







Setting up a Multi-Disciplinary Centre - Innovate and Transform

James Toi
Chief Operating Officer (Ambulatory)
Singapore General Hospital







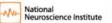










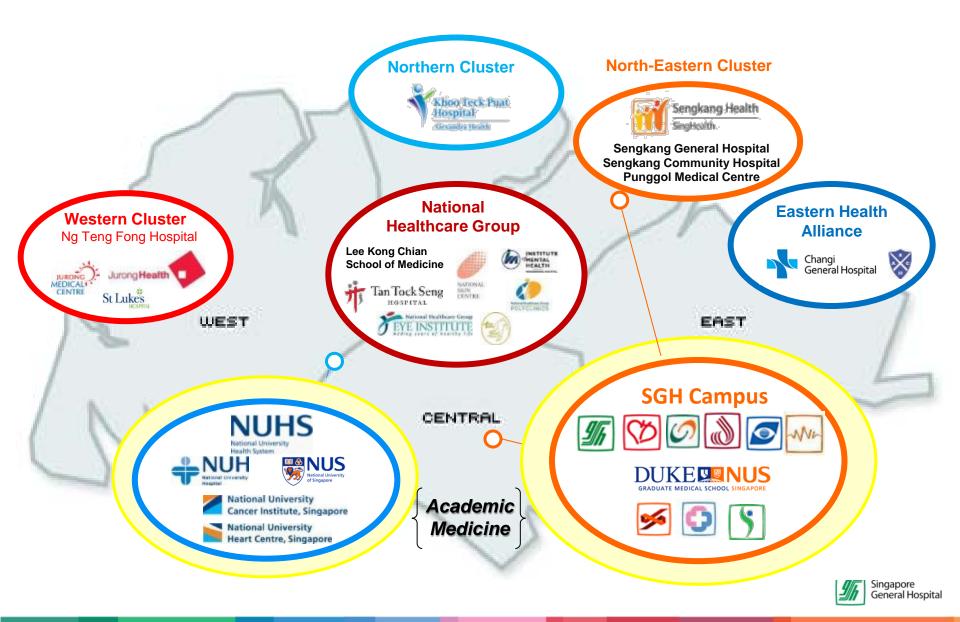








Public Healthcare Delivery Network



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
- Limited Health Workforce and Competing Demands
- 8. Rising Expectations of Patients
- 9. Rising Standard of Healthcare
- 10. Increase in Life Expectancy

Stresses on Our Resources



People



Money



Space



"Progress is impossible without change, and those who cannot change their minds cannot change anything."

Q Donard Show

George Bernard Shaw

Playwright & co-founder of the London School of Economics



Diabetes & Metabolism Centre



Infrastructure



From National Heart Centre ...

... to Diabetes & Metabolism Centre















Lifts



New lift



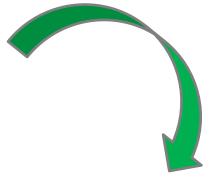
New lift car



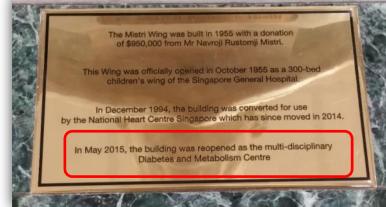








Level 1 Lobby



























Challenges



Structural pillars



"Hot Spring"



