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MEDIA RELEASE

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Groundbreaking Ceremony of JurongHealth's Jurong General Hospital and Jurong Community Hospital paves the way for seamless integrated care for the population in the west

Officiated by Mr Khaw Boon Wan, Minister for Health, Jurong Health Services (JurongHealth), Singapore's new public healthcare cluster for the Western region of Singapore, unveiled its new integrated healthcare hub comprising the 700-bed Jurong General Hospital (JGH) and 286-bed Jurong Community Hospital (JCH) at its groundbreaking ceremony today.

JGH will be the first regional hospital in Singapore to be built together with a community hospital from ground up to bring about seamless integration for right-siting of care. JGH will also be the first "hospital-within-a-city" with its central location in the heart of the Jurong Lakeside District which is slated to be transformed into the biggest commercial hub and leisure destination outside the Central Business District area.

As an integral part of the Jurong East precinct, the two hospitals will be conveniently linked to transport systems such as the Jurong East MRT station and the surrounding office and retail buildings - bringing specialist and rehabilitation care closer to the community.

First integrated development from ground up to facilitate seamless transition of care

JGH and JCH is planned and designed as one development – a first in Singapore. Managing the two hospitals almost as one will ensure integration at the infrastructure, administrative and clinical levels for smooth transfer and management of patients from the acute to sub-acute setting.

The twinning of JGH and JCH is key to the government's strategy of keeping healthcare hassle-free and affordable as the population ages. With the integrated development of both hospitals from ground up, a coordinated approach to aligning vision, objectives, manpower, patient records, shared facilities and patient care plans may be achieved.

Patients will benefit from the continuity and co-management of clinical care and expertise by doctors from both hospitals. The two hospitals will be wired up for connectivity and share services such as digital imaging, pharmacy, catering, medical records, warehouse as well as training facilities. These efforts will translate into more cost-effective and affordable quality healthcare.

Said Mr Foo Hee Jug, Chief Executive Officer of JurongHealth, “As a new public healthcare cluster, our vision is to transform care and bring about a seamless and integrated healthcare system for the West. Before we started hospital planning more than a year ago, we went out to talk to the residents to find out more about their healthcare needs. We also visited both local as well as overseas hospitals to pick up the best practices in the industry. Where there are concepts that are new, such as our innovative ward design, we created a life-sized mock-up for feasibility test as well as to gather feedback from staff and various other stakeholders.”

“I am very excited about how the two hospitals have evolved into what they are today. Convenience, privacy, comfort and safety of our patients are integral to our design thinking. In fact the location of facilities and the adjacencies of our services are thoughtfully placed to make navigating around the hospital, a fuss-free experience.” added Mr Foo.

JGH is slated for completion in 2014, and JCH following closely in early 2015.

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About Jurong Health Services

Jurong Health Services (JurongHealth) will be operating in **Alexandra Hospital** till 2014 where it will build and grow its base.

JurongHealth is the new public healthcare cluster formed to facilitate the integration of services and care processes within the hospital and across the community to better serve the healthcare needs in the West. JurongHealth is building the 700-bed **Jurong General Hospital** and 286-bed **Jurong Community Hospital**, slated for completion in 2014 and 2015 consecutively.

www.juronghealth.com.sg

Annex A: Quick Facts about Jurong General Hospital (Inpatient and Specialist Outpatient Clinics Blocks) and Jurong Community Hospital (JCH)

