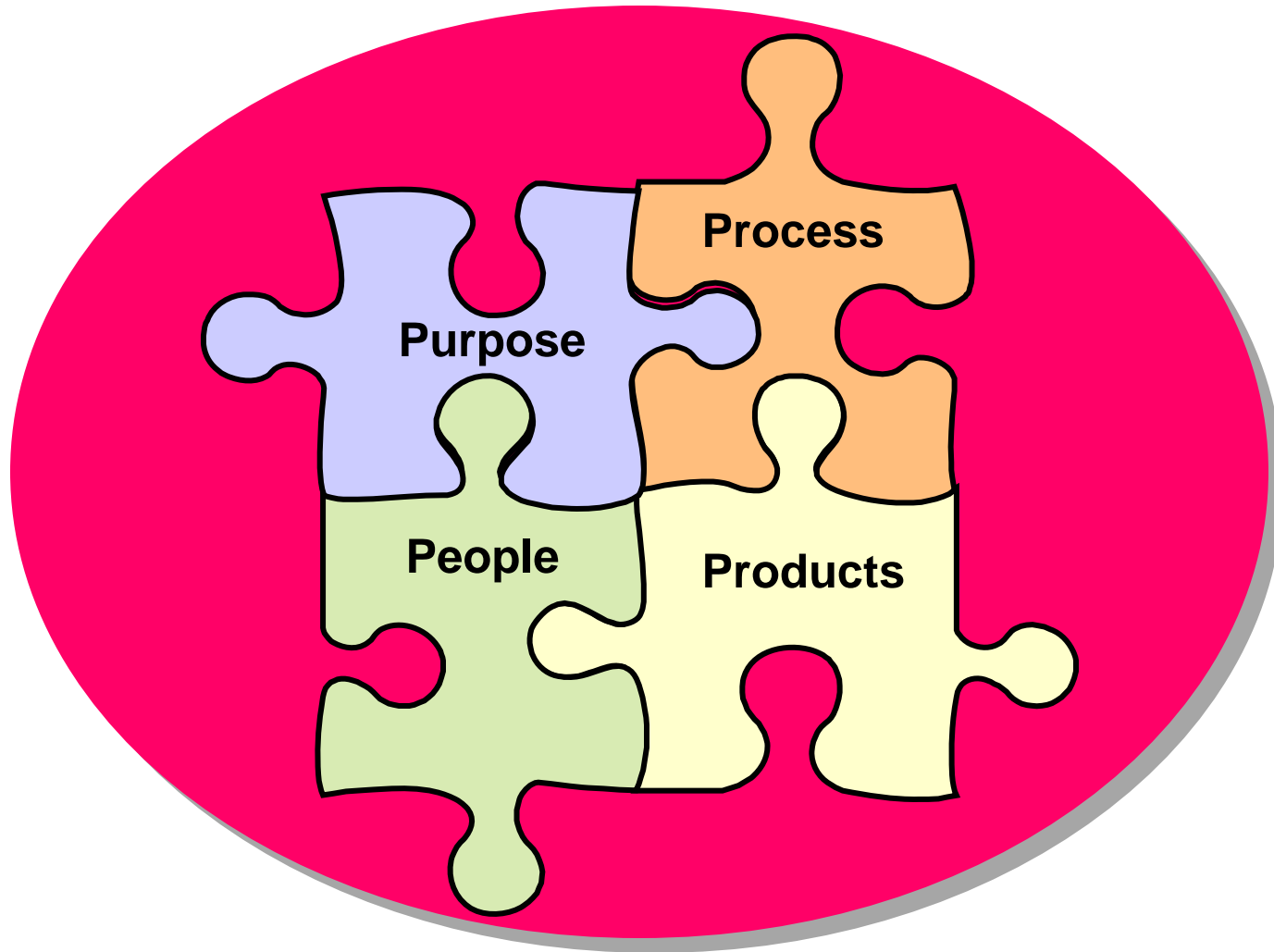


From Idea to Success



INFOCOMM NEWS

ABOUT IT YOU BY THE
INFOCOMM DEVELOPMENT AUTHORITY
OF SINGAPORE

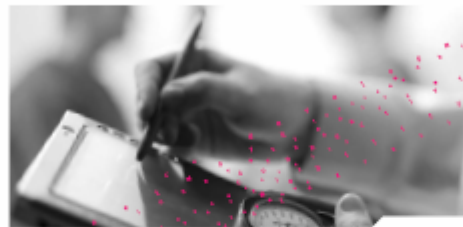
The Infocomm Development Authority of Singapore (IDA) will collaborate with NHG, Parkway RMB and SingHealth to catalyse the development of innovative healthcare solutions and products through a **Healthcare Innovation Challenge (HIC)**.