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



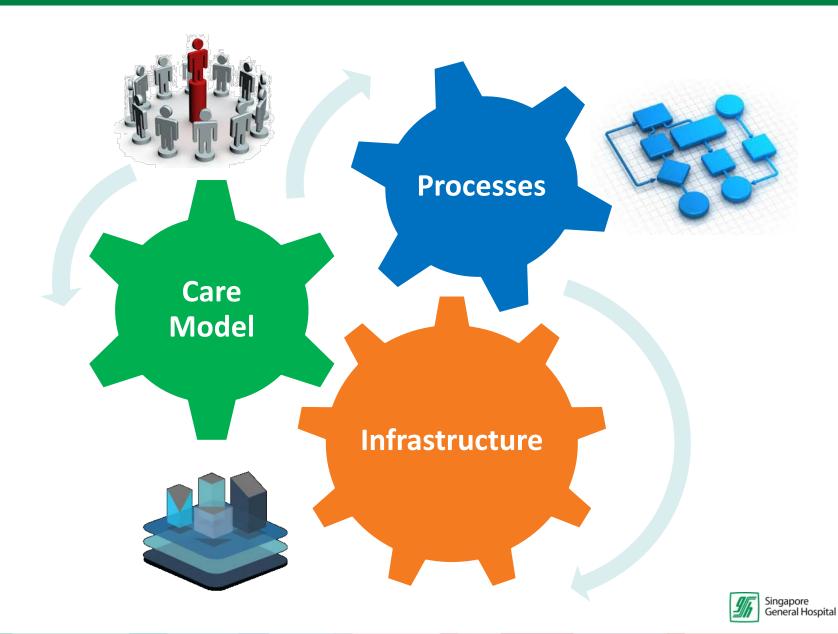
Messy cables



External interior walls are partition boards that have to be replaced

Singapore General Hospital

Innovation & Transformation Journey



Steering Committee

Institution

SGH

SNEC

Executive Sponsors

CMB COO (Ambulatory)

COO

Project Sponsors AD (Ambulatory)

AD (Nursing) (Ambulatory)

CPO

DD (Nursing)

Project Team

Ambulatory

Facilities

Development

Clinical Team

IT

Operations & Facilities
Development

Clinical Team



Working Committee

Division of Surgery

Vascular Surgery Ambulatory Surgery Centre **Division of Medicine**

Endocrinology Internal Medicine Renal Medicine **Division of ACSS**

Pathology Diagnostic Radiology Emergency Medicine **Division of Nursing**

Specialist Outpatient Clinics

Health Information Management Svc

Chronic Disease Management Office

Communications & Service Quality

Infection Control

Allied Health

Pharmacy, Dietetics, Podiatry, Physiotherapy Medical Social Service

Finance

Decision Support Services
Business Office

Safety Network

Patient Safety

Operations & Performance Management

Accreditation & Licensing Preparedness & Response Performance Management

IHIS

SGH IT, Patient Systems

Human Resource
Manpower Planning

Operations

General Services
Housekeeping
Visitor Services
Call Centre
Security
MD, CSSD
BME, FME

SNEC

Chief Projects Officer
Facilities Development
Clinical & Nursing Team
Operations, Communications
Infection Control
Finance, HR



Planning Guidelines

Seamless and hassle free service for patients

Optimise facilities by creating multi-use rooms

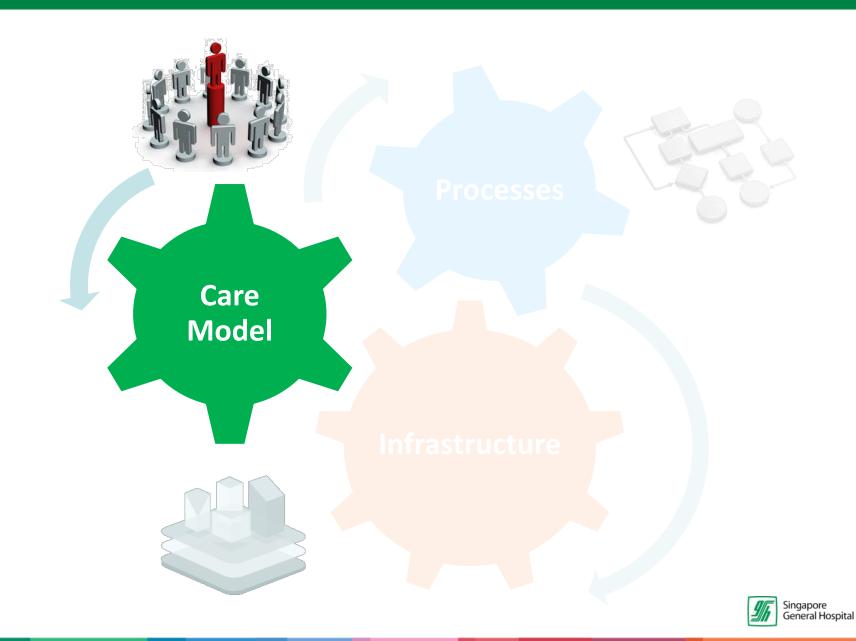
Adequate seating and circulating space

Age-friendly design & facilities

Teaching space to cater for training needs

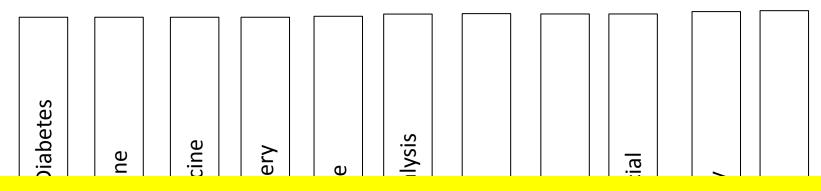


Innovation & Transformation - Care Model



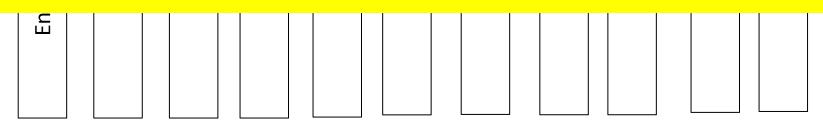
New Care Model

Traditional



Integrated Clinical Care Services

Diabetes & Metabolism Centre





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



The new Diabetes and Netabolism Centre is a multi-disciplinary venue that provides a one-stop service for patients with diabetes and metabolic conditions. It consolidates and organises clinical care around patients' needs.

