HIMSS EMRAM

19 Jan. 2023
By Piyanun Y.

Topic

HIMSS

EMRAM

Case Study

What is HIMSS

H Healthcare

I Information

M Management

S Systems

S Society

Electronic *Medical Record Adoption Model*

Measuring EMR capabilities and impact on systems, and patients

HIMSS™

EMRAM
HIMSS SOLUTION

EMR Adoption Model Capabilities

7 Integration of data from multiple external sources. Service users receive alerts and reminders to support self-managed care and use automated tools to measure patient outcomes. Digital infrastructure tools enable dynamic patient engagement in managing personal health and care.

6 Integration of medical devices. Health Information Exchanges supports data sharing. Service users submit self-reported outcomes data. Wearables and implants support remote monitoring and patient management of health and care. Online services improve access, and health literacy.

5 Integration of data from external sources. Change in clinical parameters in continuously monitored by alerts and warnings. Telehealth and virtual care services are available. Intruder Prevention Systems manage unauthorised access. Technology supports bedside processes.

4 Computerised Practitioner Order Entry and Electronic prescribing within an electronic medicines administration record. Clinical and Information governance is well defined. Monitoring of Clinical outcome and patient satisfaction targets.

3 Electronic clinical documentation is accessed remotely through the CDR. Role based access controls are in place.

2 A clinical data repository (CDR) provides access to results and reports. Governance and Policy control Clinical Decision Support opportunities, Training records and IT security.

1 Laboratory, Imaging, Pharmacy and Cardiology systems produce patient centric reports and results. Resilience management plans are in place.

HIMSS Proprietary Analysis Tools

EMRAM

Electronic Medical Record Adoption Model

Measuring EMR capabilities and impact on systems, and patients.

INFRAM

Infrastructure Adoption Model

Improving care delivery, reducing risk, and creating a pathway for infrastructure development.

AMAM

Analytics Maturity Adoption Model

Determining how to leverage data for better care and process optimization.

CCMM

Continuity of Care Maturity Model

Assessing levels of care coordination, systems integration, and patient engagement.

CISOM

Clinically Integrated
Supply Outcomes Model

Transforming clinical environments to support quality, safety and sustainability.

DIAM

Digital Imaging Adoption Model

Evaluating maturity of IT supported processes in medical imaging in hospitals and diagnostic centers.

Case Study

Why ????

Operational Outcomes—Productivity

- **BED TURNOVER RATE:** The number of patients treated per hospital bed *(Total Discharges/Total Beds)*

- US hospitals at EMRAM Stage 7 have statistically significantly higher Bed Turnover Rates compared to hospitals with EMRAM Stages 0-4
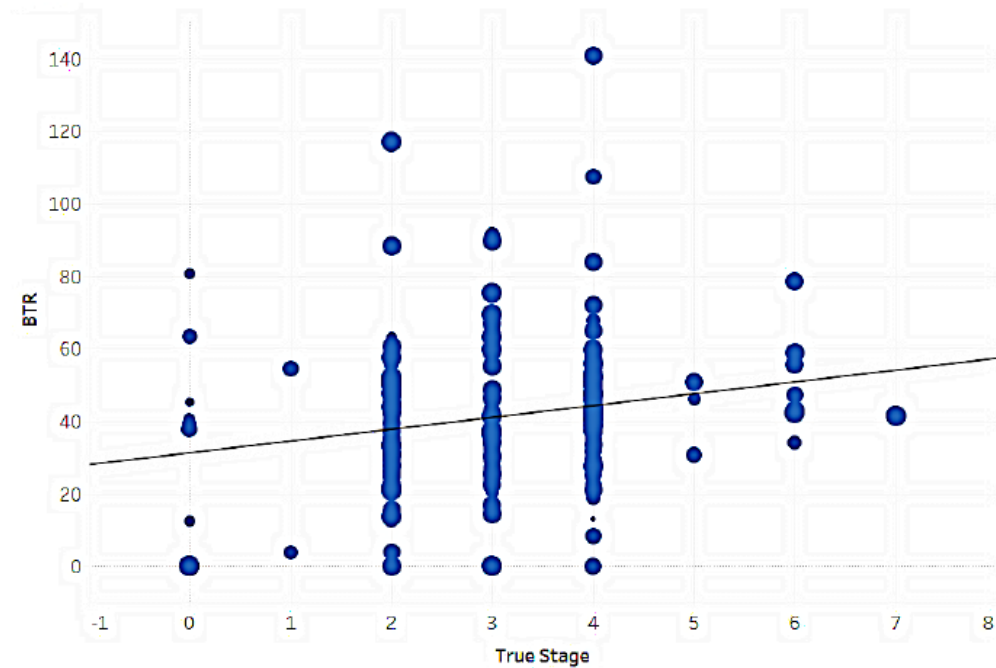
First HIMSS Analytics EMRAM Stage 7 validation announced in Thailand

