MEMETAKAN DIGITALISASI RS MENUJU SMART HOSPITAL

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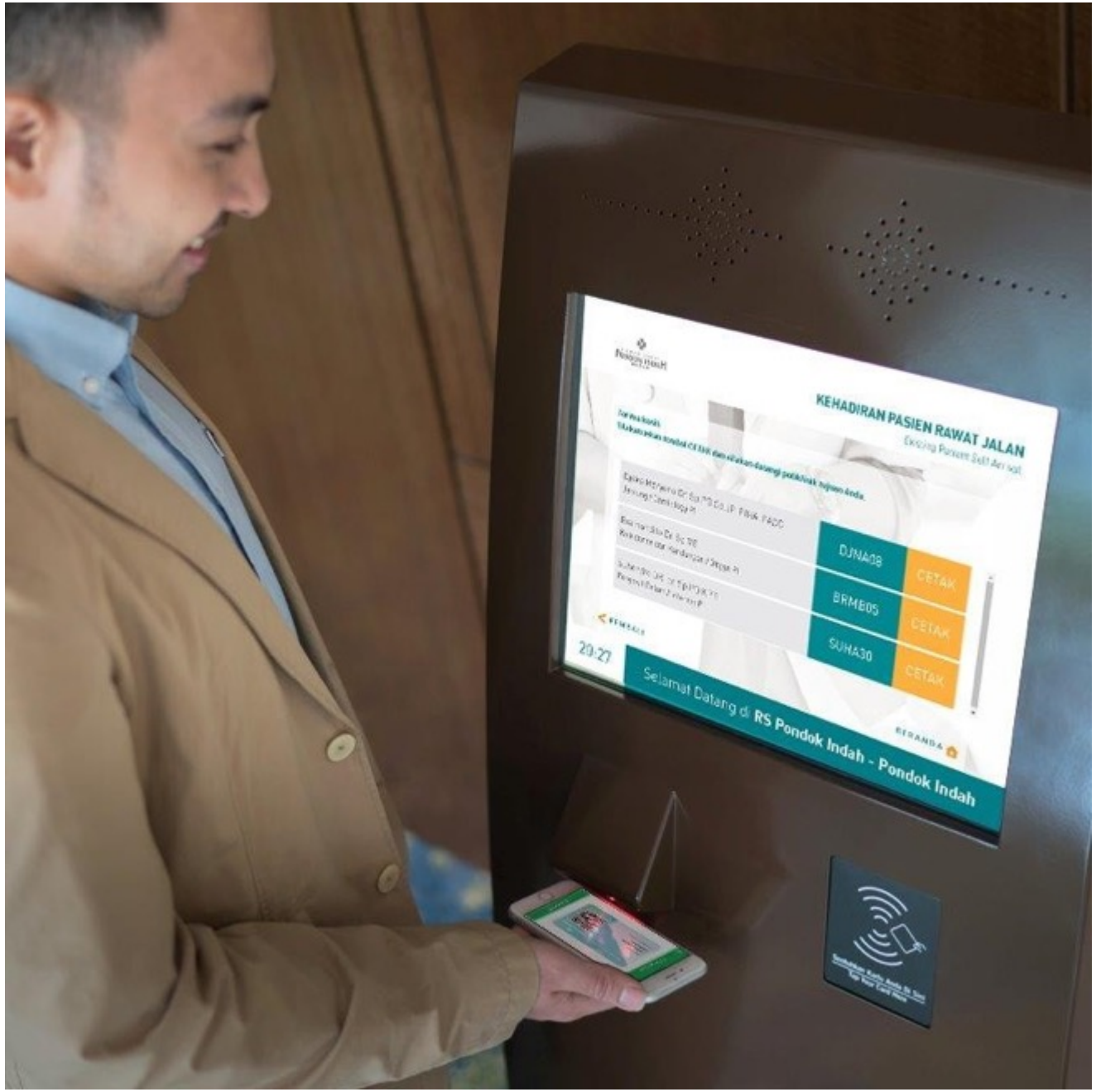
RS PONDOK INDAH GROUP