Site Location	Located in the heart of the Jurong Lakeside District, the site is situated along Jurong East Street 21. It is within easy access for the public in the West and will be connected to amenities such as the Jurong East MRT station, bus interchange, retail and business complexes.
Site Area	54,144m ² <ul style="list-style-type: none"> • JGH (Inpatient) and JCH sites: 34,404 m² • JGH (SOC) site: 19,740 m²
Completion Target	Year 2014 for JGH. Early Year 2015 for JCH
Massing	<ul style="list-style-type: none"> • 8-storey JGH (SOC) • 16-storey JGH (Inpatient) including 12-storey Subsidised Ward Tower and 6-storey Private Ward Tower over 4 storey Podium • 9-storey JCH • 2 Basements • Approximately 800 car park lots at levels B1 and B2
Entry	<ul style="list-style-type: none"> • Dedicated vehicle drop off/pick up and carpark entry/exit for JGH (SOC) block, JGH (Inpatient) and JCH from Jurong East Street 21 • Shuttle bus drop off/pick up points at JGH (SOC) and JGH (Inpatient) blocks from Jurong East Street 21 • A&E (walk in) has a dedicated drop-off driveway • A&E ambulance from Boon Lay Way • Separated service road entry from Jurong East Street 21
Total Beds	<p>JGH (Inpatient): 700</p> <ul style="list-style-type: none"> • 142 Private - A1/ B1 Class including one Deluxe Suite • 432 Subsidised - B2/C Class • 28 Intensive Care Units • 42 High Dependency Units • 56 Isolation Beds <p>JCH: 286</p> <ul style="list-style-type: none"> • 30 Private - A1/ B1 Class • 240 Subsidised - B2/C Class • 16 Isolation Beds
Specialist Outpatient Clinics	<ul style="list-style-type: none"> • 30 Clinics and 120 Consult Rooms • Training Centre • Auditorium • Diagnostic Services
Medical Services	<p>JGH</p> <ul style="list-style-type: none"> • Musculo-Skeletal/ Orthopedics and Sports Medicine • General Medicine • General Surgery • Cardiology • Oncology and Radiation Therapy • Urology • Geriatrics • Diabetics • Eye

	<ul style="list-style-type: none"> • Ear, Nose and Throat (ENT) • Dental • Rehabilitation and Allied Health • Diagnostic and Interventional Radiology • Nuclear Medicine • Health & Wellness Centre <p>JCH</p> <ul style="list-style-type: none"> • Rehabilitation and Allied Health • Geriatrics • Dementia
Operating Theatres	8 Major Operating Rooms (OTs) at Level 3 of JGH Podium <ul style="list-style-type: none"> • 6 Operating Theatres • 1 Isolation / Septic OT • 1 Robotic OT
Day Surgery	10 Day Surgery Operating Rooms at Level 3 of JGH
Endoscopy Suites	4 Endoscopy Suites at Level 3 of JGH
Training Centre	<ul style="list-style-type: none"> • 300-seat Auditorium • 100-seat Lecture Room • 7 Training Rooms for 25 to 50 persons each • Surgical Skills Lab
Staff Facilities	Lounge; Games Room; Gymnasium; Aerobics Studio; Staff Library; Mother's Suite; Reading Area; Child Care Centre
Food Court & Cafeteria	<ul style="list-style-type: none"> • Cafeteria on Level 2 of JGH (Inpatient) • Refreshment corners at Level 1 of JGH (Inpatient); Level 2 of JGH (SOC) atrium and other retail areas at JGH (SOC)
Garden	Level 1 <ul style="list-style-type: none"> • Community Wellness Park - including Multi-purpose open lawn, informal Amphitheatre, Multi-Sport Court, event and lunch Plaza, jogging trail • JCH Pre-function Patio • Mobility and Road Safety Park • "Jelutong" Walk • Roof top gardens at Level 3 of JGH (SOC), Level 3 of JCH and Level 4 of JGH (Inpatient)
Other amenities	<ul style="list-style-type: none"> • Handicapped-Family-friendly restrooms • Retail Facilities

Annex B: Fundamental Design Principles

Siting Rationale

Taking advantage of the linear plot of land which is separated by the Jurong Gateway Road, the JGH (Inpatient) and JCH will be sited on the larger plot while the JGH (Specialist Outpatient Clinics) will be on the smaller plot.