Princ Paknampo Hospital becomes the first hospital in Thailand to successfully achieve the HIMSS EMRAM Stage 7 validation.

By **Dean Koh** | October 16, 2019 | 12:20 AM

Princ Paknampo Hospital is a 100-bed hospital based in Nakhon Sawan, well outside the capital city of Bangkok. Upon full implementation of the EMR, Princ Paknampo was able to leverage a number of technological applications to improve patient care and safety. Princ Paknampo implemented a full Clinical Decision Support (CDS) alert and order set for early detection of septic shock, and enacted guidelines to monitor for patient care against their set of standards.

With an advanced analytics monitoring system, the hospital is able to get real time data on specific sepsis related indicators – to better monitor, and reduce, the instances of sepsis. The hospital's mortality rate, length of stay and costs from sepsis-related treatments have all significantly decreased as a result.

According to Hal Wolf, President and CEO of HIMSS, this designation represents the first time any hospital in Thailand has reached this advanced stage of digital healthcare and could lead to significant improvements in patient care in the country, and the region. Princ Paknampo Hospital was the first hospital in Thailand to achieve Stage 6 on the EMRAM in 2016.

https://www.healthcareitnews.com/news/asia/first-himss-analytics-emram-stage-7-validation-announced-thailand

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The hospital has realised a 97 percent reduction in pre-dispensing error during the closed-loop medication administration process, a substantial reduction in sepsis cases, and an increase in diabetes protocol compliance.

Singapore's NTFGH gets successfully revalidated for EMRAM Stage 7

The revalidation was done over three days, along with the successful EMRAM Stage 6 revalidation of the co-located Jurong Community Hospital.

By **Dean Koh** | November 29, 2020 | 09:01 PM

Ng Teng Fong General Hospital (NTFGH), a 700-bed hospital located in Jurong East in Singapore under the National University Health System (NUHS) cluster, has recently successfully revalidated their EMRAM Stage 7 achievement by HIMSS.

Overall 30-day readmission rate of NTFGH significantly improved from 15.0% in April 2017 to 12.0% in February 2020 (p < 0.01).

"The HIMSS EMRAM Stage 7 process validates the hard work we have put into making our EMR a safe and efficient system for delivery of care, leveraging our data in a positive cycle of improvement. The feedback from the HIMSS validators are equally valuable as it points management to the areas of improvement, since staying in one place is the same as going backwards," Dr Gamaliel Tan, Group CMIO, NUHS.