"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



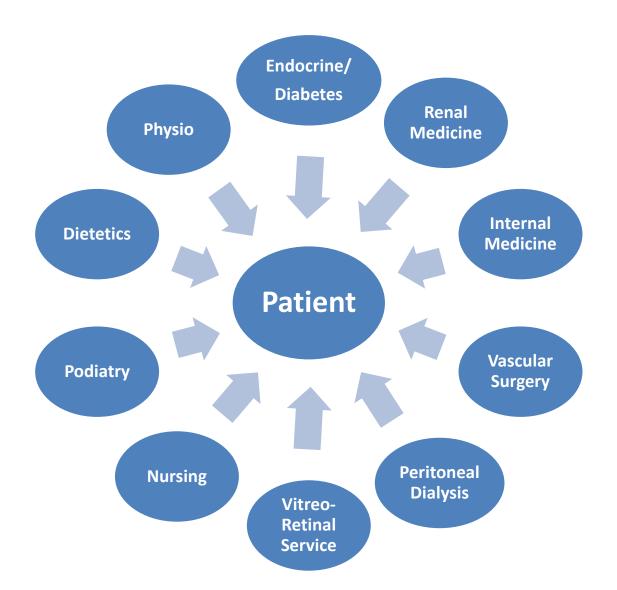
Multi-Institution Collaboration







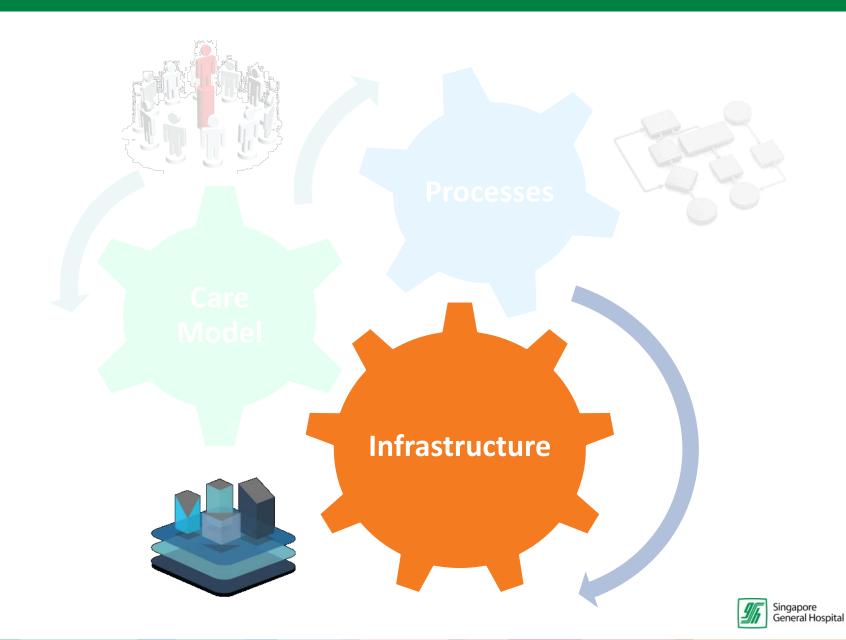
Multi-Disciplinary Care



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



Innovation & Transformation - Infrastructure





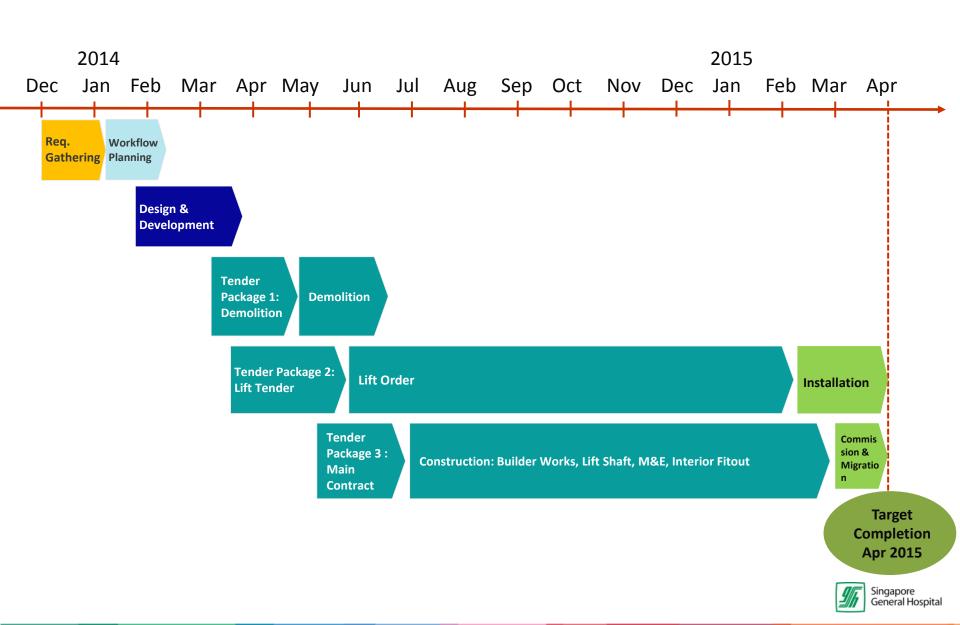


Budget

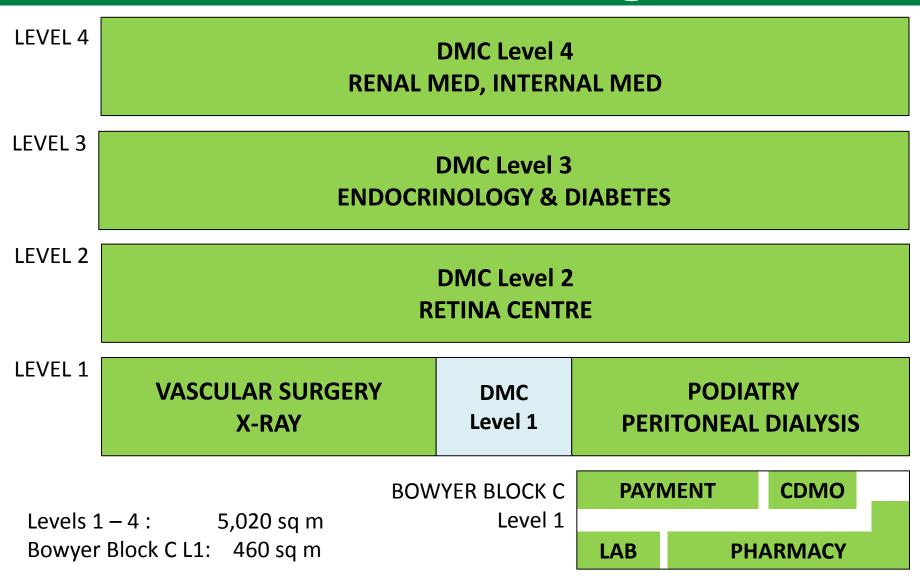
Timeline



Project Timeline



Floor Stacking





Integrated Facilities