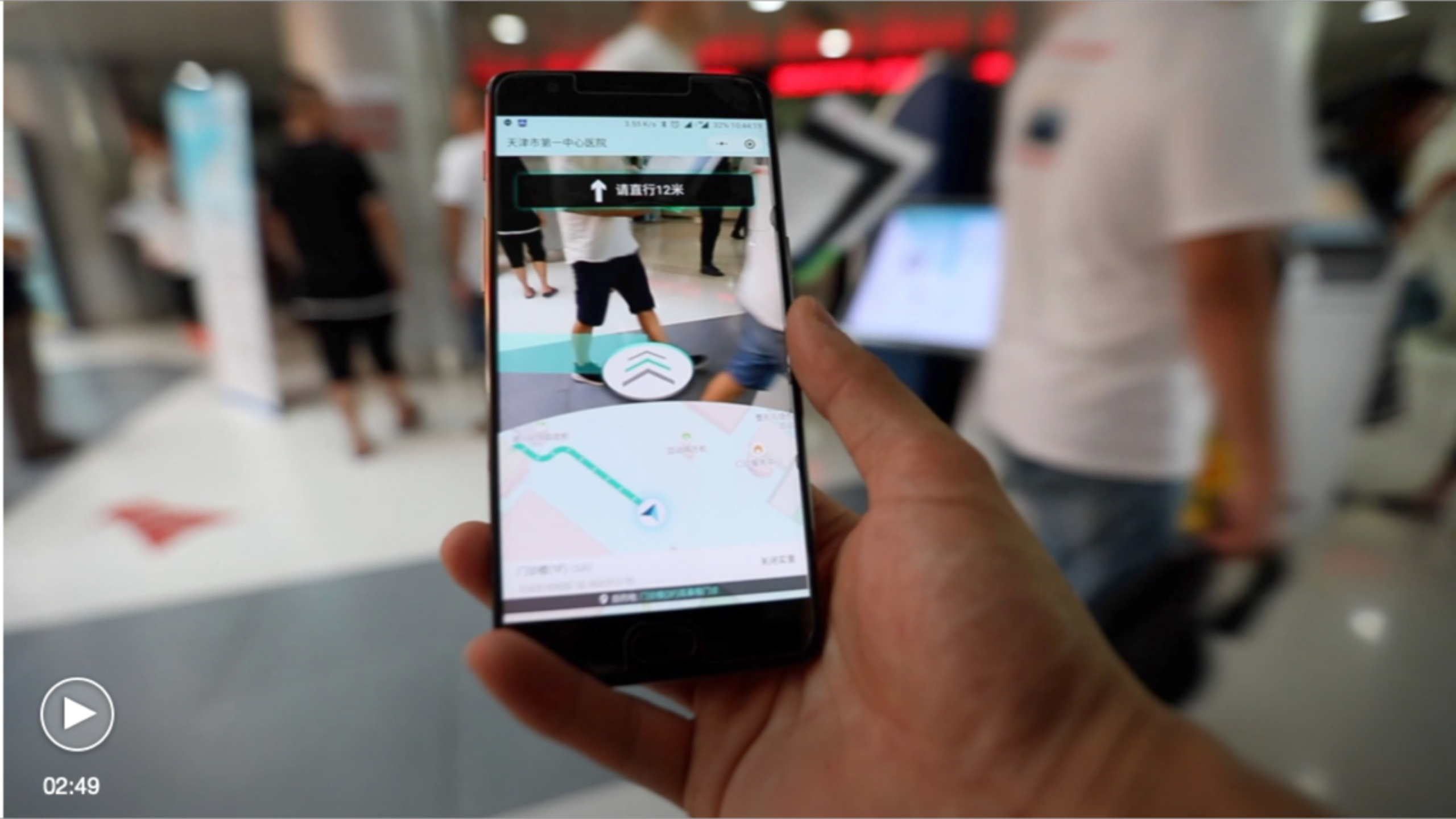
How smart are hospitals now ?

