Setting up a Multi-Disciplinary Centre
- Innovate and Transform

James Toi
Chief Operating Officer (Ambulatory)
Singapore General Hospital
Healthcare Today & Beyond ...

Key Challenges

1. Rapid Growth in Population
2. Rapid Ageing of the Population
3. Increasing Burden of Chronic Diseases
4. Advances in Medicine
5. Rising Cost of Healthcare
6. Increasing Competition
7. Limited Health Workforce and Competing Demands
8. Rising Expectations of Patients
9. Rising Standard of Healthcare
10. Increase in Life Expectancy
“Progress is impossible without change, and those who cannot change their minds cannot change anything.”

George Bernard Shaw
Playwright & co-founder of the London School of Economics
Infrastructure

From National Heart Centre ...

... to Diabetes & Metabolism Centre
Then & Now
Then & Now

Lifts

New lift

New lift car
Then & Now

Level 1 Lobby

The Mistri Wing was built in 1955 with a donation of $960,000 from Mr Nawroji Rustami Mistri. This Wing was officially opened in October 1955 as a 300-bed children’s wing of the Singapore General Hospital. In December 1994, the building was converted for use by the National Heart Centre Singapore which has since moved in 2014. In May 2015, the building was reopened as the multi-disciplinary Diabetes and Metabolism Centre.
Then & Now

Clinic
Then & Now
Challenges

Structural pillars

“Hot Spring”

Repair hollow ground slab (more 50% of the ground floor slab was hollow)

External interior walls are partition boards that have to be replaced

Messy cables
Innovation & Transformation Journey

- Infrastructure
- Care Model
- Processes
- Innovation & Transformation Journey
Steering Committee

Institution

Executive Sponsors

Project Sponsors

Project Team

SGH

CMB

COO (Ambulatory)

AD (Ambulatory)

AD (Nursing) (Ambulatory)

COO

CPO

DD (Nursing)

Operations & Facilities Development

Clinical Team

IT

Clinical Team

Ambulatory

Facilities Development
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Planning Guidelines

- Seamless and hassle free service for patients
- Optimise facilities by creating multi-use rooms
- Adequate seating and circulating space
- Age-friendly design & facilities
- Teaching space to cater for training needs
Innovation & Transformation - Care Model
Ambulatory Care Centres

- Centres of Excellence
- Patient Centric
- Multi-disciplinary
- Team based approach
- Design healthcare infrastructure to provide better integrated delivery
- Seamless experience - Patients, Doctors, Staff
- Seamless Operating Systems
- Integration of services
Benefits

• Condition / disease based

• Bringing different expertise groups together
  – to shape care for patients
  – through continuum of care
New Approach & Effectiveness

Particularly effective for:

• patients who are typically cared for by multiple specialists

• offers patient the convenience
  - being able to see all doctors in the same place

• facilitates improvements in processes of care

• promotes atmosphere of collaboration that positively impacts clinical care and opportunities for research
Diabetes & Metabolism Centre (DMC)

Diabetes care from head to toe

New Diabetes and Metabolism Centre offers integrated, comprehensive care for diabetes, including vascular, ophthalmology and podiatry services

“We want to provide diabetes patients with quality care by having every aspect of their illness seen to by the right specialist in the right setting.”

Dr Goh Su-Yen
Senior Consultant & Head
Department of Endocrinology
Multi-Institution Collaboration
Multi-Disciplinary Care

Integration of multi-disciplinary services to deliver seamless and coordinated care, organised around the needs of patients with diabetes & metabolic conditions.
Budget

Timeline
Project Timeline

2014
Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2015

Req. Gathering
Workflow Planning

Design & Development

Tender Package 1: Demolition
Demolition

Tender Package 2: Lift Tender
Lift Order

Tender Package 3: Main Contract
Construction: Builder Works, Lift Shaft, M&E, Interior Fitout

Installation

Commis sion & Migratio n

Target Completion Apr 2015

Singapore General Hospita l
Floor Stacking

**LEVEL 4**
DMC Level 4
RENAL MED, INTERNAL MED

**LEVEL 3**
DMC Level 3
ENDOCRINOLOGY & DIABETES

**LEVEL 2**
DMC Level 2
RETINA CENTRE

**LEVEL 1**

<table>
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<th>VASCULAR SURGERY</th>
<th>DMC Level 1</th>
<th>PODIATRY PERITONEAL DIALYSIS</th>
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</table>