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

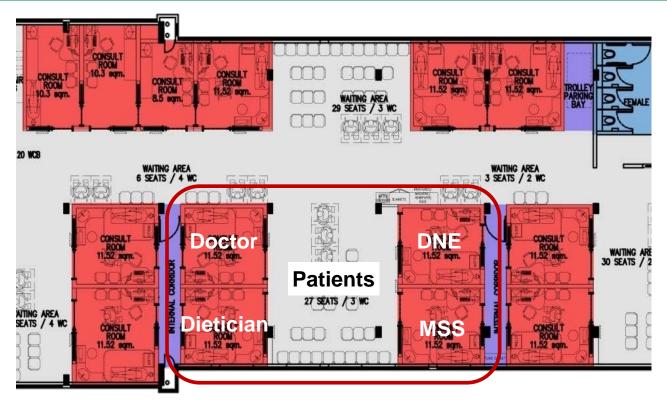


One-Stop Vascular Surgery Clinic



- 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

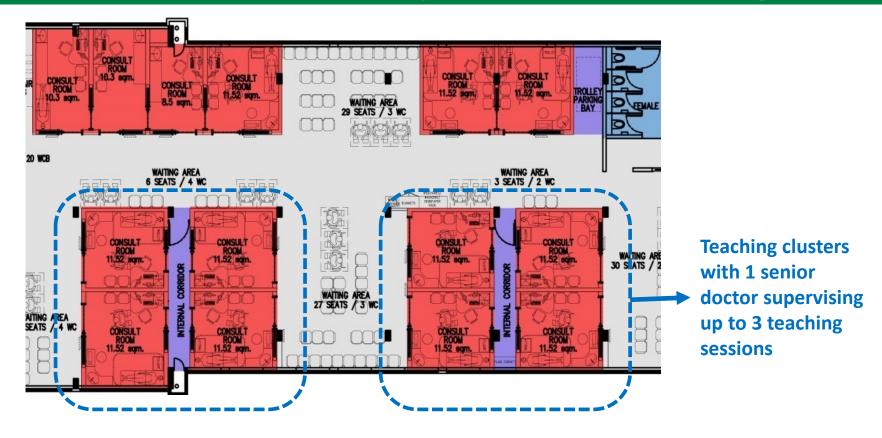


YAD (Young Adult Diabetes) Clinic

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



Cluster Concept for Teaching

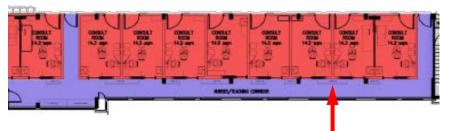


- Facilitates supervision of residency and other teaching sessions