- **Floor Directory**
- **Doctor's Schedule**
- **Promo**
- **Contact Number and email**



- **Registration**
- **Identification**
- **Patient's Check in**
- **Queuing System**

- Registration
- Patient's Check in
- Queuing System
- Pharmacy
- InsuranceValidation
- Payment
- Social Media Integration


天津市第一中心医院
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Digital Hospital

- **Information Technology is used to manage all aspects of hospital operations.**
- **Enables the organization to leverage its potential for delivering higher-quality patient centric care, in increasingly efficient ways through the use of technology & process redesign.**

SMART HOSPITAL

Smart hospitals make extensive use of innovative technologies to improve care quality and patient experience while reducing costs.

McKinsey, 2019

Most important / Talk about Trend

- Artificial intelligence (AI)
- Robotics
- Precision medicine
- 3-D printing
- Augmented reality/virtual reality
- Genomics
- Telemedicine

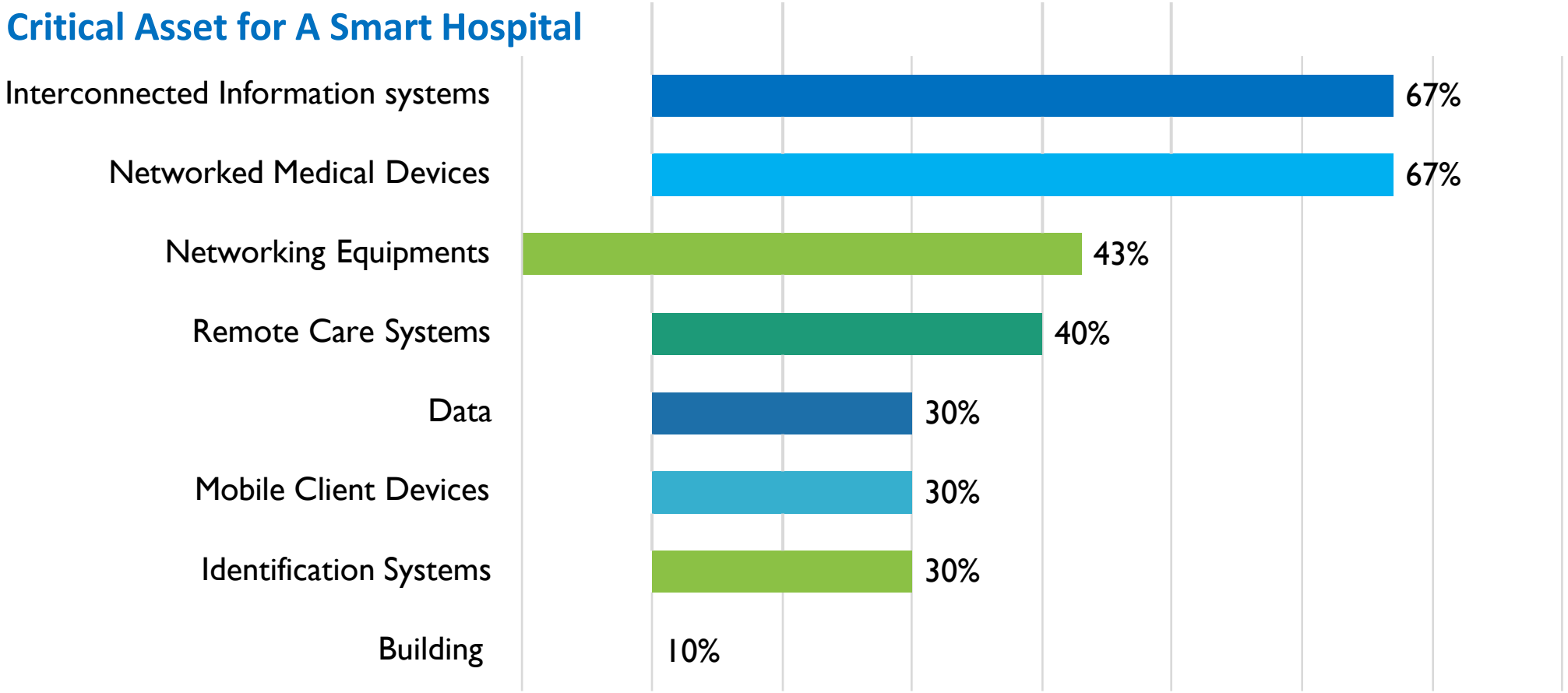
Augmented reality/virtual reality ForTraining


