The Journey to pioneer Singapore’s 1st integrated development of an acute general hospital and community hospital

Foo Hee Jug
Chief Executive Officer
Jurong Health Services

17 Aug 2016
The Journey feels like being on the F1 race – changing tires while the car is moving
Singapore’s Healthcare System faces three major challenges:

1. Rapid Growth In Population
2. Rapid Ageing of the Population
3. Increasing Burden Of Chronic Diseases
A Unique Beginning, Challenge and Opportunity

“Pitch your tent as high as possible, but the most important parts are outside.”

- Minister Khaw Boon Wan

- Build a **NEW** team to do this!

- Build the **FIRST**
  Integrated development
  (700-bed Ng Teng Fong General
  Hospital and 400-bed
  Jurong Community Hospital)

- Build a team **FAST** enough to take
  over operations of a 300-bed acute
  hospital in 1 year

We saw opportunities!
Excitement!
With rapid ageing population and growing prevalence of chronic diseases, the hospital-centric model of care is no longer sustainable.

JurongHealth envisions transforming the current care delivery model over time.

**Current State**

**Care is:**
- Episodic
- Hospital based
- Illness-focused

**Challenges**
- Increasing demand for costly inpatient services (aging population, chronic disease)
- Rise in obesity

**Aspiration**
- Vision of a healthy Singapore

**Future State**

Seamless & patient-centred care delivery across care continuum

Holistic and integrated care at home & wellness in the community

In alignment with MOH objectives
JurongHealth is the Regional Health System (RHS) looking after the population in the western sector of Singapore together with NUH as a tertiary partner

- Provide integrated and seamless care experience for our community requiring various healthcare services.
- Work closely with care providers in the community including GPs, polyclinics, community hospitals, nursing homes, hospices, home care providers and social support groups.
- Engage non-healthcare community partners e.g. grassroots organisations, employers, sports and other interest groups to help residents stay healthy in the community – away from the hospital.

- 675,200 residents (12% of Singapore population) along with their health and wellness needs. (Singapore population: 5.5 million, 2015)
- 7% or 63,000 elderly (residents with age ≥65) in the west in 2010.
CEO and CMB were appointed in April 2009 – our work cut out for immediate priorities

- Immediate tasks to form the management team and clinical leaders, and build a team from scratch

- Recruit sufficient staff to take over the management of Alexandra Hospital from Khoo Teck Puat Hospital team by August 2010

- Appoint the architect and start detailed design of 2 new hospitals for opening by end 2014
The site was challenging, prompting the need for an innovative approach

- Long & narrow site: 600m x 100m
- New 6-7 lane road cutting into the plot
- Highly urbanised
- Surrounded by commercial buildings and shopping malls
- Flanked by busy roads with high traffic noise
Picked up ideas from hospitals in Asia and in the US – learn from anyone

**USA**
Northwestern Memorial Hospital, Chicago, Illinois (NWM)
• Wide and well-designed link bridge between towers
• Wayfinding kiosks

Cleveland Clinic, Cleveland, Ohio (CC)
• Sense of arrival and double volume lobby
• Separation of OT and ICU on different floors linked by dedicated trauma lift

Los Angeles County-USC Medical Centre, Los Angeles, California (LAC+USC)
• Flexibility of design grid for future change of use and space for expansion

Ronald Reagan UCLA Medical Centre, Los Angeles, California (RR)
• Segregation of patients going for surgery on separate floor from OTs

**ASIA**
Seoul St. Mary’s Hospital, Seoul, Korea (SMH)
• Double volume lobby, colours in wards and horizontal fire evacuation plans

Prince of Wales Hospital, Hong Kong (PWH)
• Sense of arrival must be pleasant for patients

Shatin Hospital, Hong Kong (STH)
• Therapeutic garden and mobility park

Princess Margaret Hospital, Hong Kong (PMH)
• Isolation room concepts and isolation ward

Our Lady of Maryknoll Hospital, Hong Kong (OLMH)
• Space for patient education and community partners

Kowloon Hospital, Hong Kong (KLH)
• Sufficient rehab space

Bumrungrad International Hospital, Thailand (BIH)
• Sense of arrival at clinics, good signages and way finding
• Decentralise pharmacy to minimise choke points at medication collection.

