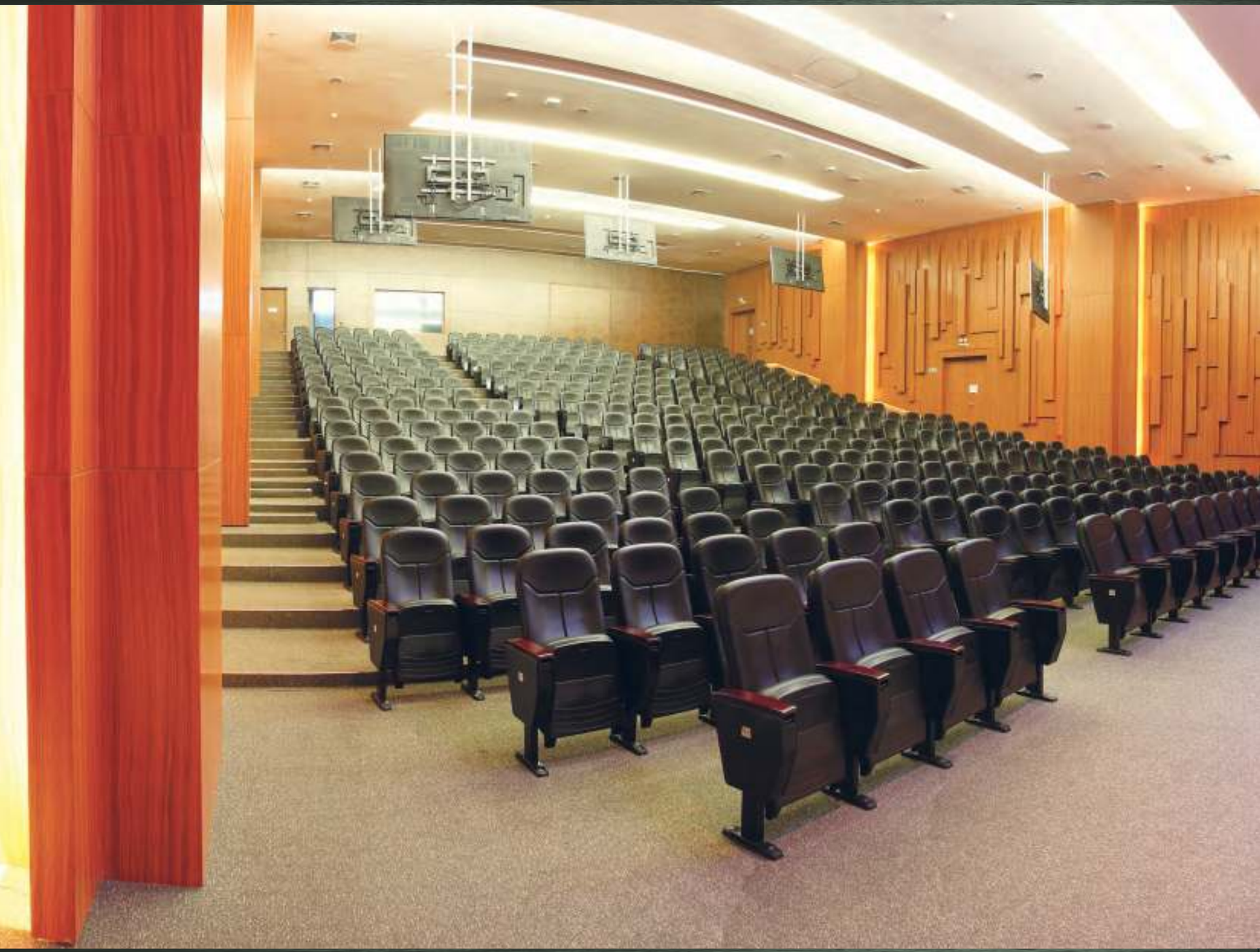
The Teleconference Room on the 12th Floor

The implementation of an information system inside the Bhumisirimangalanusorn Building has been quite effective. Intercommunication can be transmitted by image and sound, from one place to another, and is used in a teleconference. The teleconferences have operated within the hospital, with other hospitals and also with places abroad.

In the process of medical treatment, a telecast can be made to transmit image and sound from the treatment room to a classroom of medical students. Students learn from the image on the screen and hear the sounds, and they can also communicate back to the source. For example, while observing a surgery in an operating room with images and sound, the students may ask questions to the doctor through this technique. It works as a two-way communication as the doctor can teach while the surgery is ongoing.

Moreover, the information system is set up to be able to communicate to remote places, such as to a community hospital in a rural area of Thailand, enabling King Chulalongkorn Memorial Hospital to give academic assistance to rural affiliated hospitals. Similarly, academic cooperation can also occur remotely with hospitals in different countries.

Multipurpose room, there are two multipurpose rooms, located on the 13th Floor for hosting activities that are not in a conference format. These rooms are designed as a large open space that can be divided into two sections.



The Auditorium, with a capacity of 370 seats is located on the 12th Floor. It is fully equipped with modern light and sound features, similar to a big theatre and stage. This auditorium is capable of accommodating different styles of activities and is able to hold the largest number of people.

Aspiring to Move Forward and Develop Caring for the Well Being of Personnel

A principle concept in managing the resources of Bhumisirimangalanusorn Building is for personnel to share resources together. By sharing resources, and introducing a more systematic management style, it leads to benefits of greater budget-savings and efficiency in the end. Thus, a residence for doctors was built as a shared accommodation in one area, without separate units. A shared residence is safer for personnel in traveling back to it, and more convenient for resident doctors and doctors on night shift. In concept, the doctors' residence is designed and managed like a hotel, or a “residotel.” Every room will have facilities as generally prepared in a hotel room, and with a cleaning service on specific rounds. The client doctors only need to bring personal belongings with them for their period of stay, returning the room key after use. In the area of the “Residotel,” there is a reading room that can be adjusted to serve as a temporary meeting room, furnished with office appliances, such as a computer or video conference set-up, in case the resident or night shift doctor needs to communicate with specialist doctors or primary doctors directly for the benefit of patients. Thereby, the hospital management can also give assurance to patients that they are under the care of their primary doctors at all times.

Access to Excellent Service for All

The most important area of Bhumisirimangalanusorn Building is considered to be the services area for patients. The patients who need attentive care, such as the Inpatients, need a hospital experience surrounding them that provides physical and psychological rehabilitation. A good patient ward balances the proportion of patients to the number of doctors and nurses available, and is considered the most important concept for design, even over beauty and cleanliness.

In-patient wards. Besides being the Medical Center known for a great team of specialists for diagnosis and treatment, known for excellent medical education and with a large research center, the Bhumisirimangalanusorn Building services a huge number and variety of Inpatient wards in its hospital facility; with a total capacity of above thousand beds. Room types range from standard, deluxe, studio and superior (VIP). In addition, there are another hundred beds in the intensive and critical care ward, whose patients may enter with heart disease, internal medicine disease, surgery, neurosurgery and complications in maternal and new born deliveries. Another hundred beds belong to healthy, uncomplicated maternal and baby care.

The difference between the standard and deluxe wards is the accessories in the room, such as television and refrigerator. Basic accessories are the same, a bed, clock, and air-conditioning. Although the standard ward has more beds in the room, four at the most, it is not crowded. The space between each bed is set according to a general standard. There are special patient rooms, such as executive rooms for important individuals, and special wards for monks and novices.