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Apuk

Pondok Indah Hospital Group

EMRAM Stage 6

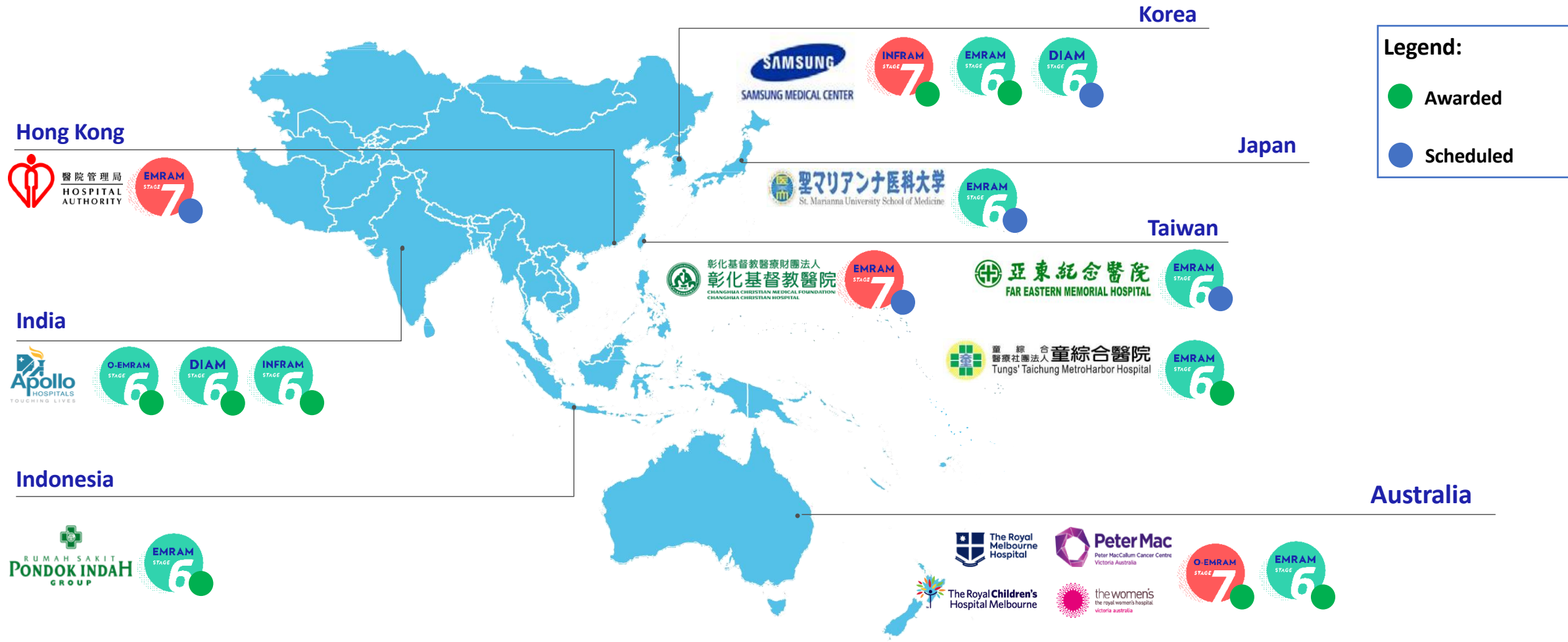First EMRAM Stage 6 hospital group in Indonesia