Separation of pedestrian and vehicular traffic

The division of the plot provides the opportunity to segregate pedestrian and vehicular traffic, while at the same time create a natural infection control barrier between the ambulatory zone comprising JGH (SOC) and the rest of the hospitals comprising the JGH (Inpatient) and JCH. As patient and visitor traffic volume is expected to be the highest for the clinics, locating the JGH (SOC) nearest to the MRT will bring about greater convenience and easy access to the hospital for patients and the public at level 2. Vehicular traffic would be at level 1 and basements 1 and 2.

Connectivity and enhancing infection control

All three buildings will be connected via link bridges where pedestrian traffic will be directed to Level 2; patient traffic and hospital personnel traffic to Level 3. This allows for easy, convenient and safe access for patients and visitors moving within the buildings. The dedicated access for patients ensures privacy in the hassle-free patient transfer from JGH (Inpatient) to JCH or patient flow from JGH (Inpatient) and the JGH (SOC).

Synergy in operations

Hospital backend and logistics functions will be co-located at Basement Level 2 to optimise transport via Automated Guided Vehicles (AGVs) and efficient consolidation of goods for distribution. Other services will be also be consolidated for operational efficiency and synergy. For example, the two hospitals will be wired up for IT connectivity and RFID tracking. Plans are in place for adjacency of common services such as Digital Imaging, kitchen, pharmacy and warehouse. The proximity of the Accident & Emergency Department (A&E) to JCH can also facilitate direct admission of patients who require only sub-acute care to the JCH in future.

Vertical and horizontal adjacencies

A&E and Isolation Ward

Patients who arrive at the A&E and who require isolation can be easily transferred to the adjacent isolation ward. This arrangement decreases the risk of contaminating general areas as compared to designs where the isolation ward is located away from A&E.

A&E and Diagnostic Imaging

Strategic placement of vital resources such as the X-rays, CT scans and MRIs adjacent to A&E allows for A&E to tap on these shared resources as variation in patient volume may demand.

Main Operating Theatres and Day Surgery Operating Theatres (OT)

Co-location of Major and Day Surgery OTs on one common Integrated Interventional Platform allows resource sharing as well as flexibility to vary usage.

Intensive Care Units (ICU) and High Dependency Wards (HD)

Clustering the ICU and HD patients on the same level allows better utilization of staff and resources; as well as promotes the latest trends towards co-management of intensive care patients and flexibility of sharing of intensive care capacity among all disciplines.

Inpatient Rehabilitation and General Ward

The orthopaedic ward and inpatient rehabilitation department will be strategically co-located at Level 11 to facilitate ease of patient movement.

Trauma Lifts

The OT and ICU located on levels 3 and 4 respectively, will be connected by specially-sized and equipped Trauma Lifts. These lifts will also link both levels with the A&E located on Level 1. This dedicated pair of lifts will allow the patient on a bed to fit comfortably with two staff and resuscitation equipment. Standby equipment and staff will also be planned to ensure quick recovery of lift function or the rescue of trapped patients in the event of a breakdown. Such connectivity is now standard in many renowned hospitals overseas such as Ronald Reagan UCLA Medical Centre, Cleveland Clinics.

Designing for the future

Simulating the future Accident & Emergency Department

Key portions of the hospital have been designed using LEAN principles. For example, the A&E has been designed to maximise resources and efficiency in workflow and layout. The A&E layout is planned to allow for the area that requires the most manpower and resources to be concentrated in the centre; which allows manpower to be easily re-deployed to surrounding areas when the need arises.

The A&E department employed the use of advanced simulation modeling programme to test the feasibility of the proposed layout, as well as plan for future expansion. With the programme, the A&E team was able to stress-test the planned layout and workflow based on current patient load and projected patient loads in 2015 and 2020. Armed with the simulation results and statistics, the team is able to forecast how its infrastructure can support an increasing patient load, and allows hospital planners to design a scalable A&E to meet changing and future demands.