Wards may have controlled environments, suitable for certain group of patients, such as, chemically-affected patients, immune dysfunction patients, SARS patients and psychiatric disorders patients, etc.

Most wards are located on the 15th-28th Floors. On the 28th Floor, the rooms for monks and novices ward are located. The location of this ward was transferred from the Vajirayana Samakkhi Phayaban Building after it was demolished.

For efficient, quick and thorough care, nurses sit in the middle zone on each floor, surrounded by patient rooms. The nurse counter and meeting room are where patients' data files are placed.

Medical documents, drugs and medical supplies are transported by a “Tele-car,” which is an Electric Track Vehicle System in replacement of manpower. This system guarantees speed, reduces processing time and mistakes.

In an area outside the patients' ward on every floor, there are consultation rooms available for medical staff to meet with a patient and his family members. Here they can explain medical issues, such as the eligibility for medical expense, medical treatment process and discussion of medical history before seeing doctors for treatment.

Cleanliness of the building is controlled by professional cleaners who use separate and specialized cleaning devices for specific areas. The cleaning procedures are determined by the level of infection control measures needed, according to the hygiene and safety standards of leading hospitals.

Passenger elevators in the building are separated into three main group of users -1) patients and relatives, 2) doctors, nurses and staff, and 3) transporters like porters who transfer patients in beds or those that supply the nutrition, or clothes. The elevators for the Inpatients are separated from general passengers to prevent patients from exposure to infection and also to protect them with privacy and safety while in transit.

Safety measures are double controlled by guards and by the use of an access card. Closed-circuit televisions or CCTV are installed at the corners of each floor providing safety surveillance of clients and visitors. Front security guards are on alert to inspect names of contractors, drug agencies and visitors. Some areas are restricted for entrance or by a specific time only, or for some staff or researchers, carrying RFID badges.

Readiness for Every Emergency

In the previous horizontal ground layout of the hospital, transferring patients from one treatment room to another or from patient ward to the operating room needed time and great caution to prevent patient injury and damage to medical equipment from the movement along the way. These complications were caused by the disorganized and spread-out site plan and structural problems in the buildings. As the numbers of patient wards grew, they were scattered around the grounds, and had no connection to the associated service units.

Consequently, Bhumisirimangalanusorn Building was designed to solve these problems by totally focusing on what is in the best interests of the patient. The building is structured vertically to unite all faculties and departments under one roof, and arranged so that related medical care units are located together in one area to avoid problems in the transferring of patients. In addition to the circulation core between each floor, there are also connecting passages between buildings, such as those located on the 7th Floor of Bhumisirimangalanusorn Building and the 8th Floor of the So Ko Building to transfer patients from the Heart Disease Center at the So Ko Building for an operation at the Bhumisirimangalanusorn Building.

At first, it was thought to solve the problem of transferring surgical equipment between departments by supplying each department with its own equipment. However, the estimated cost would be enormous, from purchase to maintenance. Thus, the old solution of supplying surgical equipment to each department that was used in former days was discarded for consideration. A new solution was created at the Bhumisirimangalanusorn Building by having the Operating Rooms of every department placed into the same building, but connecting them vertically through designated elevators to its surgery. This solution was of great benefit, especially to patients in critical cases, because it substantially dropped the death rate of patients during the transfer process.

To prevent spread of infection, wards are separated into two types of “cleanroom” areas: Positive Pressure area and Negative Pressure area. Patients at high risk of catching infection from others are put into a Positive Pressure cleanroom, whose outwards air pressure keeps out contaminants from entering. Infected patients are quarantined in a Negative Pressure cleanroom, whose lesser pressure prevents contaminated air from escaping out and infecting other staff and patients in the hospital when doors are opened.


OXYGEN
Hill-Rom

Besides concern for proper medical supplies and equipment for surgeries that save lives, proper disposal of their medical and surgical wastes is an important issue in preventing infection of others. Exposed medical staff must remain healthy while in the service of achieving the best medical care for Inpatients.

Because emergency cases are a matter of life and death, the King Chulalongkorn Memorial Hospital, therefore has implemented new response actions to meet any variety of emergency threats, and at all times. Accident and emergency service centers of King Chulalongkorn Memorial Hospital are located on the ground floor of the Building, facing the entrance on Ratchdamri Road. Victims from accidents and emergency case patients are given prompt medical care after they are delivered by ambulances and emergency vehicles. The centers are open for 24 hours a day service. Diagnosis and operating rooms are located on the first floor of the Building. “Observation Rooms” are set up, separated by genders, assessing the patient’s condition. Data generated by monitors connected to the patient are sent directly to the central monitor so doctors can closely watch over their condition. It is planned that in the near future, this connection will directly inform the doctor's device. An application of “Resus Ultrasound,” deriving from the term “Resuscitation,” is also being developed to connect with a doctor's smartphone. It will help the doctor in assessment and diagnostic procedures to give better emergency treatment for patients under traumatic conditions, as these patients are often unconscious and their medical history cannot be checked. Diagnostic ultrasound, therefore is important for that type of urgency. Using a smartphone app can reduce the diagnosis time from 60 minutes to 5 minutes. The smartphone app can be used offline as well in medical training and teaching.

The nurses in Critical Care Unit of King Chulalongkorn Memorial Hospital have their training in the use of medical equipment and procedures from Mahidol University. The number of nurses is proportional to the number of patients dependent upon the intensity of need in each department, and in accordance with the Nursing Council standards. In accident and emergency centers, the number of nurses are one to one, equal number with patients. Thus, it can be accounted that the number of nurse personnel in this hospital is efficient and sufficient.

Quick Response for Every Emergency

Although the King Chulalongkorn Memorial Hospital has continually improved its medical care service system to cope with every emergency and threat in health problems, we know from experience that phenomenon can happen from natural disasters or major accidents, situations not as expected or never seen before. As a consequence, Bhumisirimangalanusorn Building has been designed to expect the unexpected in situations of emergency and threats of disaster.

The whole design is based on keeping convenience and comfort for clients in mind. Thus, traffic issues of access are improved by having a four-lane road leading to the entrance in front of the building. For emergency cases, parking spaces are available 24 hours, in front of the Emergency Center for all vehicles bringing in patients.

Measures for emergency preparedness are rehearsed with medical personnel and staff for all types of disasters. Issues of risk management, disaster prevention and mitigation. These are conducted regularly for prevention and preparedness to handle every

Every Second Counts **in Saving Lives**

situation or disaster. For instance, in the case of fire, although the building is equipped with all types of emergency devices, such as fire extinguishers and sprinklers, staff always need to be prepared. Rehearsals for emergency services regularly take place giving challenging situations to solve, for example, response training for a situation if emergency elevators were blocked, how to find a way to get a team of doctors from outside to arrive at the scene as soon as possible; or if blood is urgently needed, how to prepare elevators to reprogram correctly for such an emergency.