**Singapore**
• Jalousie windows & maximise airflow at KTPH
• Low ceiling height at CGH ward – poor ventilation
• Incorporation of teaching areas at SOC – NUH Medical Centre
• SLH was our key partner to plan and design JCH
Improved comfort and ventilation in subsidised ward – “A window for every patient”

- Patient comfort is optimised – ventilation increased 2x
- Promotes healing for critical patients
- Enhance patient privacy, comfort and recovery
- Improved infection control
- More spacious and conducive working areas for hospital staff.

Meaningful horizontal and vertical adjacencies

- Modular wards and clinics to facilitate conversions
- Main Operating Theatres (MOT) and Day Surgery Operating Theatres (DSOT) adjacency and flexibility
- Combined Intensive Care Units (ICU) and High Dependency Units (HDU)
- A&E and Diagnostic Imaging adjacency
- A&E and Isolation Ward adjacency
- Logistics Hub supporting both hospitals
- Inpatient Rehabilitation (JCH) and General Ward (NTFGH) connectivity
- Patient, staff, logistics separation
- ED, ICU/HD, MOT, via dedicated trauma lifts

… and customised them to fit our context and needs
Being new, we have a unique opportunity to develop a sense of Vision, Mission and Values (VMV) that anchor our actions and collective destiny.

We adopted an ethnographic approach to the process of VMV development.

- **Stakeholder Engagement**
  - Developing the context
  - In-depth interviews

- **Customer Inspirations**
  - Patient visits
  - Crafting the draft values and mission

- **Management Synthesis**
  - Deliberating & refining draft values & mission

- **Testing & Endorsement**
  - VMV translation workshops for staff

- **Vision Development**
  - Development of vision
  - Testing of proposed vision with staff
  - Finalisation of VMV

- **Crafting the JurongHealth Story**
  - Cascading to all staff

220 staff validated the values and mission statement.

Views of Chairman, Board members, senior management and staff were obtained in Stakeholder engagement phase.

32 staff visited with 8 families living in the Western region to understand their needs and their home environment.
Vision
Transforming Care. Bringing Health to Every Home.

Mission
Stay Well . Heal . Empower
Providing integrated healthcare by working hand-in-hand with community partners, patients, caregivers, and staff

Values
We uphold trust through all we say and do
We design and deliver care around the needs of our patients and their caregivers
We embrace open communication, change & champion innovation
We give our best, every time
We treat each and every individual with dignity
The culture that we want to build is one that is:

“Patient-centred. Genuinely cares for every member of the JurongHealth family, founded on living our values.”
We started active communication about the work that we were doing in JurongHealth starting at Alexandra Hospital…
Staying resilient despite setbacks…

In May 2014, we were hit by construction delays due to building façade NSC
Undaunted, JurongHealth staff re-prioritised work to get facilities ready. Major construction milestones were achieved, enabling handover, defects checking & rectification, testing & commissioning.

**May 2014**
- Turned-on of electricity and water supply.
- Awarded Med equipment contracts.

**Jun & Jul 2014**
- Setup server room, telecommunications and data lines

**Nov 2014**
- Awarded Non-med equipment contracts;
- Attained TOP for Basement

**Jan 2015**
- Health Minister on-site walk
- Handed over ICU, ED and OT.
Conducted multiple rounds of department & hospital Full Dress Rehearsals for staff to familiarise with new systems and workflows.
With the support of the public healthcare family and other public agencies, we achieved a safe and smooth transfer and opened JCH and NTFGH as planned.