The Objective

Pondok Indah Hospital Group has been committed to improving patient satisfaction through continuous improvement of service quality, achieving its aims through digital transformation. Their digital transformation journey has included integrating supporting services, and numerous software applications and implementing robust IT security systems. PIHG aimed to gauge their digital maturity and determine how to refine its systems and processes to meet the global standards of HIMSS EMRAM Stage 6.
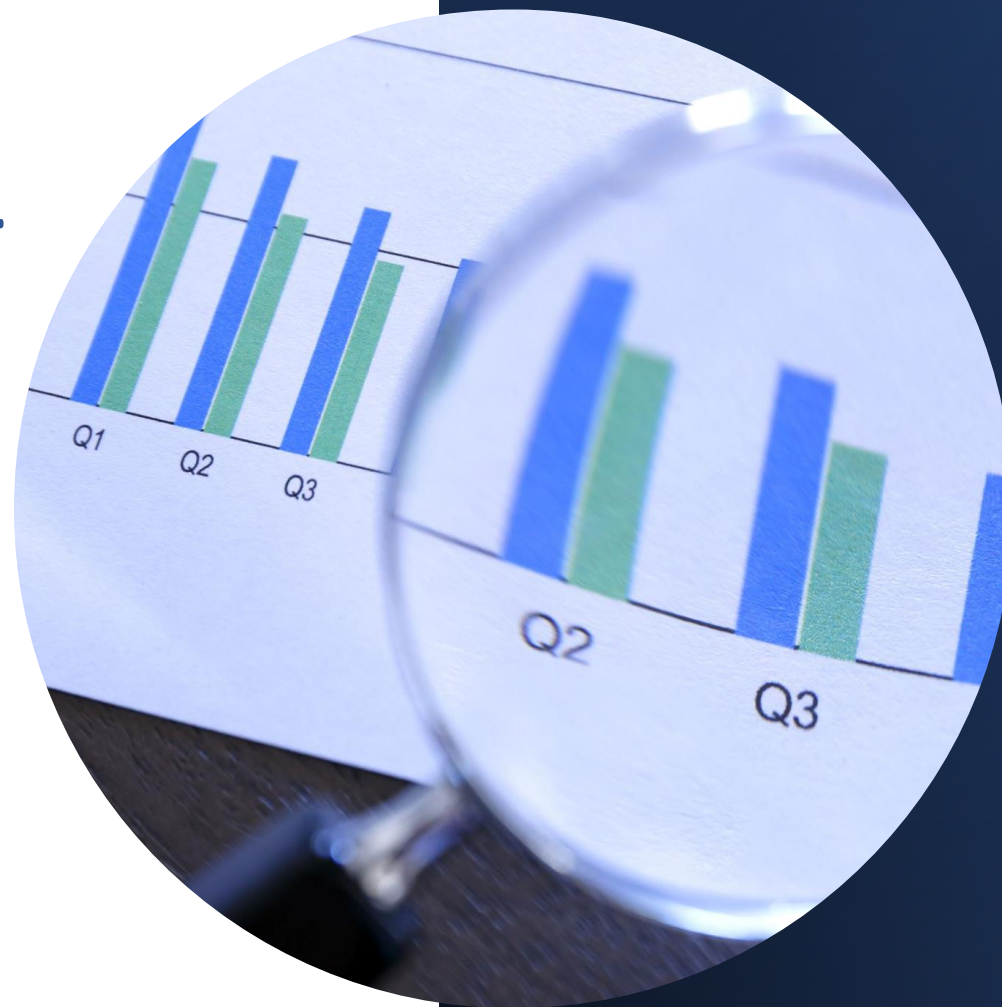
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Stage 6/7 Validations in 2022

Korea
SAMSUNG — SAMSUNG MEDICAL CENTER — INFRAM STAGE 7 — EMRAM STAGE 6 — DIAM STAGE 6

Hong Kong
醫院管理局 HOSPITAL AUTHORITY — EMRAM STAGE 7

Japan
聖マリアンナ医科大学 St. Marianna University School of Medicine — EMRAM STAGE 6

Taiwan
彰化基督教醫療財團法人 彰化基督教醫院 CHANGHUA CHRISTIAN MEDICAL FOUNDATION CHANGHUA CHRISTIAN HOSPITAL — EMRAM STAGE 7

亞東紀念醫院 FAR EASTERN MEMORIAL HOSPITAL — EMRAM STAGE 6

童綜合醫院 醫療社團法人 Tungs' Taichung MetroHarbor Hospital — EMRAM STAGE 6

India
Apollo HOSPITALS TOUCHING LIVES — O-EMRAM STAGE 6 — DIAM STAGE 6 — INFRAM STAGE 6

Indonesia
RUMAH SAKIT PONDOK INDAH GROUP — EMRAM STAGE 6

Australia
The Royal Melbourne Hospital — Peter Mac Peter MacCallum Cancer Centre Victoria Australia — The Royal Children's Hospital Melbourne — the women's the royal women's hospital victoria australia — O-EMRAM STAGE 7 — EMRAM STAGE 6