Details can be found at www.ida.gov.sg.

A public briefing on the CFC will be conducted on **15 September 2005** 9.00am - 1.00pm (DA, Multi-Purpose Hall 1 to 2, 0, Terrace Boulevard #14-00 Suntec Tower 2, Singapore 039000).

Please register via email at health@ida.gov.sg.

Infocomm Technology: E-enabling Quality Healthcare Services in Singapore



Healthcare is information intensive and that is where Infocomm technology can be a powerful enabler to the process, through systems integration, knowledge management, business process re-engineering, and even artificial intelligence. Singapore's healthcare providers have been leading infocomm technology solutions to improve healthcare quality, reduce costs, as well as to meet some of today's challenges such as Singapore's ageing population. The Singapore Health Services (SingHealth) and the National University Hospital (NUH), under the National Healthcare Group (NHG), were merit award winners in the 2004 National Infocomm Awards.

Infocomm Technology Innovations in Healthcare Delivery

Healthcare can provide a massive flow of information through point of care applications enabled by wireless communication technologies such as SMS, WAP and PDA. The Tech-Sing Hospital (TSH) deployed an SMS gateway to transmit laboratory test results while SingHealth and the NHG deployed SMS for patients at its institutions with appointment reminders and queue management at their Specialist Outpatient Clinics. Singapore General Hospital (SGH) will be developing an intelligent and remote-care-ready device, which could be used to monitor a patient's temperature, respiratory, and trace it back data to a central system automatically. This pilot project, termed "Nurse and Wireless Integration Surveillance System" served SGH "The Interacting Agency Award" in April 2004.

At the National Heart Centre and SGH, a Home Telecare solution aims to integrate the internet, SMS, Web Portal and mobile phones to monitor the vital signs of patients. The system sends an SMS alert to both the doctor and the patient, whenever the patient's vital signs are beyond set thresholds. The doctor can then decide on a case-by-case basis what course of action to take. The project gives patients an additional piece of aid to know that their vital signs and symptoms are monitored between their scheduled visits to the hospital, and will help to reduce inpatient stay and number of visits in the long run.

NHG developed a doctor-centred, patient-based Care Enabled Patient Support System (CES) to enable a integrated view of patient data from multiple users' systems such as 3-ray, laboratory, surgical operating room, discharge summary, clinical results and reports. CES has resulted in increased effectiveness and collaboration across all siloed disciplines. Healthcare teams leading to safer and higher quality of patient care. CES won the Asia Pacific Hospital Management Awards 2004, IT category, in Asia Pacific.

“Parkway’s 3 hospitals will be starting the implementation of a group-wide integrated Electronic Medical Records (EMR) system.”

By Kenneth Tan

Healthcare ::

Future Developments of Infocomm Technology in Healthcare – What’s Next?

The healthcare sector worldwide, including Singapore, is undergoing a transition to redesign its healthcare delivery systems for better patient care with infocomm technology as a key enabler.

SingHealth is reaching out to their patients to facilitate the SingHealth IT Vision of a Digital Health Enterprise, aimed at Forging Crown King, SingHealth's Group Chief Technology Officer, SingHealth already has an integrated EMR with health reporting, hospital inpatient discharge case marking and e-prescription modules in place. The next-generation EMR will include enhanced functionalities for electronic ordering of laboratory and radiology tests, process workflow and Health Information Administration, all designed to enhance patient safety and quality outcomes.

Chooi Kian added that with the rise in chronic diseases, which need long-term follow-up and medication and the accompanying need for multi-disciplinary clinical management, SingHealth has embarked on a series of Health Management Programs (HMP) for various chronic such as diabetes, cardiovascular and renal diseases. The idea of HMP can be realised effectively in a telecare technology-enabled healthcare and clinical decision support system, which is closely related to the EMR system, integrating medical knowledge and clinical best practices. In the future, it can also facilitate epidemiological modelling of disease and generate information for personalised medical care.