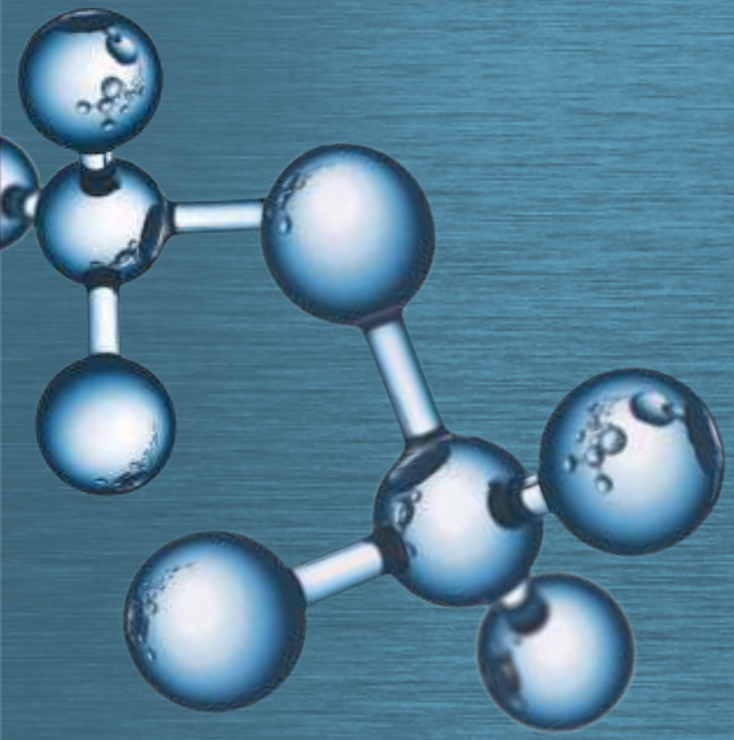
In order to maximize the use of every space of this building, the rooftop has been designed to be a helipad for an emergency landing of a helicopter transferring patients to the hospital. This operation is also rehearsed regularly.

In Memory of Royal Love

The Bhumisirimangalanusorn Building is the auspicious memorial building of Their Majesties King Bhumibol Adulyadej the Great and Queen Sirikit The Queen Mather. It originated from the profound and loyal love that all Thai people feel towards the royal kindness, prestige and great benevolence that Their Majesties graciously bestowed upon us. They are the center of our hearts. When the project for establishing this building was launched, everyone participated in making this project successful by contributing their ideas, their support and their faith with full force of dedication and devotion. Thus, the creation of the Bhumisirimangalanusorn Building, its Centers of Excellence and the Integrated Medical Treatment Center will deepen the prestige and reputation of Thailand in the world.

Their Majesties always have had heartfelt vision for the advancement of medical development for Thailand. They are great moral supporters to all personnel in the King Chulalongkorn Memorial Hospital. His Majesty King Bhumibol Adulyadej Borommanathbobitra as the Patron and Her Majesty Queen Sirikit as the President of The Thai Red Cross Society Council have contributed immensely to the development of public health in Thailand. When the Bhumisirimangalanusorn Building is now open to the public, it was very well-equipped to meet the needs of all people. All the building's facilities, with its up-to-date technology, its excellent medical staff and personnel make this a great medical center. Now and in the future development of King Chulalongkorn Memorial Hospital, a new dimension of the Thai public health has been formed. All Thais are able to have access to efficient medical services, which are open to all through the Thai Red Cross, without bias. The Bhumisirimangalanusorn Building is a great accomplishment and will remain as the "Building of History of the King Chulalongkorn Memorial Hospital." Everyone, from the executives, doctors, nurses, every personnel and staff, including patients and their relatives, all those involved in the project, cherish with deep gratitude, the royal kindness and great benevolence of Their Majesties King Bhumibol Adulyadej Borommanathbobitra The Great and Queen Sirikit The Queen Mather as bestowed upon us Thais. Their Majesties are the center of the love and respect of Thailand and remain in every heart forevermore.


BUSINESS
WORLD

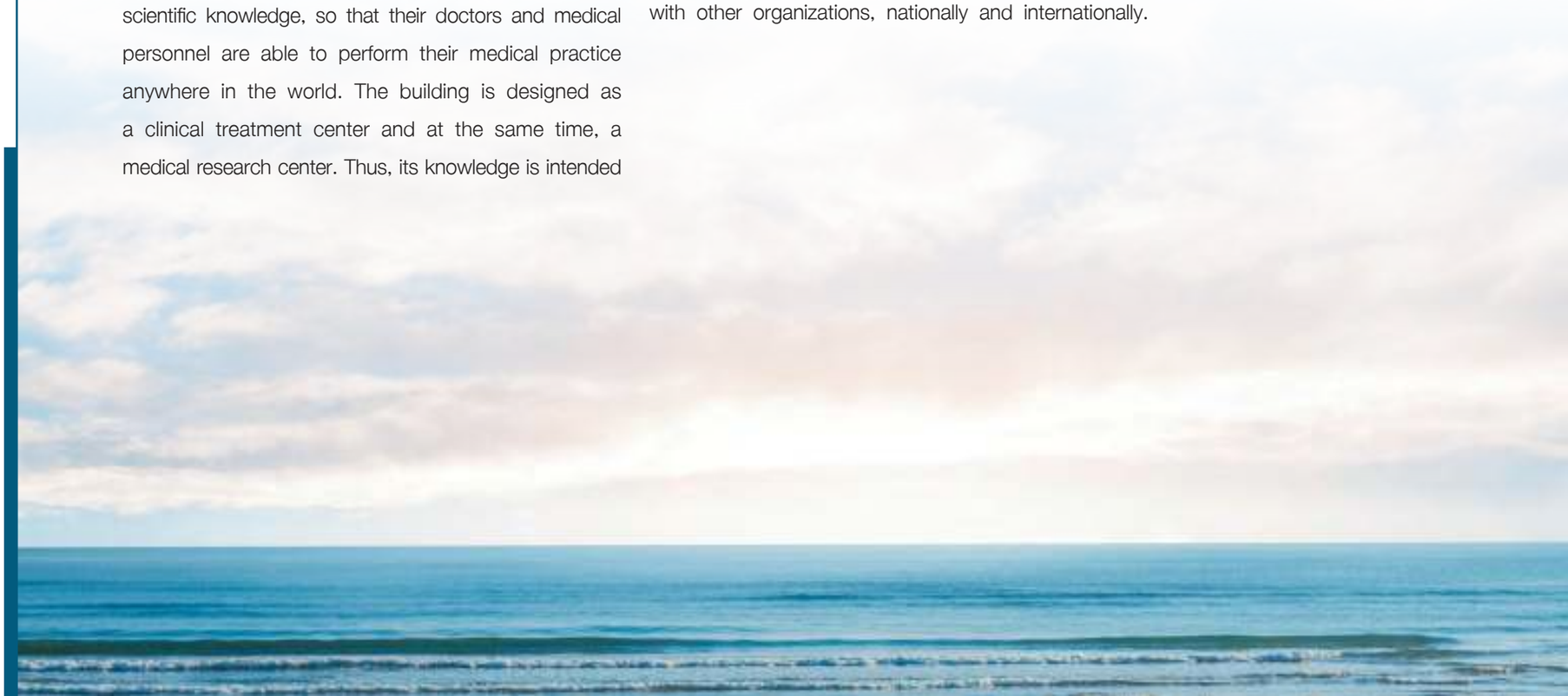


Flowing into the Ocean, Permeating Far and Wide

Bhumisirimangalanusorn Medical Center Building of the King Chulalongkorn Memorial Hospital prominently opened to the public in 2015. The excellence of this building is noted, not only by its , functional, and integrated design, but by the quality of its advanced equipment and technology, the expertise of its medical specialists, its advances in medical research, and its international standard of integrated medical services. Beyond that, the quality of its institutions for medical education has produced excellent medical professionals who in turn extend immense health and social benefits. In achieving this calibre of success, Bhumisirimangalanusorn Building's delivery of human health care is likened to many vast streams becoming merged into seas and that gradually flow into a vast ocean. By its certification of excellence, King Chulalongkorn Memorial Hospital's influence and contributions flow forth, becoming part of a greater ocean of knowledge worldwide.