Maximum flexibility and ease of conversion

The Specialist Outpatient clinics Modular Design provides for maximum flexibility and conversion in future. In the JGH (SOC), each clinic module consists of four consultation rooms, and corresponding support rooms which include a teaching hub. The wards are also modular and repeated throughout the ward tower to allow flexibility for conversion between different classes of wards in the future.

Pandemic-preparedness

The hospital is designed to enable swift lock-down during pandemic, minimizing disruptions to normal visitor, patient and staff workflows. Provisions will be made to separate the ventilation of 'clean' air from 'dirty' air; and isolation beds on every floor will minimise cross infection during transfers. Selected A class wards will also be specially equipped so that they may be quickly converted to negative pressure isolation rooms quickly. In addition, the space between the A&E & JCH will enable the A&E to screen and triage patients during a pandemic. The space will also be equipped with decontamination equipment so that the hospital will be ready for hazmat incidents.

A Window for Every Patient

The revolutionary fan shape ward, designed with a window for every patient, will significantly improve ventilation, privacy and comfort for patients. In addition to subsidised and private wards, this concept will also be extended to ICU and HD beds to promote healing for critically ill patients. The attributes of the fan-shaped ward includes:

Enhance patient comfort and recovery:

Patients will be able to enjoy greater privacy as they can choose to face their own window instead of the next patient when they rest. They can also draw the curtains and yet maintain good ventilation as well as enjoy the soothing view of sky gardens located on every floor to bring the feeling of the

exterior into this urban hospital as well as to create a conducive and healing environment for both patients and visitors. Even during wet weather conditions, patients will enjoy the well-ventilated environment with effective use of storm louvres to keep out wind-driven rain.

Enhanced ventilation and optimising natural light

For subsidised patients, the East-West orientation of ward towers takes advantage of prevailing wind conditions to promote ventilation. The massing concept also enhances wind movement due to the aerodynamic forms of the building. Patients in private wards will have air-conditioned room with individual thermal control or a naturally ventilated environment.

Enhanced Working Environment and Infection Control for Staff

Without the traditional low headwall shared between two back-to-back beds, the fan-shape ward layout also optimises infection control. Improved and enlarged space around the beds also translates to a better, ventilated working environment for staff - with more maneuvering space for nurses to conduct procedures and bedside care.

Annex C: Visuals of Jurong General Hospital and Jurong Community Hospital

Please contact Tessa Monteiro (tessa_monteiro@juronghealth.com.sg) or Aaron Loh (aaron_loh@juronghealth.com.sg) for high resolution copies of these visuals.

The integrated Jurong General Hospital and Jurong Community Hospital:



Linkways between the Jurong General Hospital (left) and Specialist Outpatients Clinics (right):



The innovative fan-shaped ward:



Artist impression of the Mobility Park at Jurong Community Hospital:



Artist Impression of the outdoor garden on Level 4 of the SOC:



Annex D: Profile of the Hospital Planning Committee

The Hospital Planning Committee:

- Ministry of Health
- JurongHealth
- St Luke's Hospital

The Team of Consultants:

- **PM Link Pte Ltd - Project Management Consultancy**

PM Link is a leading management firm in Asia and one of the largest in Singapore, with over 20 years of Project Management experience. As a subsidiary of CPG Corporation, PM Link is the independent Project Management arm of the Corporation. PM Link began as a Project Management unit in the Public Works Department in 1989. Since its incorporation as PM Link in 2001, they have represented and partnered both public and private sector clients to manage and successfully deliver projects of varying complexity and challenges.

- **CPG Consultants Pte Ltd - Architectural, Civil, Structural and Transportation Consultancy**

CPG Consultants Pte Ltd provides a full spectrum of professional design and development consultancy services. Our diverse portfolio in over 20 countries comprises airports, cultural, arts and heri-tage institutions, educational and research facilities, transportation & environmental infrastructure, healthcare facilities, amongst others.