Levels 1 – 4: 5,020 sq m
Bowyer Block C L1: 460 sq m

Bowyer Block C
Level 1

PAYMENT  CDMO

LAB  PHARMACY
Integrated Facilities

- Right Siting Office
- Central Payment
- Blood Taking
- Pharmacy
- Clinics
- Radiology

Integrated facilities for one-stop service
Consultation Rooms

• Compact rooms of 11.52 sqm with sliding doors
• Fully equipped assistant workstation for queue management, appointment scheduling, e-charge
• Multi-purpose – anyone can use
• Space & cost optimisation
Multi-Purpose Rooms

- 4 to 8 sqm multi-purpose rooms
- Nursing - patient assessment, listing, counselling
- Non-doctor consults by medical social service, pharmacy reconciliation service, dietician counselling, renal coordinator, nurse educator
Treatment Rooms

- With attached disposal rooms
- Multi-purpose
  - endocrine tests, FNAC, injections, dressings
Peritoneal Dialysis

Dedicated exchange area with recliners for patients who need to perform exchange during an extended visit – enhances patient care & experience
One-Stop Vascular Surgery Clinic

- One stop service for vascular patients
- In-clinic vascular scan unit facilitates same day scans
  - Reduces overall waiting time for vascular scans
- Procedure room for same day vascular procedures
Cluster Concept for Team Based Care

- Facilitates multi-disciplinary consultations and team based care centred around the needs of patients

YAD (Young Adult Diabetes) Clinic
Cluster Concept for Teaching

- Facilitates supervision of residency and other teaching sessions
- Discussions can be conducted in the internal corridor away from patients if needed

Teaching clusters with 1 senior doctor supervising up to 3 teaching sessions
Cluster Concept for Teaching

Back corridor

Teaching room
Sub-waiting Areas

- Smaller consult rooms
- Wide corridors
- Sub-waiting areas to de-congest waiting area
Strategic Co-location of Services

Right Siting Office

Central Payment

Bowyer Block C

Pharmacy

Blood Taking
Continuing Care in the Community

Collaboration and strategic alliances with our Partners for Continuing Care in the community

• GPs
• FMC
Age-Friendly Features

- Large room numbers & Handrails
- Chairs with armrest
- Wheelchair Lots
- Amenities counter
- Hydraulic couch
- Low counters
- Large & contrasting lift buttons
Way Finding

Colour Coding

Blue Zone

Green Zone
Way Finding

Use of icons in signs & posters

Information Counter

Centre directory

Footprints to Lab & Pharmacy
Toilets
Staff Amenities

Staff tea room

Staff lockers & changing room

Panic alarm system
Innovation & Transformation - Processes
1. Seamless Experience: Putting Patients First

2. Productivity through Innovation

3. Technology / Automation
Manpower/ Staff/ Employees

- Healthcare – Manpower intensive industry
- Shortage of manpower in healthcare
- Difficult to find and recruit
- Staff retention and development
- Gen X, Y, Z
- Unions
- MCs, overtime, salary increase
New manpower minister to stay the course on foreign-worker policy

Not enough for companies to be aligned in working towards “priority outcomes”, they must also move and act decisively, says Swee Say

By Chuang Peck Ming

Singapore

EMPLOYERS can perish all thoughts of an easier labour market. The new Manpower Minister will not Review the foreign-worker policy to let more foreign workers, nor reduce the foreign-worker levy.

Instead of yielding to calls by some bosses to go easy on tightening the tap on the inflow of foreign workers — and the fees for recruiting them — Mr Lim Swee Say wants businesses to look beyond the current tight labour market that’s plaguing them.

“Instead, they should work with the government and unions to focus on making the economy manpower lean, boosting the Singapore core workforce and upgrading the existing pool of foreign workers,” he said.

The result would be a more competitive economy that’s good for business looking for higher profits and good for Singaporeans securing a fulfilling career path,” he said in a media interview on Tuesday.

The former chief of the labour movement, who came into his new job on May 4, said that it’s got many of the business leaders he met in the past month “aligned” in working towards the four “priority outcomes” and his ministry is already looking into changes to provide the necessary support.

Mr Lim’s rhetoric seems key: “With this support and understanding, our members, representing many industries, will be more willing to adapt to the new economic environment,” said the president of the Singapore Chamber of Commerce and Industry.

“Firms are fully aware of the impact of the tightened control on foreign workers,” he added. “By the same token, they hope the government can also understand the strains and limitations they are grappling with.”