Streams of Knowledge Flowing into the Greater Ocean

Besides comprehensive medical care by expert specialists of the King Chulalongkorn Memorial Hospital, the Bhumisirimangalanusorn Building is also certified as an institution that passes on advanced and modern medical scientific knowledge, so that their doctors and medical personnel are able to perform their medical practice anywhere in the world. The building is designed as a clinical treatment center and at the same time, a medical research center. Thus, its knowledge is intended to go from the actual medical treatment room to be shared with resident doctors and interns in medical classrooms. Furthering its instructive capabilities, the institution is able to create cooperative learning projects with other organizations, nationally and internationally.

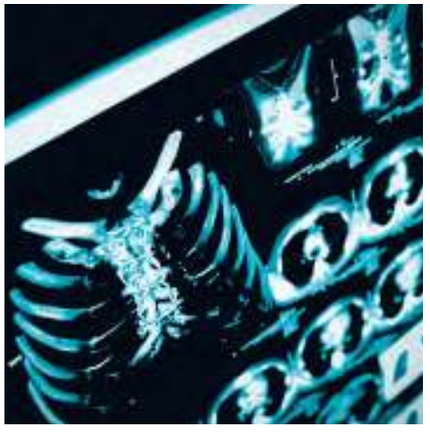






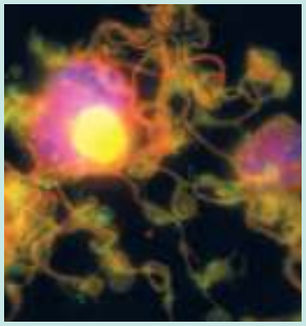





Knowledge Creation Progressing Forward

Being a center of excellence in medical care with a great team of excellent medical personnel and researchers, many informative studies have been conducted in different branches of science, resulting in published articles referenced by other scientists worldwide. The center continues to conduct various research in medical spheres that benefit a vast variety of health conditions in society. Some of the research topics are as follows:



Stem Cell Research

Research has been conducted on the efficient use of stem cells in patients in the future. Stem cell research has been applied for the growth of new corneal tissue from stem cells to treat patients with corneal damage, for robotic devices in new Mesenchymal Stem Cell Tissue-engineering for Knee Arthrosis (Osteoarthritis), and for a production of genetically modified platelets from cultured stem cells originally coming from the patient's own skin cells. There is also ongoing research on a variety of topics, such as, Thalassemia, Children's Genetic Disorders, Severe Immunodeficiency Disease, Parkinson's Disease, Cancer treatment by a modification of the innate immune system. In addition, there are programs to alert the public to the dangers of false claims from advertisements on stem cell products.

The Research on Epilepsy Diseases

Epilepsy Comprehensive Center of Excellence has research studies that provide great benefit to patient treatment. One example of this research is an analysis of the cause of epilepsy by using a 256-channel dense array electroencephalogram (EEG) for precise epileptic localization. This research aims at finding characteristics of the brain's electrical activity by using the aforementioned device to enhance success of an anterior temporal lobectomy operation on the drug resistant patient with epilepsy. This method of using this device to check on the brain electrical activity was practiced for the first time in Thailand at the Epilepsy Comprehensive Center of Excellence of King Chulalongkorn Memorial Hospital. The resulting research enabled doctors to better prepare for an operation, and greatly increase the chances of healing the epileptic symptoms. In addition, there was also research studies on community education about epilepsy, called "Epilepsy Knowledge by Educational Animation for School-Aged Children." which involved two phases of research.

The first phase was to survey the level of knowledge about epilepsy among school age children in the metropolitan Bangkok area. The second phase was to evaluate changes in behaviour and attitudes of students after educating school age children about “Epilepsy Disease through Animation.” The post-test was to score the effectiveness of distributing accurate information on epileptic disease to a new generation of youth. Its aim was that with better understanding toward individuals with epilepsy, people with epilepsy will be better accepted into society and able to acquire a better quality of life in the future.

The Research on Gastroenterology

The need for research on Gastrointestinal Disorders Diseases, combined with the readiness of the Gastrointestinal Endoscopy Center of Excellence, led to research on the “Medical Diagnostic Treatment and Endoscopic Hemostasis of the Digestive System" and the “Clinical Analysis of Primary Malignancies,” or Primary Cancer of Digestive System. Both topics needed more basic scientific study before the information could be transformed into clinical and translational medicine. Therefore, the basic research involved analysis of the following categories of the digestive system:

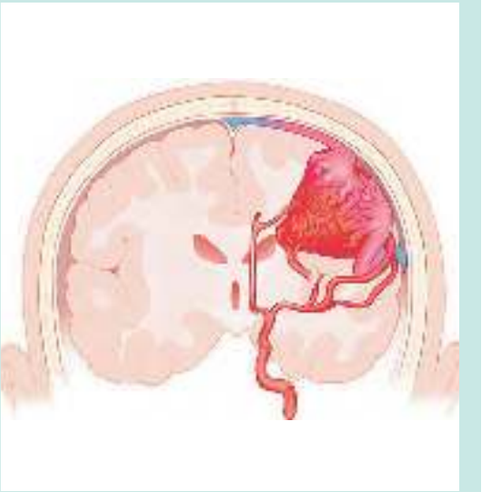
- Characteristics of pancreatic cancer cells by using a Confocal Microscopy
- Cholangiocarcinoma by Fluorescence in Situ Hybridization (FISH)
- Primary esophageal cancer by Narrow Band Imaging, Flexible Image Enhancement Endoscopy and I-Scan
- Liver cancer (hepatocellular carcinoma) and cholangiocarcinoma
- Changing of microbiota in the gastrointestinal tract and use of probiotics
- Prototype of Gastric Disorder Diseases and Gastric Cancer in Rat Trials, most appropriate for Thailand.

Results from these studies are expected to pave the way for Thailand to have the best screening methods for gastrointestinal cancers and primary cancers. The resulting methods will be used to determine the most effective treatment for patients with gastrointestinal cancer, nationally and internationally. Consequently, the number of new gastrointestinal cancer cases will be reduced, while the number of survivors increase.

Besides creating, promoting and adding to research knowledge, the medical faculty of the hospital are the first who also pioneered a research campaign for the Screening of Colon Cancer. They organized programmes in many provinces of Thailand, called “The Travelling Project of Colon Cancer Screening,” and “The Project to Save Lives by Colon Cancer Screening.” These projects were part of “The Project of Advanced Medical Service for the Disadvantaged” to commemorate the 84th Birthday Anniversary of Her Majesty Queen Sirikit The Queen Mother, the President of the Thai Red Cross Council. In addition, the medical team wrote a manual called “Guidelines for the Medical Treatment of Gastrointestinal Disorders”. which covers more than 15 types of GI diseases, including Colon Cancer or Colonic Carcinoma. The manual was published in an international medical journal and has been highly regarded as an excellent reference and is used widely as a practical guide around the world.