“The cluster will be focusing on Computerized Clinician Order Entry (COCOE) across its group of 4 hospitals, specialist centres and polyclinics.”

By Lee Tan
NHG's Chief Information Officer

One at NHG, Mr Lee Tan, Chief Information Officer, shared that among several NHG will be focussing on the Computerized Clinician Order Entry (COCOE) system, which is designed to bring about quality, consistent and safer care for its patients across its group of 4 hospitals, specialist centres and polyclinics. The system allows clinicians to e-order medication, 3-ray and laboratory tests for patients. It checks for appropriateness of such tests orders, and suggests other relevant orders if necessary. Doctors are also alerted to medicine 3-ray and/or laboratory test orders. The e-prescription module checks a set into doctors' medical histories, drug-to-drug interactions, and drug cautions for certain medical conditions.

In the long run, when more decision support rules are incorporated into the system, it will be able to participate in and serve patient care by recommending the best possible treatment based on international best practices and evidence. NHG CEO, NHG will be among the first healthcare institutions in the region to go electronic for the set of medication, 3-ray and laboratory process - from ordering to dispensing of medications as well as ordering and releasing of 3-ray and lab results to doctors - for both inpatients and outpatients. NHG believes that this hospital will be completely digital by the next 3 years; when relevant healthcare staff will increasingly leverage electronic information and assist in providing care to patients. The entire healthcare loop from the point of care, to patient care, to test, case and step-down care, will be fully integrated within NHG and linked to the entire healthcare ecosystem. Patients can expect seamless, holistic and quality care and services as a result.

Priority is being put on using NHG to identify patients and equipment, and incentives to identify staff. Parkway's 3 hospitals will be starting the implementation of a group-wide integrated EMR system, both on-line and also on an RFID card. Wireless electronic prescriptions, order entry and result reporting will be done next. Clinical and nursing quality care systems are also currently being piloted for patient satisfaction. Dr Gerald Thiam, Parkway's General Manager, is looking into providing internet-based on-demand and games for patients who have to spend time recuperating in the hospital.

“We will be aiming to provide a seamless patient relationship management system.”

Healthcare CFC 2005

> 12 projects awarded
> Majority of pilots moving to next phase

- Implementation
- Further development
- Expanded scope & sites

Generating Innovative Ideas

> Remote ward monitoring in Singapore General Hospital's Digital Ward



ThermoSensor

Wears the ThermoSensor to monitor the temperature wirelessly



Wearing the wireless devices to automate monitoring of BP, Pulse, ECG, SPO2 and Respiration Rates



VitalSENSOR ECG



VitalSENSOR BP

Generating Innovative Ideas

- > **Development and trial of SMS solution in Tan Tock Seng Hospital enabled the institution to validate that mobile phone signals do not interfere with medical devices**

H5 | HOME

THE STRAITS TIMES WEDNESDAY, MAY 16 2007

Beep! Beep! Docs get patient's lab test results 9 times faster

New SMS system at Tan Tock Seng means speedier decision-making on treatment

By JUDITH TAN

WHEN retiree Goh Joon Kay, 68, was rushed to Tan Tock Seng Hospital (TTS) on May 4 with bleeding in his stomach, rapid decision-making was required to save his life.

The results of laboratory tests – which were sent to his doctor's

mobile phone two minutes after they were out – helped decide the mode of treatment.

"I was wheeled to the ward and given a blood transfusion – and rather fast at that," he told The Straits Times.

Mr Goh was benefiting from the success of a pilot project designed to provide a speedier way – in fact, nine times faster – for doctors to receive critical laboratory results.

Under the new system – which has now become regular practice at TTS – laboratory results critical to saving the lives of patients are sent to the cellphones of the

team of doctors taking care of the patient.

These include low potassium levels, which can result in a heart attack; and low haemoglobin counts. Haemoglobin is a protein found in red blood cells.

The pilot project, initiated by the National Healthcare Group, was conducted at the hospital between December last year and February this year.

Dr Heng Chin Tiong, a consultant with the Division of Surgery at TTS, said the results are rather than just the attending physician.