Mr Lim has yet to work out the details of the support his ministry will offer to businesses but indicated that whatever they are, the best way to go about achieving the desired goals is through Tripartism — getting government, employers and unions to work together and the actions must be taken at the industry and sub-industry levels, rather than at the national level.

“We don’t have to wait until everybody agrees to start,” he said. “All it takes is three companies, five companies, seven companies that are prepared to take the lead.”

And these companies must not only be aligned in moving forward, they must also move and act decisively, he added.

According to SCCE’s Mr Chua, in meeting with the chamber, Mr Lim had indicated that he was prepared to meet with different industries sector by sector and welcomed constructive alternative solutions on addressing the manpower challenge and “would certainly support if they were found to be workable and feasible”.

Victor Tay, chief operating officer of the Singapore Business Federation, noted that with an ageing population, Singapore’s workforce is projected to decline by 2020.

Manpower shortage has already made the biggest cost burden for Singapore business, with many employers taking various productivity measures to lighten it.

While he agreed with the shift to a labour-lean economy, Mr Tay however cautions that it would take time — probably a generation — to build a strong Singapore core, because it requires changes in mindset and work attitude.

“According to Mr Lim, the manpower situation in Singapore has reached a point of no return. There’s ‘no turning back’ to a more liberal foreign-worker policy to ease the shortage, he said.

If they (the companies) keep hoping that the Ministry of Manpower will revise our policy on foreign workers to suit them, they will end up waiting,” he said.

Mr Lim noted that the ratio of local workers to foreign workers has dipped to 2:1. If we continue to adopt a more liberal foreign worker policy, the ratio of local workers versus foreign manpower will continue to decline.

One way Singaporeans will wake up to find ourselves as a minority in our Singapore workforce, and obviously that’s not sustainable, that’s not desirable.”

Mr Lim: “We don’t have to wait until everybody agrees to start... All it takes is three companies, five companies, seven companies that are prepared to take the lead.” PHOTO: MARK CHEONG THE STRAITS TIMES
Staff crunch? Automation may be answer

When a room service order is ready, Techi goes to the kitchen to pick it up, takes the lift up to the guests’ floor and rings the guests to let them know their food has arrived.

“Hello, how are you today? Please take your food,” says Techi, a 1m-tall robot with a soothing voice — and a slight resemblance to R2D2 from the Star Wars movies.

Techi the robot will be put into service in the next six months in at least two hotels and seven food and beverage outlets here, said Mr Mathan Muthupillai, chief technology officer at Techmetrics Solutions.

The three-year-old start-up developed Techi and a suite of other robots together with United States-based automation company Adept Technology. Techi will cost $80,000, inclusive of its operating system and charging pod.

“Who are the main ones suffering because of the manpower issue? The service sector,” said Mr Mathan. “It product-specific training.

“Because (workers) are doing the job day to day, they know what it entails and they know what are the areas they need help in, and this is where the conversation between workers and employers is important, so that they can apply appropriate technology in context,” said Mr Chan, who is also the Minister for Social and Family Development and Second Minister for Defence.

More events such as seminars and consultations will also be held, with the aim of reaching 30 service-related companies in the next two years.

The organisations hope to raise awareness about funding support available — up to 50 per cent for equipment and up to 90 per cent for automation training — under various productivity and training funds.

While automation is widespread in the manufacturing sector, the service sector has generally lagged behind.

One exception, however, is Decks, a clothing wholesale and retail company that employs 60 workers.
Harness Technology

High staff morale as hospitals go high-tech

Productivity is boosted and man-hours are saved as automation eases manual workload

Salma Khaltik
Senior Medical Correspondent

Ms Evelyn Soh used to spend every day picking medicine, packing it and then delivering it to polyvalent wards.

But since the Bukit Batok Polyclinic where she works started using a machine to do most of the sorting and packing, she has the time to learn a new skill - patient counselling.

The pharmacy tech, who has a diploma in pharmaceutical science, now teaches asthmatic patients how to use inhaler pumps, and educates heart patients on which foods to avoid while taking medication.

"It is more fulfilling. In the past, we didn't have much time with patients. Now I can talk to them for up to 15 minutes, and they have the chance to ask more questions," she said.

Her colleague, pharmacy technician Alice Chin, added: "I am one of five NHB polyvalent pharmacists who use a scorecard system to keep track of patients' medication.

"We also now have a portable tablet that we can use when we deliver medicine, which helps us to manage patient records on the go.""

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Meet Japan’s robot receptionist

TOKYO — She can smile, she can sing and this robot receptionist who just started work in Tokyo never gets bored of welcoming customers to her upmarket shop.