โรงพยาบาลจุฬาลงกรณ์
สภากาชาดไทย

The Research on Stroke Diseases



Stroke is a disease that has a great negative effect on the patients' quality of life. Therefore, the medical team of doctors of King Chulalongkorn Memorial Hospital have continually sought to find a solution for the problems of stroke diseases, at both national, regional and international level.

The Comprehensive Medical Center of Excellence conducts many levels of research programmes for the Improvement of Medical Care of Stroke Diseases in Thailand:

• A Project for the “Screening and Detection of Degeneration of the Nervous System and Risk of Stroke in the Immediate Relatives of Patients.”

• A Project to “Increase Effectiveness in Medical Care for Ischemic Stroke Patients by Coordinating the Cooperation of Doctors and Nurses in Affiliated Hospitals under the Development Plan for Health Care Services System for Stroke.”

• Ongoing research on an international level to elevate medical care of stroke persons in Southeast Asia exists in a Research Project on “10 Thrombolysis Deliveries by the Tele-stroke International Network to Commemorate Her Majesty Queen Sirikit The Queen Mother's 84th Birthday.”

Study with Determination
Continue in Development

Research in coordination with other institutions:

• A Study on “Multiscale Adaptive Regularization Savitzky-golay Filtering Method for Edge Preservation in Ultrasound Image De-noising”

• A Study on “Depressive Symptom, Vitamin D Deficiency and Osteoporosis Symptom in Elders, with and without HIV Infection in Thailand”

Research at the international level for which the Center is responsible as Co-Researchers and Thailand Representatives, are:

• A Prospective Study on Azilsartan medoxomil Pharmaceutical in Essential Hypertension and Type 2 Diabetes Treatment in Asia.

• A Double-blind Randomised Control Trial comparing on the Effectiveness and Safety of the Use of 110 mg or 150 mg twice daily dose of Dabigatran etexilate (pharmaceutical for disrupting the coagulation cascade and inhibiting the formation of clots), and the 100 mg once daily dose of acetylsalicylic acid on Secondary Stroke Prevention for patients with Embolic Strokes of Undetermined Source (ESUS).

The Research on Diabetes, Hormones and Metabolism

The King Chulalongkorn Memorial Hospital has conducted in-depth research on many aspects of Diabetes, Hormones and Metabolism, for instance:

• In-Depth Research involves investigation into a specific aspect of the diagnosis of diabetes, hormone and metabolism diseases. The Diabetes, Hormone and Metabolism Center of Excellence is the first institution to perform an in-depth study on Fat Cells and Tumors of Endocrine Glands by using knowledge of Molecular Genetics to assist in the research. The Center is also the first institution to open its results for application in medical care services to general patients.

• In-Breadth Research involves making a comprehensive review of the full span of knowledge involved in diabetes, hormones, and metabolic research to learn of the effects on patients in general. An example of this category is research on Food Energy Restriction to Provide Treatment for Diabetic Patients with an Obesity Problem. The research uses only Thai recipes for controlling the diabetic condition, with no use of medicines. The research procedure has been taped by Modern Nine TV Broadcasting and was on air in the program, "One of the Royal Initiatives" under the episode, "Eating to Reduce Diabetes." The program intends to convey a message and guidance to patients with diabetes.

The research was well received, and the researcher has been presented with many awards: the 2017 Outstanding Researcher of Chulalongkorn University; many years of Endocrine Society Awards for Distinguished Research, in 2016, 2015, 2014, 2012 and 2011; the 2014 Department of Medical Sciences Award, Ministry of Public Health for Best Medical Textbook; and from the Toyota Thailand Foundation Award, in coordination with Thammasat University in 2016.

It can be said that the medical research pursued by the King Chulalongkorn Memorial Hospital personnel has been a major support to the development of medical care services of the hospital. Beyond that, it enhances the advancement of medical knowledge, bringing great benefit into the medical sphere in Thailand and the world.

Open Door to International Cooperation

With such potential and qualification, King Chulalongkorn Memorial Hospital, participates in international exchanges, academically and in cooperative service. It became the first institution in Thailand and Southeast Asia to enter into the "Sister Institution Network" program with the MD Anderson Cancer Center, of Texas State University, in the United States. The official signing ceremony was done on August 27, 2014. Within this program, King Chulalongkorn Memorial Hospital prepared its operational management to be ready for the coming of an aging society of Thailand. The most common disease among elderly people is cancer. Although the hospital maintains a care center for cancer patients, it seeks cooperation to improve its efficiency. One of the benefits from being an allied institution to MD Anderson Cancer Center is to send personnel for further studies, who return and further develop our center. Moreover, a teleconference communication between faculties of the two institutions has been in operation to help find best solutions in complicated cases of cancer. The same networks of cooperation have been done with other Asian countries, such as with Japan, Malaysia and Singapore. At the same time, it assists medical personnel from foreign countries who come to study in Thailand, such as from Cambodia, Myanmar, Bhutan, and even from Europe and the United States. Furthermore, in producing graduates who are expert medical specialists, the King Chulalongkorn Memorial Hospital sets in its mission that all personnel are to be internationally-oriented so they are able to communicate in a global society. Thus, the educational methods for medical personnel is planned to be very international. More cooperation with hospitals abroad is created in order to maintain an open worldview for our students, and at the same time to increase their skill and knowledge in the English language. These educational benefits are also given to other medical personnel, for example nurses, from basic to advance knowledge and also to have the opportunity to observe other institutions by providing educational travel abroad as well.

Through the farsightedness of the executive members, the model of Bhumisirimangalanusorn Building was created on the basis of inter-beneficial support of two main functions, an academic research institution

and a medical service care center. Consequently, this building becomes not only the prototype of a modern medical treatment building but a resource center of knowledge from research, useful to the entire medical community. Ultimately, it has brought wide acclaimed, fame, and honor to the organization and the country.

The King Chulalongkorn Memorial Hospital is fit and ready to enter into a new phase of development in order to comply with the royal intentions of the Kings in the Chakri Dynasty, that of always keeping up the development this hospital. His Majesty King Bhumibol Adulyadej The Great once said to Luang Phadung Vejasat, the Director General of Public Health Department on April 6, 1950,

"...I want to see medical work in Thailand become more and more advanced..."

Today, the King Chulangkorn Memorial Hospital has proudly fulfilled that royal intention with loyal love and respect.

Conservation of Water, Preservation of Forests; Brings People to Life With Confidence and Pride

With their royal great affection and care for the Thai people, Their Majesties King Bhumibol Adulyadej The Great and Queen Sirikit The Queen Mother have established public health and sanitation as a prime concern. Their Majesties saw the importance in improving this quality of life before other developmental projects because the Thai people are the core strength of the nation. If people are weak, sick or unhealthy, the nation will consequently become weak too. Thus, many royal projects were initiated to improve public health and be established under their royal concept: The life of Thai people should be brought to bloom and be healthy, so that all Thais can efficiently take part in developing the nation for its stability and progress.