- Discussions can be conducted in the internal corridor away from patients if needed

Singapore General Hospital

Cluster Concept for Teaching







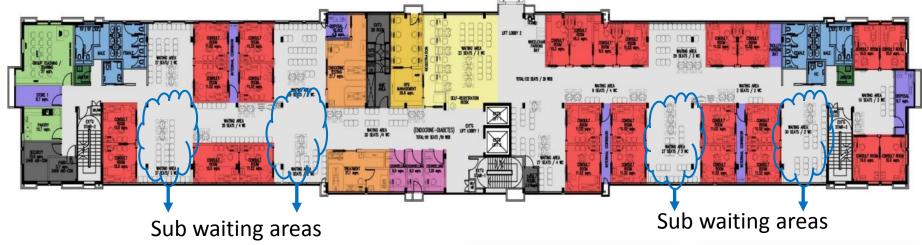
Back corridor



Teaching room



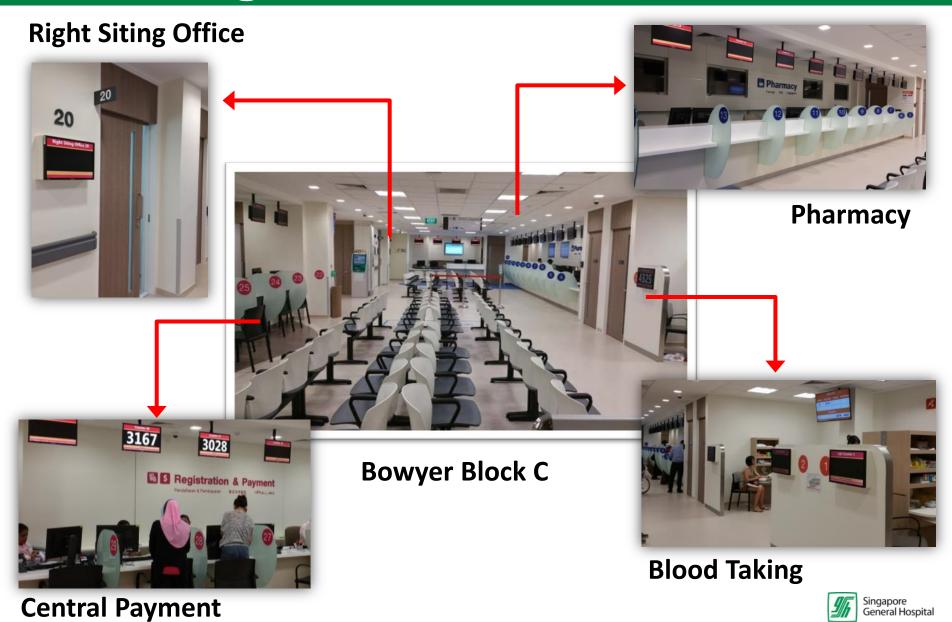
Sub-waiting Areas



- Smaller consult rooms
- Wide corridors
- Sub-waiting areas to de-congest waiting area



Strategic Co-location of Services



Continuing Care in the Community



Right Siting Office (RSO)