Legend:
● Awarded
● Scheduled

Note: Latest as of August 2022

Key APAC Analytics Projects in 2022

Korea — SAMSUNG MEDICAL CENTER, SNUH

Hong Kong — 醫院管理局 HOSPITAL AUTHORITY

Japan — KU:P 京都大学医学部附属病院 KYOTO UNIVERSITY HOSPITAL, 聖マリアンナ医科大学 St. Marianna University School of Medicine

Taiwan — 彰化基督教醫療財團法人 彰化基督教醫院 CHANGHUA CHRISTIAN MEDICAL FOUNDATION CHANGHUA CHRISTIAN HOSPITAL, 亞東紀念醫院 FAR EASTERN MEMORIAL HOSPITAL, 童綜合 醫療社團法人 童綜合醫院 Tungs' Taichung MetroHarbor Hospital

India — Aster, Apollo HOSPITALS TOUCHING LIVES

Philippines — ASIAN HOSPITAL AND MEDICAL CENTER Global Expertise. Filipino Heart.

Malaysia — RAMSAY SIME DARBY HEALTH CARE People caring for people

Indonesia — RUMAH SAKIT PONDOK INDAH GROUP, Siloam Hospitals, IHC Indonesia Healthcare Corporation, RUMAH SAKIT JANTUNG JAKARTA

Australia — Metro North Hospital and Health Service, Western Health, Peninsula Health, NSW GOVERNMENT Health Sydney Local Health District, The Royal Melbourne Hospital, The Royal Children's Hospital Melbourne, Peter Mac Peter MacCallum Cancer Centre Victoria Australia, the women's the royal women's hospital victoria australia

Legend:

- ● **EMRAM** HIMSS SOLUTION
- ● **O-EMRAM** HIMSS SOLUTION
- ● **CISOM** HIMSS SOLUTION
- ● **DIAM** HIMSS SOLUTION
- ● **INFRAM** HIMSS SOLUTION
- ● **AMAM** HIMSS SOLUTION
- ● **DIGITAL HEALTH INDICATOR** HIMSS

Note: Latest as of August 2022

Terminology Standards

LOINC

UCUM

SNOMED CT

RxNorm

RadLex

MEDCIN

ICD-10

CPT®

HCPCS

CDC CVX and MVX

NDC

Source : https://www.himss.org/terminology-standards

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CLINICAL DECISION SUPPORT AT THE POINT OF CARE

Vital sign | Add VitalSign | Vital sign History | Early Warning Score [2] score(s)

Date / Time	Temperature	Respiration	Pulse	SBP	DBP	%SpO$_2$	Conscious
12-Oct-2021 13:38 ▾	39						▾

Alert!!!!! ☑ call rapid response team ***CPRcode Tel.888***

Vital sign | Add VitalSign | Vital sign History | Early Warning Score [7] score(s)

Date / Time	Temperature	Respiration	Pulse	SBP	DBP	%SpO$_2$	Conscious
12-Oct-2021 13:38 ▾	39	22	100	80	40	100	Reacted to voice ▾

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EASILY APPLY CPG AT THE POINT OF CARE

Chief Complaint and Present Illness

Reason for visit ☐ Acute illness ☐ check-up ☐ insurance certification ☐ medication refill ☐ preoperative exam ☐ postsurgical follow up

Chief Complaint ☐ fever ☐ cough ☐ headache ☐ diarrhea ☐ Other

Alert signs ☐ **chest pain ;** ☐ **abdominal pain ;** ☐ **limb weakness ;** ☐ **aphasia ;** ☐ **multiple injuries ;**

Quick SOFA score

☐ mental status change ☑ tachypnea ☑ systolic blood pressure

Other Symptoms

_____

!!! CPG Alert !!!

Y N following clinical practice guideline ; ☑ notification of provider ; Wasin | Date & time ▼

!!! Alert !!! Y N rule out septicemia ; Date & time ▼

[Stroke Pathway] [Chestpain] [Acute abdominal pain care map] [Multiple trauma care map] [Notify Physician before start Sepsis pathway]

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!!! CPG Alert !!!