Ensuring Royal Initiation Continues with Development of Public Medical Services

King Chulalongkorn Memorial Hospital has carried on the royal mission to provide primary and secondary medical services, nursing, rehabilitation and education in support of patients' health. The hospital is known as the hospital where patients transferred from elsewhere are able to receive more complex treatments for complicated cases. The hospital also takes part in disease prevention, education and health promotion in efforts to increase hygiene standards. Furthermore, it also serves as a medical training school for externs, resident doctors of the Faculty of Medicine, Chulalongkorn University, and for nursing students from Srisavarindhira Thai Red Cross Institute of Nursing. The mission to continually develop personnel by excellence in training is important to support and promote comprehensive services in the hospital to maintain the best quality service for its clients.

On the aspect of academic excellence, many research articles have been produced and received acclaim both nationally and internationally over a period of over sixty years.

The operation of King Chulalongkorn Memorial Hospital moves ahead under the vision to be “The Role Model of a Medical Institution with Virtue, Accredited to International Standards in Qualifications.” Throughout the

period of more than a hundred years, King Chulalongkorn Memorial Hospital has continued to develop quality medical services and led in innovative technology and practices. With continuing passion for its mission, its endeavours led to the creation of this "Bhumisirimangalanusorn Building Construction Project," a big challenge and change of image from its past history as King Chulalongkorn Memorial Hospital. If this building project had not been initiated, medical treatment services here would still be limited and blocked from reaching its goal. The aim of this project is

"To be the Building for the Medical Institution that promotes the quality of life to all Thais, with medical services of excellence under international standards of medicine and management, and affordable for everyone."

Bhumisirimangalanusorn Building is the most prepared edifice, physically, technologically and professionally, by its faculty of specialists. The next step in development for the hospital is to use the potential of the interior spaces in terms of its best function and resource management. The creation of international medical networking ensures the medical service will always be up-to-date, efficient and constantly progressing.

Enhancing Growth and Meeting Rapid Changes in Social Context

While the concentration remains on providing the best medical service to patients, King Chulalongkorn Memorial Hospital prepares for changes in society by staying alert to key changes as they appear. The building plan has been prepared for flexibility in its use of space in anticipation of future medical and research needs and treatment of diseases. The aged population is growing at 500,000 persons per year so that in twenty years, Thailand will have a ratio of employed persons to elderly of 2: 1. The elderly are known to have a higher rate of chronic types of diseases, such as heart and circulatory diseases, diseases of the brain and nervous system, and diabetes. Health problems include a general degeneration of organs, as well as different forms of disabilities, which will turn them into dependent patients. Statistics show that the number of patients over 60 years have increased by 40 percent and more than 1,000,000 are expected to become bedridden and dependent patients. With this situation in mind, the hospital has given priority to preparing spaces for consulting, advising and rehabilitating elderly patients. At the same time, there are plans for using many of the new developing fields of biotechnologies in coping with elder care situations in the near future.

In our master plan, the hospital is targeted to be a complete “Digital Hospital” in ten years' time. The King Chulalongkorn Memorial Hospital will then be equipped with an information technology management system that will provide the most efficient communication, thereby ensuring the most effective results. Advance information technology is in line with the global trend for health care systems, which provide an integrated answer to many complicated situations in medical care services. Although the initial high cost is a consideration, great benefits are quickly returned, giving excellence in medical treatment, and making it a worthwhile investment. The system also reduces the cost of administration in many ways, such as by having all handwritten medical records changed into the more easily accessed digital electronic system. Digital records are available immediately to all medical personnel, doctors,

nurses and staff, who can effectively coordinate best care practices for the patient. The Information System is effectively linked throughout in the hospital, reaching each destination with precision, accuracy and promptness. Information technology management will enhance the quality of medical treatment of the hospital at world standards and be readily available all of the time.

For principles of management, all personnel at every level will be asked to identify with three main qualities for work: Integrity, Responsibility and Being Compassionate at all times. These three qualities will promote happiness for all personnel in working together, especially when all agree that medical service needs to be performed with heart and soul, physically and morally. The hospital wants to ensure that everyone in every section and department feels that they are equally important and that every accomplishment has had good cooperation from everyone.

The Bhumisirimangalanusorn Building is not only a source of pride for the people working in the King Chulalongkorn Memorial Hospital, but also for all who have supported in writing a new page of history by the creation of this prototype hospital that provides a better quality of life on health care, equally to all Thais. These public health benefits are available to all, because of the support given from the government, private sector and the public.

Under the royal guidance of Their Majesties King Bhumibol Adulyadej Borommanathbobitra and Queen Sirikit, the King Chulalongkorn Memorial Hospital will continue to develop our medical treatment services and coordinated units to enable all people to live well in health and happiness.

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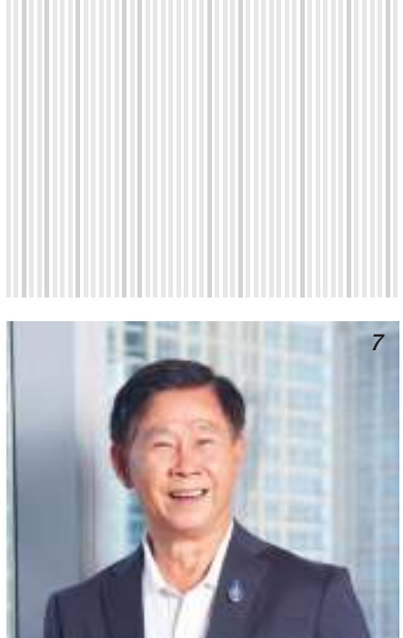
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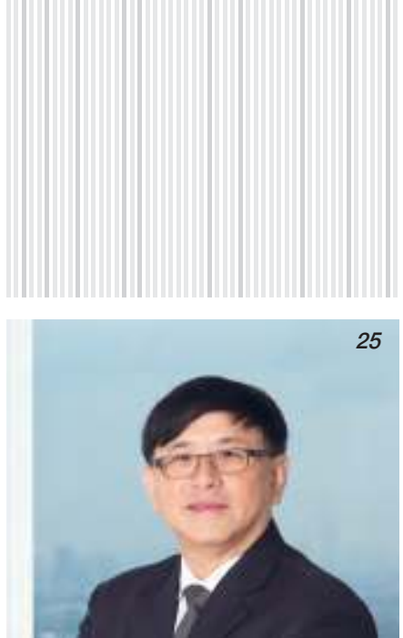
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Editor's Note

Bhumisirimangalanusorn: The Protective Canopy of Their Majesties is a Commemorative Book for the occasion of the official opening of the Building. With gracious kindness of the Late His Majesty King Bhumibol Adulyadej The Great this Building is named “Bhumisirimangalanusorn,” a combination of the Royal Names of His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother. The name has brought great auspiciousness to the King Chulalongkorn Memorial Hospital. Their Majesties King Rama IX and Queen Sirikit The Queen Mother have been the extensive canopy of “sky rendering the shade of clear happiness” to the life beneath, ***“for the benefit and happiness of all Siamese people,”*** throughout their reign of royal prestige.

Their Majesties's initiated many royal projects and delivered numerous royal speeches on the topics relating to the importance of forest and water. They said that these two natural phenomena are the core resources in creating of a good life that would bring happiness to all people. The themes are the great inspiration for the concept of this book, whose theme, “The Stream of Life and the Preservation of Forest,” is written in accordance with Their Majesties’ aspiration. As an editor, this book is intended to convey and glorify the great benevolence that Their Majesties King Bhumibol Adulyadej Borommanathbobitra (King Rama IX) and Her Majesty Queen Sirikit have always had for the Thai people.