"When one of us responds, an-



PHOTO: CHEW SENG KIM

LIFE-SAVING TEXT: Dr Heng Chin Tiong showing the SMS lab results on his phone. Under the new system, the information takes only two minutes to reach doctors, compared to 18 minutes.

other message will be sent out to the others that action is being taken so not everyone will converge on that one patient," said Dr Heng.

The information takes only two minutes to reach the doctors, compared to the previous manual proc-

ess which took about 18 minutes.

Under the old system, the laboratory staff would read the results to the ward nurse, who passed the information on to the doctor in charge of the patient.

Mr Goh, who was discharged last week and is resting at home, is

grateful for the new system, which helped save his life.

"If the system doesn't cost much, perhaps it should be adopted at all hospitals for the good of patients," he said.

judith@sph.com.sg

Generating Innovative Ideas

- > Patient bedside terminal to deploy in all A class wards in SGH and new pilot sites in KKH and CGH

Technology aid to healing

It entertains inpatients, helps doctors, nurses to better treat patients

SHERALYN TAY
sheralyn@mediacorp.com.sg

BEING warded in a hospital does not necessarily mean you will be disconnected from the outside world.

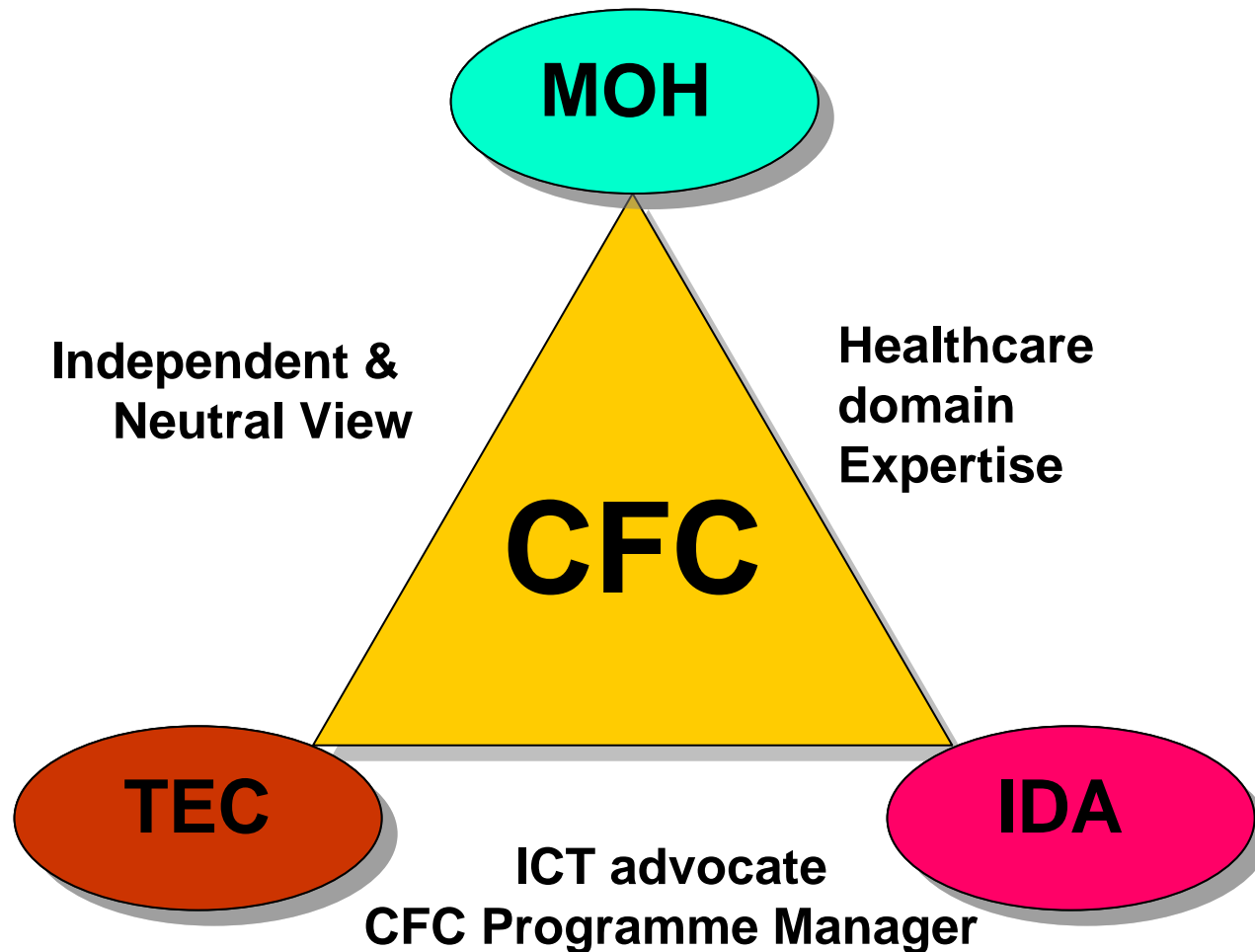
Thanks to a pilot trial of a Patient Bedside Terminal (PBT) equipped with Web and entertainment features, Singapore General Hospital (SGH) patients like Mr Vincent Lee, 40, can access his email after he has surgery and stay