To Minimise Patient Transfer Risk:

- 4 patients moved to JCH ward in NTFGH on 18 Jun 2015
- 17 acute inpatients safely transferred to NTFGH Ward on 29 Jun 2015 – order of move determined by clinical risk factors
Since our opening, we have served 105,300 unique patients - 62.7% of them live in the west region (Jurong East, Jurong West, Bukit Batok, Choa Chu Kang, Bukit Panjang, Clementi)

Data as of 01 Jun 2016
Despite the setback of construction delays, the new hospitals caught up with original schedule only after 3 months of opening.
3 Buildings, 2 Hospitals, 1 Integrated Experience

Integration of Infrastructure, Processes and Technology

**Tower A (NTFGH Clinics)**
- Level 1
  - Training facilities, auditorium and Radiology
- Level 2
  - Pre-surgery evaluation, Medical Social Services, Retail
- Level 3 to 7
  - Specialist Outpatient Clinics (120 consultation rooms)
- Level 8
  - Administration

**Tower B (NTFGH Wards)**
- Level 1 to 4
  - Emergency Department and other critical care areas such as the ICU and OT
- Level 5 to 10 (West Wing)
  - Non-subsidised Wards
- Level 5 to 16 (East Wing)
  - Subsidised Wards

**Tower C (JCH)**
- Level 1
  - Admissions & Business Office
  - JCH Outpatient Clinics
- Mezzanine Level
  - Clinical and Administration
- Level 2 and 3
  - Non-subsidised Wards
- Level 4 to 12
  - Subsidised Wards
1 year on and our workload has increased steadily...

NTFGH (Sep 2015 to Jun 2016)

- Ambulance Arrivals
- Emergency Department Attendances

BOR (Sep 2015 to Jun 2016)

- Bed Occupancy Rate (NTFGH)

SOC (Sep 2015 to Jun 2016)

- SOC Attendances

JCH (Sep 2015 to Jun 2016)

- Bed Occupancy Rate (JCH)
ONE Infrastructure and facilities integration: connected outside and within

External link bridges connect to public transport, business, retail, dining and entertainment facilities.

Internal link bridges connect patients seamlessly within NTFGH and JCH

ONE kitchen

ONE pharmacy

ONE logistics hub and shared resources optimise productivity
Inpatient Wards: A Window for Every Patient

• Natural light to aid in patients’ physical recovery and improved mental state. Promotes awareness of time of day and reinforce the natural circadian rhythms.

• Optimise infection control and enhance care by staff.

• Incorporated haze management measures for subsidised wards.
Emergency Department of the Future: Ready to meet the Emergency Needs of the West

• **Pandemic-prepared, mass-casualty and decontamination-ready** for industrial accidents due to proximity to industrial areas/Jurong Island.

• **Dedicated Trauma Lifts** for critical cases to be transferred directly to the operating theatres and Intensive Care Unit for swift and immediate medical care.

• **Modular Trauma-ready Rooms** where each room combines two typical resuscitation units to provide space for life-saving care.

• **Elderly-friendly Features** such as natural lighting; ambient temperatures; larger fonts on signage; warm colours; and vinyl flooring with built-in layer of cushioning for better foot comfort.
ICU/HD: One Location, One Team, One Standard of Care

• First Intensive Care Medicine Department in Singapore.

• The only combined critical care facility merging the convention ICUs (Surgical, Medical, Cardiac) and HD for better utilisation of staff and resources.

• Convertible flexibility between HD and ICU to reduce the need for transfers of patients.

• “Same-handed” rooms to promote patient safety.

• First outdoor Healing Garden - access to adjacent outdoor areas with natural light, greenery for stabilised ICU patients who can be wheeled to outdoor Healing Garden.
Specialist Outpatient Clinics (SOC): Modular and Patient-centred Design

- **Modular design** provides for maximum flexibility and ease of conversion in the future.

- Thoughtful co-location of clinical services on the same floor to optimise patient experience. For example, for the convenience of elderly patients, Geriatric, Diabetes, Eye and Podiatry services are located on the same floor.

- **Satellite pharmacy** on almost every floor at the SOC.