Total Number of Services
674,102,573
In-network Hospitals
2,700
In-network Doctors
259,930
# of Doctor Groups
7,552
Pharmacy Store
20,652
Total Users
179,383K
Health Records
87,050K
# of Insured
9,800K
# of Insurance Policy
5,300K
# of Registrations in 2018
# of Consultations in 2018
REAL DOCTOR
Fundus Images
400 K
Chest CT Images
100 K
X-Ray Images for Bone Age Assessment
500 K
Medical Record 10 M Health Record 30 M
Literature 5 M Health Counseling 50 M
Fundus
Specificity 99%
Sensitivity 95%
Recall of Lung Nodule
92%
Accuracy of Bone Age Assessment
99%
AI Treatment System of General Practice
Covered Diseases 2000
Covered Symptom 5000
Accuracy 90%
HUA TUO AI DOCTOR
Patients Distribution


FOSUN
BD

Where do we Start ?

Critical Asset for A Smart Hospital



Healthcare Maturity Model

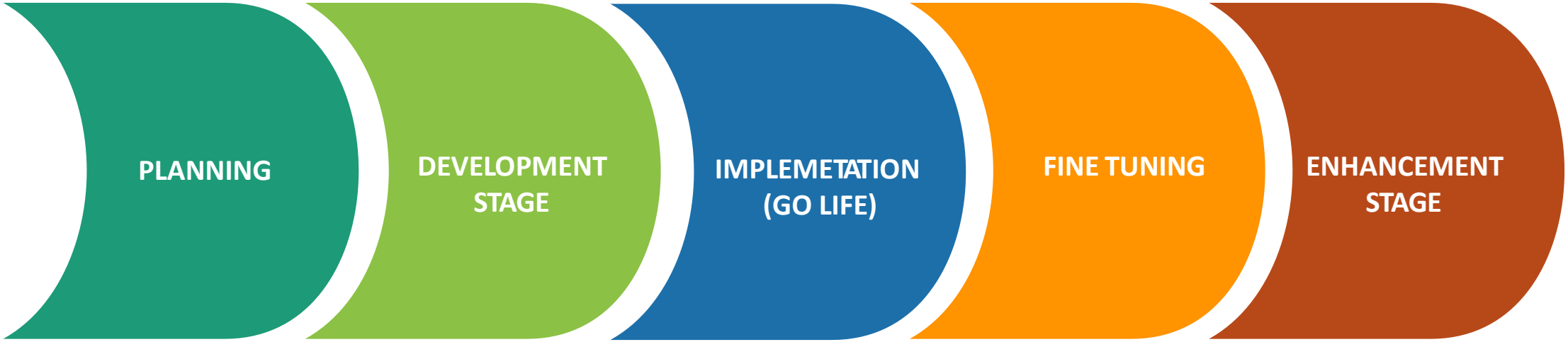
Stage 1 Basic HIS	Stage 2 Advanced HIS	Stage 3 Advanced HIS (Core Clinical)	Stage 4 Digital Hospital	Stage 5 Digital Virtual Enterprise
• Patient Registration / Inpatient Admission • Discharge & Transfer • Patient Billing and Accounts Receivable • HRIS / Payroll • General Ledger / • Financial Reporting • Purchasing / Accounts Payable	• Electronic Claims • Submission (Discharge Summaries, Coding and Abstracting) • Electronic Payment • Processing • Inventory, Supply • Requisitioning and Distribution • Basic Order • Communications • Email • Internet Access • Intranet	• Laboratory Information System • RIS/Radiology Results Reporting • PACS • Pharmacy • Operating Room Scheduling and Management	• Patient Appointment Scheduling • Computerized Physician Order Entry • Nursing Documentation • Emergency Depart. Management • Physician Portal • Patient Portal • Wireless Infrastructure • Inpatient (EMR) • Ambulatory EMR • Enterprise Master Patient Index • Location-based services	• Secure messaging (Provider-Provider/ Provider-Patient) • Clinical Data Repository/ Data Warehouse • Participation in Regionalized Patient Clinical Data Repository • Home Health Case Management • Remote Patient • Monitoring/ Telemedicine