“My name is ChihiraAico. How do you do?” she says in Japanese, blinking and nodding to customers in the foyer of Mitsukoshi, Japan’s oldest department store chain.

Clad in an elegant traditional kimono, ChihiraAico — a name that sounds similar to a regular Japanese woman’s name — breaks into a rosy-lipped smile as would-be shoppers approach.

Unlike her real-life counterparts — almost always young women — who welcome customers to shops like this, ChihiraAico cannot answer questions, but runs through her pre-recorded spiel.

The android, with lifelike skin and almost natural-looking movements, was developed by Toshiba and unveiled at a technology fair in Japan last year.

“We are aiming to develop a robot that can gradually do what a human does,” said Toshiba chief specialist Hitoshi Yokada.

“The standard of customer service in this Mitsukoshi flagship store is top quality and this is a great opportunity to see what role our humanoid can play in this kind of environment.”

ChihiraAico started work yesterday and will receive customers at the store until today, before taking part in a series of promotional events over the upcoming Golden Week holidays.

The humanoid is not the first robot in customer service in Japan. The wise-cracking Pepper, a 120cm-tall machine with a plastic body perched on rollers, flags coffee machines and mobile phones.
Harness Technology

- Multi-purpose, self-service kiosks to encourage self-registration & self-payment
- Colourful visual to guide patients
Patient Journey

Typical patient journey

New case or walk-in
• Use of pictograms/visuals rather than just words
• Easy to understand
- Staff enter charges as services are rendered
- Cashier finalizes the bill at end of visit & collects payment
One Medical Social Service

- SGH & SNEC MSW collaborate to serve patients from both institutions
Harness Technology

Have you got your Health Buddy?

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- Find a Specialist
- A-Z Health Info

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https://ePay.singhealth.com.sg/
“We are so glad to have this facility to provide genuine multidisciplinary patient-centred care for chronic diseases like diabetes and hypertension. The Ops team are true champions of patient care and have helped the clinicians bring state-of-the-art outpatient care to our patients, and have worked tirelessly behind the scenes to bring this project to fruition.”

Dr Goh Su-Yen
Senior Consultant & Head
Department of Endocrinology
Singapore General Hospital

"The co-location of related services within close proximity inside DMC allow for better patient centric care and the patient’s journey within the hospital as pleasant and efficient as possible."

Dr Chong Tze Tec
Senior Consultant & Head
Department of Vascular Surgery
Singapore General Hospital
"The DMC's unique and thoughtful design has facilitated multi-disciplinary care made possible by the wide spectrum of expertise provided by the various SGH departments assembled under one roof to benefit our diabetic eye patients. The outcome is not only better and more accessible patient care but also opportunities for greater collegiality and academic exchange."

Ms Charity Wai
Chief Operating Officer
Singapore National Eye Centre

"DMC is the result of close collaboration across different institutions, disciplines & departments to create a one-stop centre that aims to deliver patient centric multi-disciplinary care. With the opening of the centre, it is most heartening to know that our patients & clinicians value the team's careful planning & attention to details & as administrators, we too, are to contribute towards better patient care."

Ms Yeo Shuan Khiag
Project Manager
Diabetes & Metabolism Centre
Singapore General Hospital
Staff Feedback

“We are proud to be part of the DMC family; working in collaboration with each department guided by compassion & integrity, and sharing the same passion to make a difference to our patients.”
DMC Pharmacy Team

“New DMC is really great to work at... It's really challenging to work with different clinic staff and different type of patients ... everyday I get a chance to learn new things ... I feel good working at DMC.”
Kalaivili D/O K K Karunaniti
Patient Service Associate
Diabetes & Metabolism Centre

“Nice, new facility, more spacious, less claustrophobic & less stressful to work here. The blue & green colours used also have a calming effect.
Melinder Kaur D/O Jit Singh
Senior Staff Nurse
Diabetes & Metabolism Centre
Patient Feedback

- The journey is a lot smoother now.
- Signages are clear, easy to find my way around DMC.
- New façade & look is refreshing.
- Convenient to pay for everything at one station.
- Willingness to Recommend > 96%.
- The entire process was seamless from the nurse who takes the BP to the doctors and nurse.
- No need to queue many times for payment.
- Good to have the blood test, pharmacy and clinic together – really one stop service.
- Nice, new clinic, & waiting area is more spacious & comfortable.

Singapore General Hospital
Multi-Disciplinary Centre
Innovation & Transformation Journey
Thank You