KOH MUI FONG
INFO BASE: Dr Chia uses the Patient Bedside Terminal – a pilot initiative by SingHealth – to retrieve patient records and explain them right at the bedside to patient Vincent Lee.

Joint MOH-IDA-TEC Healthcare CFC 2007

Joint MOH-IDA-TEC Healthcare CFC 2007



Joint MOH-IDA-TEC Healthcare CFC 2007

Theme

**Improving healthcare
quality and efficiency
through innovative
use of ICT**

Joint MOH-IDA-TEC Healthcare CFC 2007

Project Scope

> Delivering safer care

- Enhancing medication safety, reducing healthcare associated infections, improving communication among healthcare practitioners during patient handovers and ensuring right site procedures

Joint MOH-IDA-TEC Healthcare CFC 2007

Project Scope

> Enhancing quality of care

- Providing care the patient needs according to best medical science and evidence available today (e.g. timely information to support decision making), improving the continuity of care and reducing reworks (e.g. re-admission, repeat procedures, etc).

Joint MOH-IDA-TEC Healthcare CFC 2007

Project Scope

- > **Achieving greater efficiency in healthcare operations**
 - **Facilitate re-engineering of workflows and simplification and standardisation of processes.**

Evaluation of Proposals

- **Within the scope of theme**
- **Originality and innovativeness**
- **Comprehensive pilot solution**
- **Potential to larger scale rollout**

High Level Timeline for Joint Healthcare CFC

	Date	Event
1	17 Oct 2007	Public Briefing
2	29 Oct 2007	Networking Session
3	5-11 Jan 2008*	Consortiums' Presentation to MOH, IDA & TEC
4	31 Jan 2008	Proposal Submission Deadline
5	Feb – Mar 2008	Short Listing and Evaluation
6	Apr 2008	Award of Project(s)

*Tentative- dates subjected to change

Networking Session

- > **For industry to network and seek potential partners for collaboration on project of similar interest**

- > **The Networking Session will be held on:**
 - **29 October 2007 (Monday), 2-5pm**
Suntec Singapore International Convention & Exhibition Centre
Meeting Room 325-326, Level 3

- > **Closing date for registration**
 - **22 Oct 2007 (for companies that wish to present)**
 - **25 Oct 2007 (for attendees)**

Submission of Proposals

- > **A company or consortium may submit more than one proposal**
- > **The CFC is open to the public and private healthcare institutions as well as ICT companies**
 - **There must be at least one Singapore-registered company per consortium participating in the CFC**

Submission of Proposals

- > To be submitted on application form which can be downloaded from www.healthcareit.com.sg

- > Deadline for submission of proposal is 31 Jan 2008 (12pm) to
 - Healthcare Call for Collaboration
Infocomm Development Authority of Singapore
8 Temasek Boulevard, #14-00 Suntec Tower 3, Singapore
038988

Project Funding

- > **Project grant will be based on co-funding with the project consortium members**
- > **Funding will be disbursed on a reimbursement basis and tied to achievement of key milestones and deliverables**

Details on Healthcare CFC can be found at:

www.healthcareit.com.sg

For questions and registration, please email to:

health@ida.gov.sg