- **One Queue, One Bill:** Patient provided with visit itinerary and consolidated bill at the end of visit. Enables staff to focus on financial counselling and other value added services while managing a monthly load of 12,000 outpatients.
Jurong Community Hospital: Adjacent post-acute and rehabilitation 400-bed facility, fully integrated with NTFGH

- Siting JCH adjacent to NTFGH allows for the convenient and safe transfer of patients from acute-care to post-acute and continuing care facilities.
- Co-location of both hospitals allow for better co-ordinated and integrated care.
- Design of the wards mirrors the fan-shaped design of those in NTFGH, providing a window for every patient.

LIFE Hub features a unique three-room HDB mock-up flat for patients to gain confidence and rehabilitate back into their home environment under guidance of therapists.
JurongHealth Mobility Park – a first of its kind in Singapore to feature a life-like simulated environment to patients

- First outdoor rehabilitation facility with simulated features.
- Purpose-built next to JCH’s indoor rehabilitative facility as part of its holistic care.
- Prepare patients, elderly and people with special needs to reintegrate into the community after discharge from the hospital and regain confidence in moving and getting around.
Efficient back-end processes

Integration of catering services, materials management, housekeeping, portering, facility management and security offer:

• Same standard of care at NTFGH and JCH
• Fewer duplication of work
• Economies of scale

A centralised kitchen for NTFGH / JCH churns out 3,300 meals a day and supports:

• Better space and equipment utilisation
• Competitive pricing of ingredients
• Economies of scale
Transforming Care.
Bringing Health to Every Home
Powered by
Technology that Works

Hassle Free Experience
4 Less: Paper-less, Chartless, Scriptless & Filmless

Consolidated for Intelligence
Clinical decision support – enable preventive and predictive analysis

Designed for Collaboration
Beyond the hospital walls – enable collaboration with patients and community partners

Raising productivity
Increase value-added work

Architected for Transformation
Beyond illness care to wellness care
Electronic Medical Record System (EMR-Epic) – We are “4-less” - A Single Integrated EMR

The integration between NTFGH and JCH:

- reduces manual transcription in the hospitals with information from Emergency, ICU, Radiology, Laboratory, Appointment Scheduling, Bed Management and MRO merged into one system for seamless patient information flow.

- limits toggling between different system interfaces and lower errors and lag time.

- provides consistent statistical data.

The EMR is also interfaced with over 900 medical devices and the Vendor Neutral Medical Devices Middleware Integration System which transmits medical data from various medical devices into the EMR to reduce charting errors.
Digital Hospital: Attaining HIMSS Analytics EMRAM Stage 6 on 2 September 2015 (less than 2 months after hospital opening) – HIMSS level 7 preparation underway

HIMSS EMRAM Stage 6 benchmark is a recognition in utilising technology for better patient care and improved efficiency for its healthcare professionals.

“NTFGH has an impressive disaster recovery/ business continuity strategy and they have integrated multiple medical devices with the EMR beyond just vitals monitors. I fully expect they will be ready for a Stage 7 validation very soon.”

- John Daniels, HIMSS Global Vice President

There are 24 hospitals in Asia Pacific that have achieved HIMSS EMRAM Stage 6, and 3 that have achieved Stage 7.
To provide care sustainably for our population, we must extend beyond the walls of the hospitals.

**TRANSFORMING CARE. BRING HEALTH TO EVERY HOME.**

**STAY WELL**
- Staying Well

**HEAL**
- Managing Illness

**EMPOWER**
- Living well with illness
- Dying well

1. Maximise the well being of our population
2. Work upstream to do pre-emptive care and downstream to rehabilitate
3. Empower and enable primary and community care
4. Integrated care at the right-site
What did we learn along this journey?

Building JurongHealth is about 5 buildings:

• **Building our Hospital**, the 700-bed NTFGH and 400-bed JCH

• **Building our People**, in terms of numbers and capability

• **Building our Culture**, of patient-centredness and a focus on health (not illness)

• **Building Bridges to our Community**, as we work towards providing integrated care for our population

• **Building Partnerships**, with key stakeholders in the healthcare and social ecosystem to achieve our mission
Everyone in JurongHealth comprises the RHS – we (NTFGH, JCH, JMC, LFMC and partners) are the RHS
Thank you!