[Y] [N] following clinical practice guideline 07-Jul-2019, 11:54 A ▾ ; ☑ notification of provider ; Wasin | Date & time ▾

!!! Alert !!! [Y] [N] rule out septicemia ; Date & time ▾

[Sepsis pathway]

CPG Details:

SepticShockInitialScreeningSection

Past Medical History

☑ denial of any significant medical history   ☐ patient is bed-ridden   ☐ cholelithiasis

☐ cirrhosis   ☐ thalassemia   ☐ prior use of corticosteroids

☐ systemic HTN   ☐ chronic kidney disease (NKF classification)   ☐ diabetes mellitus

☐ heart disease   ☐ Other past medical history

Evaluation Criteria of SIRS (Systemic Inflammatory Response Syndrome)

☑ hyperthermia   ☐ hypothermia   ☐ heart rate

☐ band neutrophil count   ☐ WBC count   ☐ blood PaCO2

Source of infection:

☑ pneumonia   ☐ urinary tract infection

☐ gastrointestinal infections   ☐ infections of skin and subcutaneous tissue

☐ joint infection   ☐ other infection

6 Bundles

Resuscitation approach to 6 bundles

1. Take Hemoculture

[Y] [N] blood culture Both arm ▾ 07-Jul-2019, 11:55 ▾

☑ First Blood lactate level 4 mmol/l

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2. Give Empirical antibiotic within 1 hr

☑ antibiotic therapy within 1 hr Cef3   07-Jul-2019, 11:55 ▼

Suggestion :

- Community acquired --> Ceftriaxone 2 gms
- Rule out Meliodosis (DM,Thalassemia , Cirrhosis , Gall stone , CKD) --> Ceftazidime 2 gms
- Healthcare associated infection --> the most broad spectrum antibiotic : Cabapenam

3. Intravenous Fluid Giving

☑ parenteral fluids by IV: total volume administered 100   ml /1 hr

loading 3 liters in 1 hour

loading 1.5 liter in 1 hour

☑ MAP after loading : 80   mmHg

4. After loading MAP < 65 mmHg please give

☐ norepinephrine 4 mg + 5%D/W 250 ml start 15 ml/hr

5. Foley's catheter

☑ urethral catheterization   urine output from Foley catheter   ml   **>>> *Keep Urine Output > 30 ml/hr* <<<**

6. Consider for Intubation + Respiratory support

☑ endotracheal tube insertion no   Strap   cm

Goals:

Goals	Evaluations	Recorder	Goal after diagnose	Achievement
administration of antibiotics	07-Jul-19 11:55 ▼	*Piyanun Yenjit*	within 1 hr	**goal not met**
mean arterial pressure at rest (mmHg)	80	*Piyanun Yenjit*	MAP > 65 mmHg within 6 hrs	**goal met**
provision of blood specimen care / Hemoculture	Y N	*Piyanun Yenjit*	has been taken	**goal met**
in-hospital transfer to ICU	▼		within 3 hrs	.
provision of adequate total intake	100	*Piyanun Yenjit*	1500 ml within 1 hr	**goal not met**
overall condition:	▼		100% survival	

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E-MAR

Implementation Idea

When..
When should we start & Certify?