This book is to record the story of the establishment of the Bhumisirimangalanusorn Building from the beginning. It started from the baseline desire to renovate all the existing buildings, then thoughts were to add more buildings for completeness, and finally, it evolved to the idea of creating one massive, modern, attractive and functional building, filled with quality equipment and technology, integrated service, with higher efficiency and greater potential for increased research excellence. Stories for the memorial book were collected from more than fifty persons from all sectors involved in the project. Different personnel were from the Thai Red Cross Society, the King Chulalongkorn Memorial Hospital, the Faculty of Medicine of Chulalongkorn University, and individuals outside the

organizations. These stories are to be kept as an important history of the hospital and as a resource of knowledge for other hospitals or health facilities to use as a model guideline for establishing a comprehensive medical center in the future.

Bhumisirimangalanusorn Building is the pride of King Chulalongkorn Memorial Hospital for loyally fulfilling the royal initiation of His Majesty King Bhumibol Adulyadej The Great and Her Majesty Queen Sirikit The Queen Mother. We will continue to develop the hospital as a model of an integrated medical treatment center and evolve it further into an international level institution. We will maintain the quality and potential of excellence of our hospital forever.

(Adj. Asst. Prof. Surin Assawawitoontip, M.D.)
Director of Corporate Image
King Chulalongkorn Memorial Hospital
Director

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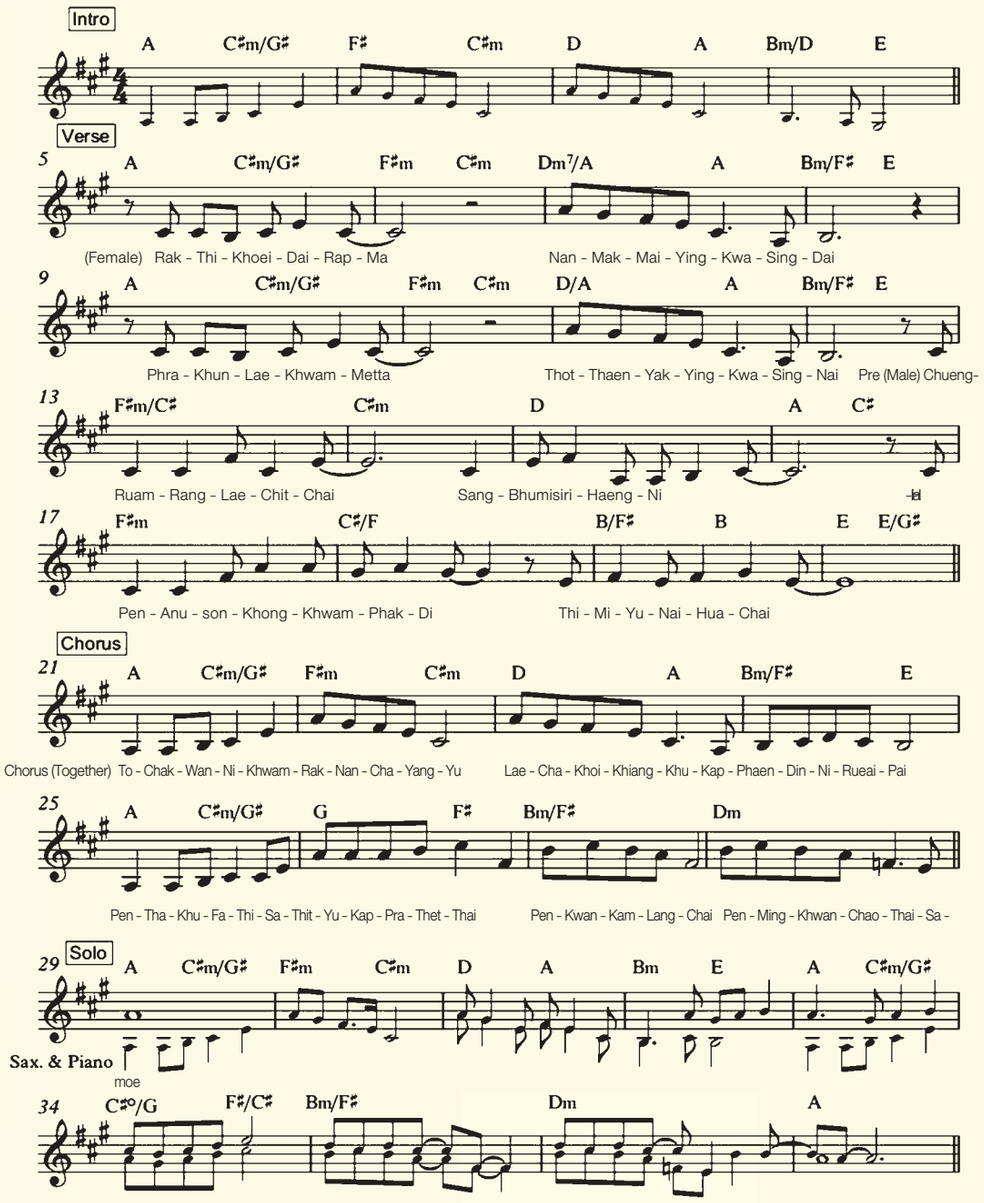
"Tha-Khu-Fa- Bhumisiri-Mangalanuson" Song