CPGHealthcare, a specialised division within CPG Consultants, provides customised solutions for healthcare facilities, including general hospitals (Changi General Hospital and Tan Tock Seng Hospital), tertiary hospitals (National University Hospital), community hospitals (Ang Mo Kio Community Hospital), specialty centres and polyclinics (Queenstown Polyclinic). Over the years, CPG Consultants has also built up a strong overseas portfolio, having undertaken several projects including Mien Duong International General Hospital and Hanh Phuc International Women's and Children's Hospital in Vietnam; Second Affiliated Hospital of Kunming Medical College in China; and the Apollo Hospital in India.

- **Hellmuth, Obata + Kassabaum, Inc - Medical Planning Consultancy**

HOK is a global provider of planning, design and delivery solutions for the built environment. Founded in 1955, HOK has since developed into one of the world's largest, most diverse and respected design practices and employs more than 1,800 professionals linked across a global network of 23 offices on three continents.

HOK's healthcare practice is ranked the 3rd largest healthcare practice in the United States by Modern healthcare. Currently, the firm has more than \$8 billion worth of healthcare projects either in design or under construction. Projects include a wide range of project types from full hospital replacement, specialty clinical and research centers, outpatient centers, campus planning, and facility consolidation projects.

- **Studio 505 - Architectural Consultancy**

Studio 505 is an Australian architectural firm involved in a range of cutting edge, controversial and distinctive design projects around the world. It specialises in innovative and sustainable solutions in design across all built forms. The work of studio505 includes the Australian Pavilion at the 2005 World Expo Aichi, Japan, the shimmering signature façade of the Suzhou Science and Cultural Arts Centre, PRC, the Phoenix Valley Grand Theatre and Youth Palace in Wujin, PRC, and the recently completed carbon neutral 'Pixel', Australia's greenest ever office building.

Jurong General Hospital and its innovative ward design represents Studio 505's initial leap into the specialist field of healthcare architecture which has led to further collaborations and design participation in clinics and hospital buildings in tropical environments, particularly in South East Asia.

- **Davis Langdon & Seah Singapore Pte Ltd - Cost and Contracts Consultancy Services**

Davis Langdon & Seah Singapore is a member of Davis Langdon & Seah international which has more than 106 offices in over 33 countries worldwide with over 5,000 staff. The investment DLSI has made on research and development and the resultant huge data base is available to all DLS offices in Asia.

Davis Langdon & Seah Singapore are the largest quantity surveying practice and with over 350 staff. Armed with vast expertise and a background in a variety of specialist skills acquired from more than 76 years of experience, we are well placed to provide expert financial, contract and project management services in traditional contracting arrangements, design-and-build or develop-and-construct as well as various hybrid custom-made procurement of construction projects.

- **Parsons Brinckerhoff Pte Ltd - Mechanical and Electrical Consultancy**

Parsons Brinckerhoff (PB), a 125 years old engineering consultancy company, has over 14,000 employees in over 150 offices on six continents. PB has been active in Asia since early 1970's and has contributed to the development of many of the region's iconic buildings and infrastructure developments.

PB Singapore was established in 1984 and has over 500 employees, providing consultancy services for Mechanical and Electrical, Civil and Structural, Architecture and Planning, Project Management, Environmental Sustainability Development, Power infrastructure and Architectural Lighting. For the past 26 years, PB had been contributing to the development of healthcare; medical and research facilities in Singapore. In recent years, PB was involved in the design of Parkway Novena Hospital and NUH Medical Centre.

- **ZEB Technology Pte Ltd - Total Building Performance Consultancy**

ZEB-Technology Pte Ltd is a visionary Total Building Performance (TBP) consultancy firm supporting Sustainable Building Practices through the entire life-cycle of both new and existing built environments. It strives towards developing holistic and integrated sustainable building design and delivery process.

ZEB-Technology is recognised as the most progressive enterprise in the green building industry and offer clients with cost effective consultancy services across geographical boundaries and varied market segments to help them secure a better return on investment consistent with current construction management guidelines. Its portfolio of projects includes residential developments, commercial developments and we are at the forefront in sustainability for healthcare facilities in the tropical environment.