Step by Step.....
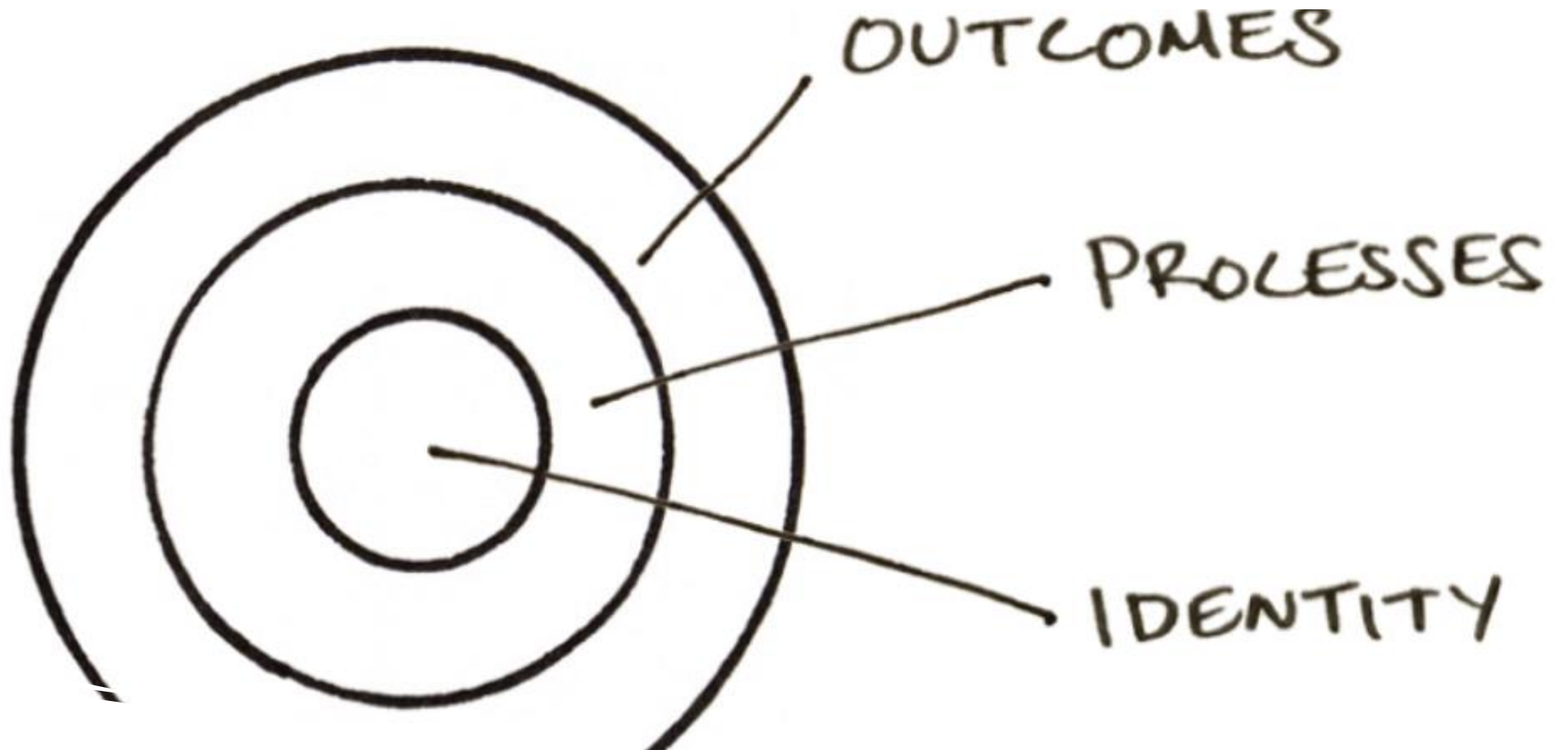
Until it is our natural workflow/ Process

Until it is in our daily behavior

Until it is our standard

Until Certify is not a big deal (Chill Chill)