Source : Health Industry Insights, an IDC company

STAGE	HIMSS Analytics EMRAM EMR Adoption Model Cumulative Capabilities
7	Complete EMR, Data Analytics to improve care
6	Physician Documentation (templates), Full CDSS, Closed Loop Medication Administration
5	Full R-PACS
4	CPOE; Clinical Decision Support (clinical protocols)
3	Clinical Documentation, CDSS (error checking)
2	CDR, Controlled Medical Vocabulary, CDS, HIE Capable
1	All Three Ancillaries Installed — Lab, Rad, Pharmacy
0	All Three Ancillaries Not Installed

Small steps toward a ‘smarter’ Hospital

Digitalization Stages In RS Pondok Indah group



- Stake Holder Commitment
- IT Team Capabilities
- Selection Process
- Budgeting
- Road Map

- Change Management
- Internal Expertise Team
- Training
- Infrastructure & Network

- Go live Strategy
- Adoption Strategy

Fine tune integrations

- EBS
- LIS
- RIS
- Queuing
- Call Center
- Inventory Management

- Prioritization
- Managing Investment


Efficient
Patient-Centered
Effective
Quality Healthcare/ Patient Experience
Safe
Equitable
Timely

RSPI Group : Current Stage

- 3 hospitals with the same systems
- HIS Integrated with LIS, RIS, Queuing, Call Center, Messaging, Mobile app, EBS etc
- 100% physician Adoptions (minimal paper records are utilized because of small number of exceptions)
- Nearly 100% order by Physicians order are CPOE
- 150+ medical Equipment integrated with HIS

Networked Medical Devices

2014


CT Scan


MRI


Densitometry


USG


CR and DR


DSA


Labs

2015-2016


Panoramic Cone Beam CT


Treadmill


Dental Intra Oral


Spiro


EKG


Echo

2017-2018


Fundoscopy


Mammo


Ophtamic CT


Fluoroscopy


EEG


EMG


Slit Lamp

Integration of Medical Devices : Quality of Fancy ?

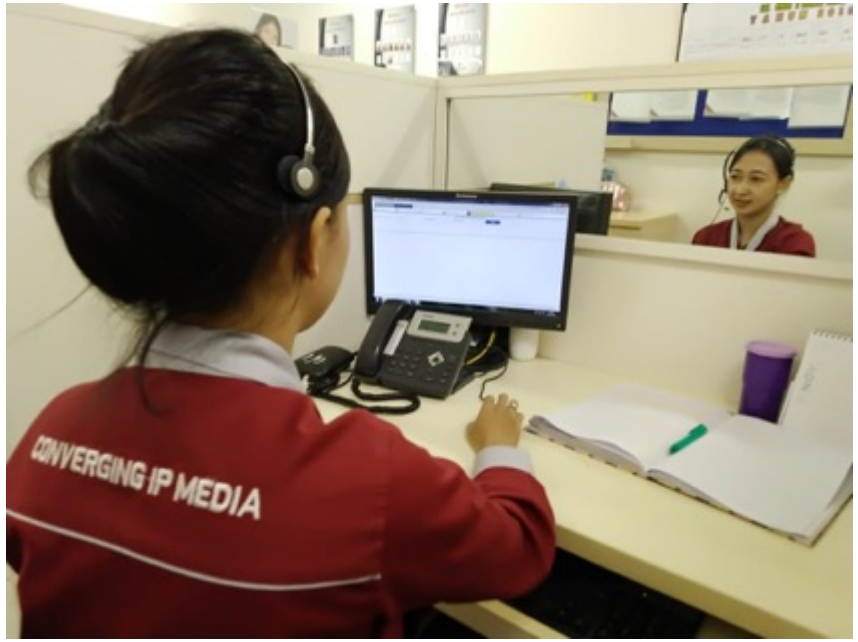
- Safe : information in one place (EMR)
- Timely : Ready available at the point of care for all DPJP (no need to scan upload)
- Effective : Better diagnosis (easy to compare with previous results, evaluate trends, etc)
- Efficient : Time saving, Cost Saving (Film), reduction of repeating test, less storage space
- Equitable : support same quality for everyone
- Patient Centered : reduction of cost, time