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



Centre directory



Toilets











Staff Amenities



Staff tea room



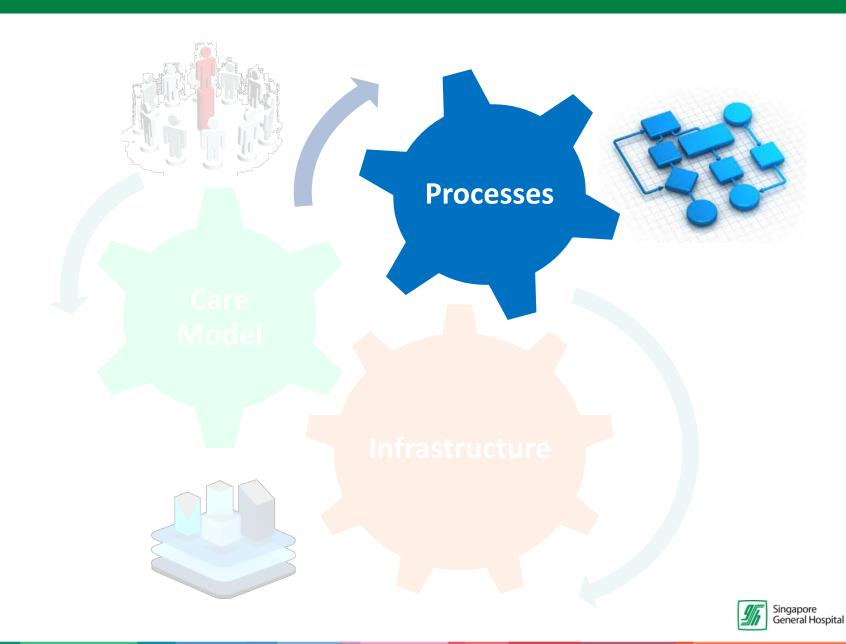


Staff lockers & changing room



Panic alarm system

Innovation & Transformation - Processes



PATIENTS. AT THE HE RT OF ALL WE DO.®

- 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



THE BUSINESS TIMES

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Wednesday, June 3, 2015

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 peckming@sph.com.sg @Peckming8T

EMPLOYERS can perish all thoughts of

an easier labour market. The new Manpower Minister will not relax the foreign-worker policy to let in more foreign workers, nor reduce the for-

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 - Lim Swee Say wants businesses to look beyond the current tight labour market that's plaguing them.

He wants them to work with the government and unions to focus on making the economy manpower-lean, boosting the Singapore core in the workforce and upgrading the existing pool of foreign workers.

The result would be a more competitive economy that's good for business looking for higher profits and good for Singaporeans seeking a fruitful career path, Mr Lim 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 he'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

MOM's backing seems key. "With this support and understanding, our members, representing many industry sectors, will be even more encouraged to adapt to the new economic environment," said Thomas Chua, president of the Singapore Chinese Chamber of Commerce & 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 would 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



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

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," Mr Lim 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

According to SCCCI'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

and 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 labour 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 cautioned that it would take time probably a generation - to build a

strong Singapore core, because it requires changes in mindset and work

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 labour short-

"If they (the companies) keep hoping that the Ministry of Manpower will revisit our policy on foreign workers to treat them special, give them higher quotas and so on, that is not possi-

Mr Lim noted that the ratio of local to foreign workers has dipped to 2:1. "If we continue (to adopt a more liber-

"If we continue (to adopt a more liberal foreign worker policy), the ratio of local workers versus foreign manpower will continue to decline. One day 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

al foreign worker policy), the ratio of local workers versus foreign manpower will continue to decline. One day, Singaporeans will wake up to find ourselves as a minority in our Singapore workforce, and obviously that's not sustainable, that's not desirable.

Lowering the foreign worker levy is also undesirable because, Mr Lim said, that would undermine it as a key policy tool to keep the inflow of foreign workers manageable.

To achieve a manpower-lean economy, he said that more workers from labour-intensive and less productive industries have to be shifted to the more productive and capital-intensive ones.

If this is not done, the situation would lead to under-employment with more professionals, managers and executives not utilised to their full potential. Structural unemployment would be the outcome if the Singapore core is weak, according to Mr

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TUESDAY, APRIL 7, 2015

THE STRAITS TIMES

Staff crunch? Automation may be answer



Techi, a robot programmed to deliver food from kitchen to table in restaurants, or for room service in hotels. It was jointly developed by Techmetics Solutions and Adept Technology. (Above) A robot designed by Nanyang Polytechnic, which could be used in the logistics sector. ST PHOTOS: ALPHONSUS CHERN



NTUC lines up more training for workers to manage new tech; raising awareness

By JOANNA SEOW

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 lm-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 Techmetics 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.



12 top news

thesundaytimes April 19, 2015

High staff morale as hospitals go high-tech

In the past, we

15 minutes."

didn't have much

Now I can talk to them for up to

time with patients.