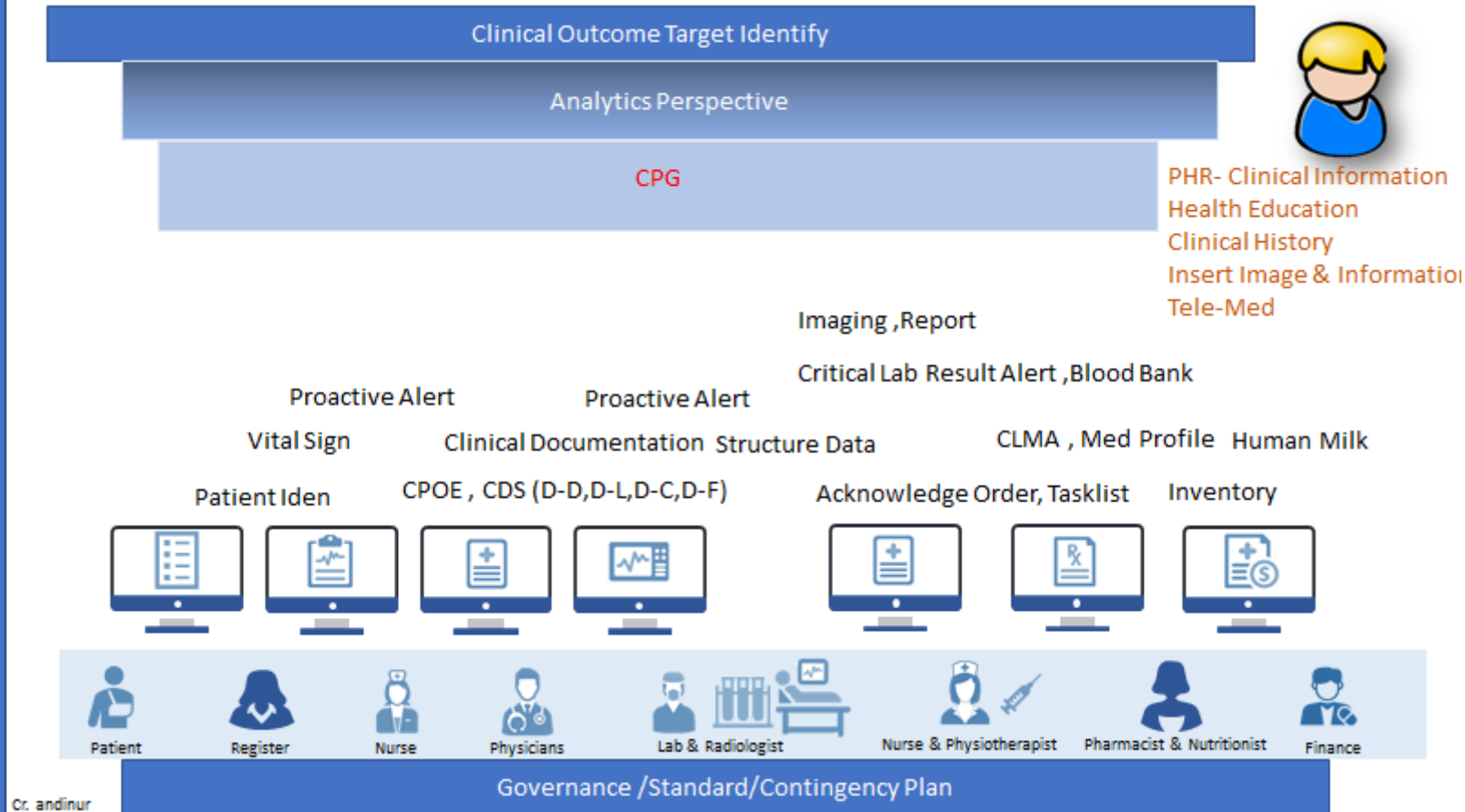**We can start now and certify later (by this year) !!!!**

- Outcomes are about what you get.
- Processes are about what you do.
- Identity is about what you believe.

Steps/ Action Plan Sample

1.Identify Current Situation ,What you need to improve?

- Vital Sign incorrect
- Proactive alert or Patient care class not identify
- Number of Re-Admit & Revisit, Number of transfer to higher level, Poor guideline Compliance
- Number of Transcribing error , Admin error ,Indication for admission

2. Gap Analysis (Site Visit)

3. Sign LOE with HIMSS

4. Revisit & Mock Survey

5.Validation

6.Post-Validation : Maintain & Improvement

Key Success factors & Challenges from experienced

- Communication

- Mindset

- Training

- Usability Issues

- Technical/Functional Resource Limitation

- Proper Training Shortcomings

- Ignorance / not interest

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Key APAC Analytics Projects in 2022

Note: Latest as of August 2022

Thank you

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