Dec 2011 – Appointment Management

- 92% patients Go Show
- Overcrowded clinic waiting rooms
- First Come, First Serve
- Lots of complaints of unfair Queuing and unanswered call

- Appointment Systems
- Call Center
- Messaging Systems

- > 95% per appointment
- Higher Growth
- Load Distributions
- No shows



2014 – Medication Management

- Delayed 1st time medication and Cito
- Large Floor Stock
- Lots of Faxing within hospital
- Dedicated staff to deliver medications but nurses often has to pick up prescribed medication
- Lots Transcription in Pharmacy
- Medication error due to ineligible hand writing

- HIS with Electronic Prescription
- Computerized Physician Order Entry (CPOE)
- Priority Setting
- PneumaticTubes

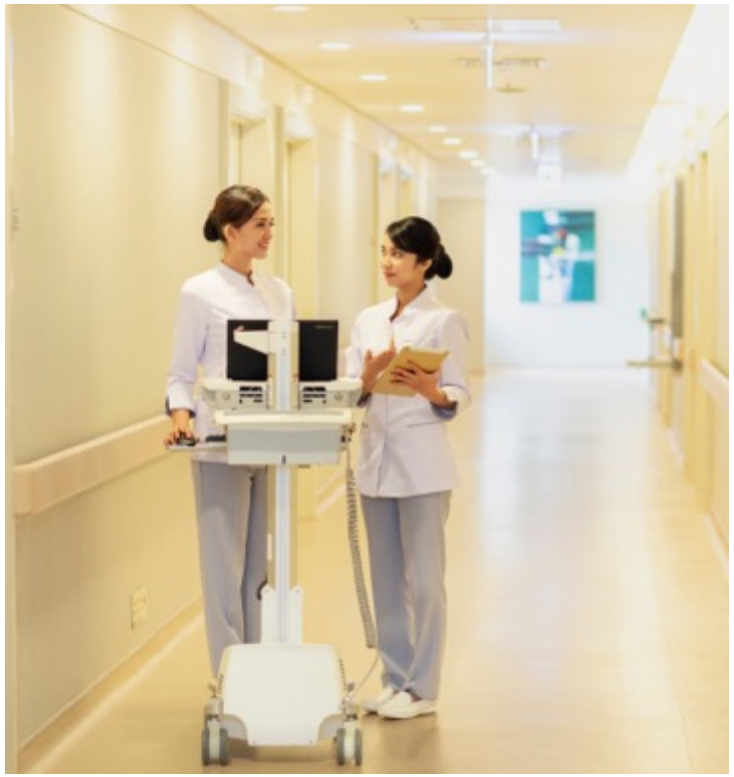
- First Medication and Cito
- Less numbers and dependency to delivery staff
- Applied same system to lab order