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

Salma Khalik

Senior Health Correspondent

Ms Evelyn Soh used to spend every day picking medicine, packing it and then dispensing it to polyclinic patients.

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 technician, who has a diploma in pharmaceutical sciences, now teaches asthmatic patients how to use an inhaler properly, and educates heart pa-tients on which food to avoid while taking medication.

PHARMACY TECHNICIAN EVELYN SOH, who can now counsel patients, as a machin-packer takes over the sorting and packing of medicine "It is more ful-filling," she said. "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 attended two six-month part-time training courses before taking over the counselling sessions which were previously con-

ducted by pharmacists. Her colleague Alice Chin has also been freed up to head a team and train staff from other National Healthcare Group (NHG) polyclinics on how to use the machine pack-

She also manages inventory, as the automated packer needs to be properly stocked and the drugs bar-coded. Based on the code, the maconed. Based bit the code, the his chine picks the correct drug that has been prescribed for the patient. By the end of this year, all nine NHG polyclinics will be using these

automáted packers, which reduce the workload for pharmacy techni-cians and cut down on human er-

Several public hospital pharma-cies have also introduced similar

This is just one of several high-tech initiatives being adopted at both public and private health-care institutions to raise productiviand cope with the increasing

manpower squeeze.

At Khoo Teck Puat Hospital
(KTPH), automated ground vehicles (AGVs) have taken over the
mundane task of delivering food
and medical reports to wards.

The machines use the backlanes and are rarely seen by patients. It used to take 10 people to make these deliveries, doing about 300 trips a Able to do more "It is more fulfilling.

day. Switching to au-tomated beds has also made it easier to move them. It used to take four porters for each of the 150 bed transfers a day, as a bed weighs between 260kg and 360kg, but now just two can do the job.

A KTPH spokesman said the ordering of meals has man said the ordering of meas has also gone high-tech, saving 47 man-hours a day. Instead of nurses going around asking patients what they want for breakfast, lunch and dinner, writing it down and pass-ing on the information to the kitchen, all meal requests are now record-ed on an iPad linked directly to the

Meanwhile, the four Parkway Hospitals - Gleneagles, Mount Elizabeth, Mount Elizabeth Novena and Parkway East - switched to an electronic signature system in September last year that not only saves reams of paper, but also requires five fewer people in dealing with ad missions and consent. Instead of filling in paper forms

for staff to then input into computers, patients now do it electronically. This also reduces errors.



Bukit Batok Polyclinic pharmacy technician Alice Chin (above) now trains staff from other NHG polyclinics on how to use the automated packer which sorts and packs medicine (below right), while her colleague Evelyn Soh (below left) has more time to counsel patients on matters related to their medication.



Like KTPH, two Parkway hospitals have introduced electronic meal ordering which takes into ac-count allergies and therapeutic needs so patients cannot pick a meal that they should not have. A spokesman said Gleneagles

saves 33 man-hours each day, and Mount Elizabeth, 18.

At Singapore General Hospital, radio-frequency identity technology has made tracking and counting items a breeze.

It is used, for instance, on the 4,000 curtains – 100 of which need to be laundered and replaced every

Previously, 16 housekeeping staff members had to count and

record the serial number on each curtain during inventory tracking, Now a special tag on each curtain is

scanned and recorded in real-time, Housekeeper Soh Siang Chuan said: "It's very easy to use, very fast and the system updates right away so we can see the information im-

A different tracking device for surgical supplies that must be sterilised – as many as 28,000 items a month – has resulted in monthly savings of almost 2,000 man-hours.

At the National University Hos-pital, the use of disposable bedpans has saved 2,100 man-hours a month for nurses, and another 675 man-hours in cleaning the machines used to sanitise them. That is besides the savings on water and electricity The wards smell better

Tan Tock Seng Hospital now has electronic tablets that automatically capture patients' vital-sign readings at their bedside. Nurses no longer have to write them down and input the data into the computer later

With older workers in mind, the hospital has also replaced its old 120kg wooden trolleys used to deliver medical supplies to wards with motorised scooters which pull

Not only does this reduce deliv-ery time by half with the scooters carrying twice as much each trip, but the workers also no longer suf-

but the workers also no longer suffer from muscle aches.

The system, which reduced the
amount of work by more than 400
man-hours a month, has a zero accident rate. The old trolleys averaged
20 collisions a month.

Said senior staff keeper Chan
Chee Chioong, 53: "I used to go
home with my knees and back hurining. Now, it doesn't even feel like
The stop work in a few years time as
he did not think he could carry on.
But he no longer thinks of retiring
so soon.