- **STET Homeland Security Services Pte Ltd - Security Consultancy**

STET Homeland Security Services Pte Ltd (STET HLS) is a company of the Singapore Technologies Electronics Limited (ST Electronics) group. STET HLS provides independent security consulting, engineering solutions and training to the public and private sectors. The team of consultants is selected from military, law enforcement, intelligence and engineering industries, and is experienced in analysing and advising clients within one or more areas of expertise. With training, education and acquired experience, STET HLS provides an exceptional balance of hands-on experience with the most innovative thinking in security design, planning and project management.

STET HLS has the capability and resources to provide Physical Security Consulting and Engineering Services such as Security Master Planning, Audit/ Study, Security Planning & Design, Protective Design, Project Management, and Security Training. The team of consultants has worked on facilities in both the government and private sectors in projects that include government buildings, key installations, industrial/ manufacturing plants, commercial buildings, residential developments, education institutions, recreational facilities, and transportation depots.

- **i+o Industry Planning + Organisation Pte Ltd - Logistics Consultancy**

Established in 1996, i+o Industry Planning + Organization Pte Ltd is an independent consulting and planning company, specialising in functional industrial planning, process optimisation and facilities design.

i+o Industry Planning + Organization Pte Ltd, based in Singapore, serves as the regional headquarter of i+o Industrieplanung + Organisation GmbH & Co. KG, located in Heidelberg (Germany). Together, i+o has successfully completed over 5,000 projects and assignments in Europe, the Middle East, the United States of America and more than 60 projects in the Asia-Pacific region. i+o specialises in process re-

engineering, material flow and information systems related to processes in various industrial sectors. These include Food & Catering, Pharmaceutical, Healthcare and Logistics. i+o's highly qualified workforce, with more than 50 years in Germany and 13 years in Asia, of both specialised and interdisciplinary experience behind them, helps Clients to improve their competitive position. Our substantial knowledge and experience enables us to provide integrated planning services for complex and large-scale projects.

- **Peridian Asia Pte Ltd - Landscape Consultancy**

Peridian Asia Pte Ltd is one of the major landscape architecture and planning firms in South East Asia. As a multi-disciplined firm, Peridian offers a wide variety of professional services. With nearly 20 years of practice in Singapore, the firm's partners are dedicated to creative and technical excellence and high quality service, while providing cost effective and practical design on time and on budget. Peridian has provided Landscape Architectural Services for numerous hotels and resort projects throughout Asia and the Middle East. Its management team fully understands the high expectations and professional expertise required by its sophisticated clientele.

- **Bent Severin & Associates Pte Ltd - Interior Design Consultancy**

BSA's expertise, which spans more than 30 years, is testament in its interior design for luxury and resort hotels as well as luxury apartments, spreading across Asia – Japan, Taiwan, Thailand, Malaysia, China, Sri Lanka and Vietnam. Its portfolio which carries other than the internationally renowned 5-star hotel chains and boutique operators also includes airports, embassies and villas. Some of the hotel projects include Sheraton Suzhou Hotel & Towers, China, Sheraton Bahrain. The East 21 Hotel, Tokyo, Nagoya Marriott Associa Hotel, Japan, Swissotel Osaka the Westin Tokyo Hotel, the Westin Surabaya, Indonesia, the Ramada Renaissance, Kuala Lumpur, the Sedona Hotel, Yangon, Kempinski Budapest, Cinnamon Grand Hotel, Colombo Sri Lanka, Fairmont Kunshan, China, Fairmont and Raffles Hotel and Raffles Residence Makati, Philippines.

BSA's presence in Asia has generated opportunities for the company to continually be exposed to the multi cultural environment of its Clientele. Armed with this extensive experience in the hospitality arena, it has expanded its services into the health-care industry in recent years.