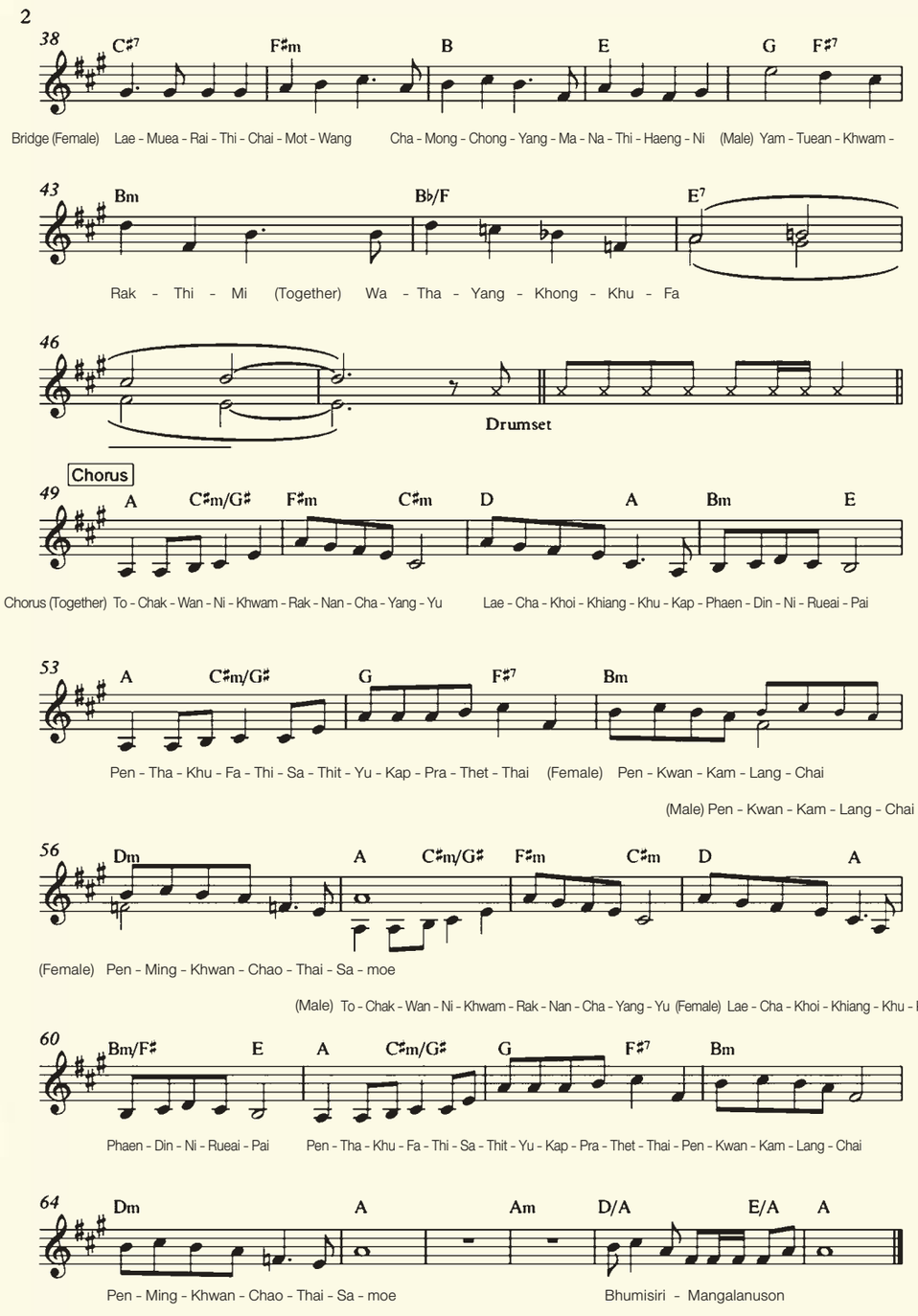
Executive Producer : Assistant Professor Surin Assawawitountip, M.D.
Producer : Boyd Kosiyabong
Music & Lyrics : Boyd Kosiyabong
Vocal Produced, Mixed & Mastered : Sutee Sangsareechon
Vocal : Rudklao Amratisha and Kittinant Chinsamran

Arranged & Piano : Bhudinant Deeswasmongkol
Drums : Thitirut Diloghuttakarn
A.c. guitar : Teeradate Hoonsanong
E. Bass : Yossawee Thongpae
Soprano Saxophone : Ronnachai Nuchjirasuwan

Verse (Female)	Rak-Thi-Khoei-Dai-Rap-Ma
	Nan-Mak-Mai-Ying-Kwa-Sing-Dai
	Phra-Khun-Lae-Khwam-Metta
	Thot-Thaen-Yak-Ying-Kwa-Sing-Nai
Pre (Male)	Chueng-Ruam-Rang-Lae-Chit-Chai
	Sang-Bhumisiri-Haeng-Ni
	Hai-Pen-Anu-son-Khong-Khwam-Phak-Di
	Thi-Mi-Yu-Nai-Hua-Chai
Chorus (Together)	
	To-Chak-Wan-Ni-Khwam-Rak-Nan-Cha-Yang-Yu
	Lae-Cha-Khoi-Khiang-Khu-Kap-Phaen-Din-Ni-Rueai-Pai
	Pen-Tha-Khu-Fa-Thi-Sa-Thit-Yu-Kap-Pra-Thet-Thai
	Pen-Kwan-Kam-Lang-Chai
	Pen-Ming-Khwan-Chao-Thai Samoe
Bridge (Female)	Lae-Muea-Rai-Thi-Chai-Mot-Wang
	Cha-Mong-Chong-Yang-Ma-Na-Thi-Haeng-Ni
(Male)	Yam-Tuean-Khwam-Rak-Thi-Mi
(Together)	Wa-Tha-Yang-Khu-Fa
	Bhumisiri-Mangalanuson

เพลง ธ คู่ฟ้า ภูมิสิริมังคลานุสรณ์

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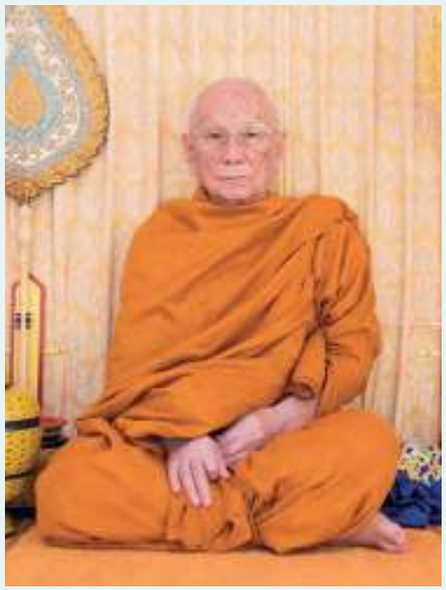
C♯7 F♯m B E G F♯7
Bridge (Female) Lae - Muea - Rai - Thi - Chai - Mot - Wang Cha - Mong - Chong - Yang - Ma - Na - Thi - Haeng - Ni (Male) Yam - Tuean - Khwam -
43
Bm B♭/F E7
Rak - Thi - Mi (Together) Wa - Tha - Yang - Khong - Khu - Fa
46
Drumset
Chorus
49
A C♯m/G♯ F♯m C♯m D A Bm E
Chorus (Together) To - Chak - Wan - Ni - Khwam - Rak - Nan - Cha - Yang - Yu Lae - Cha - Khoi - Khiang - Khu - Kap - Phaen - Din - Ni - Rueai - Pai
53
A C♯m/G♯ G F♯7 Bm
Pen - Tha - Khu - Fa - Thi - Sa - Thit - Yu - Kap - Pra - Thet - Thai (Female) Pen - Kwan - Kam - Lang - Chai
(Male) Pen - Kwan - Kam - Lang - Chai
56
Dm A C♯m/G♯ F♯m C♯m D A
(Female) Pen - Ming - Khwan - Chao - Thai - Sa - moe
(Male) To - Chak - Wan - Ni - Khwam - Rak - Nan - Cha - Yang - Yu (Female) Lae - Cha - Khoi - Khiang - Khu - Kap -
60
Bm/F♯ E A C♯m/G♯ G F♯7 Bm
Phaen - Din - Ni - Rueai - Pai Pen - Tha - Khu - Fa - Thi - Sa - Thit - Yu - Kap - Pra - Thet - Thai - Pen - Kwan - Kam - Lang - Chai
64
Dm A Am D/A E/A A
Pen - Ming - Khwan - Chao - Thai - Sa - moe Bhumisiri - Mangalanuson


มหิดลานุสรณ์
MAHIDLANUSORN


อาคารภูมิสิริมังคลานุสรณ์

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พระมหากรุณาธิคุณ
ล้นเกล้าชาวไทย


ธิดาภูมิสิริ
มังคลานุสรณ์


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อาคารภูมิสิริมังคลานุสรณ์
โรงพยาบาลจุฬาลงกรณ์
สภากาชาดไทย


KING CHULALONGKORN


รายการอาหาร

The Protective Canopy of Their Majesties: The Bhumisirimangalanusorn Building

King Chulalongkorn Memorial Hospital, the Thai Red Cross Society

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