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A18 | WORLD

TUESDAY, APRIL 21, 2015

THE STRAITS TIMES

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, Chihira-Aico – 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 Tokuda.

"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 wisecracking Pepper, a 120cm-tall machine with a plastic body perched on rollers, flogs coffee machines and mobile phones.

AGENCE FRANCE-PRESSE



ChihiraAico (left), a robot developed by Toshiba, welcoming customers at an information desk in Nihonbashi Mitsukoshi Main Store in Tokyo. 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. PHOTO: EUROPEAN PRESSPHOTO AGENCY





- Multi-purpose, self-service kiosks to encourage selfregistration & self-payment
- Colourful visual to guide patients



Patient Journey





SXXX2490D/

Service Station	Time
Registration 301- 304	
Height / Weight / BP Room 316- 321	
Consultation Room 341	09:30
Pharmacy Bowyer Blk Lvl 1	
Payment 22-29 Bowyer Blk Lvl 1	

Queue No. may NOT be in running sequence. Registration Date & Time: 15-Jul-2015 09:21

Please proceed to the respective waiting area

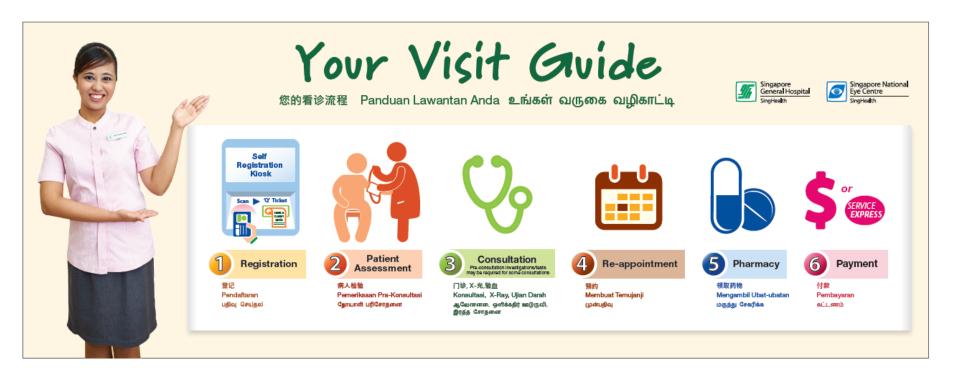


New case or walk-in





1 Queue 1 Payment (1Q1P)



- Use of pictograms/visuals rather than just words
- Easy to understand

e-Charge



- 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















Stakeholder Feedback

"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



Stakeholder Feedback



"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."

Diabetes & Metabolism Centre

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



Patient Feedback

The journey is a lot smoother now.

Signages are clear, easy to find my way around DMC

New façade & look is refreshing

No need to queue many times for payment



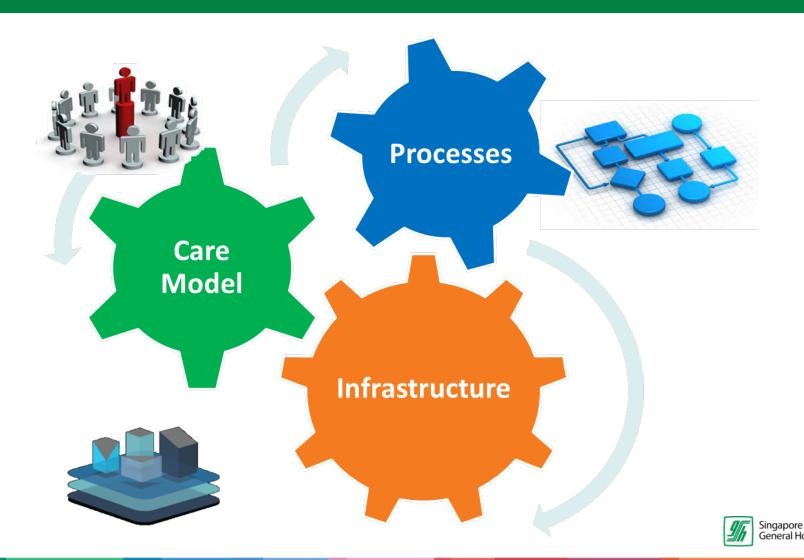
Convenient to pay for everything at one station

Good to have the blood test, pharmacy and clinic together – really one stop service

Nice, new clinic, & waiting area is more spacious & comfortable The entire process was seamless from the nurse who takes the BP to the doctors and nurse.



Multi-Disciplinary Centre Innovation & Transformation Journey







Thank You