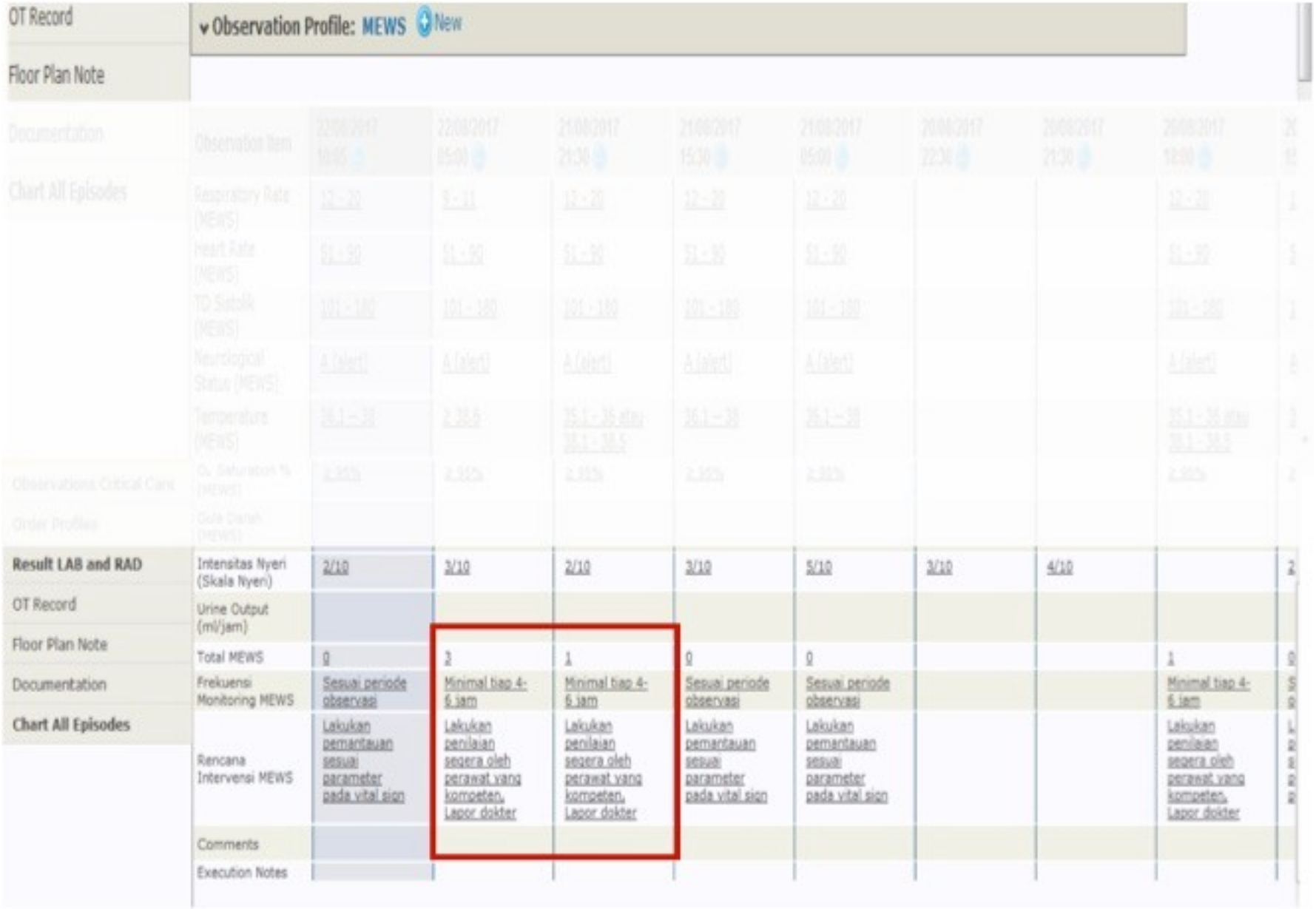
2015 - Now : IPSG, MEWS Compliance, High alerts etc

- **Identification Verification**
- **Verbal Orders - Readback**
- **High Alerts Medications**
- **Fall Assessments and Interventions**
- **Early Warning Score Assessments**
- **Special Population Assessments**
- **Management of Implant Devices**

- **Simple clinical Decision Support Systems**
- **Forms and Validation task list**

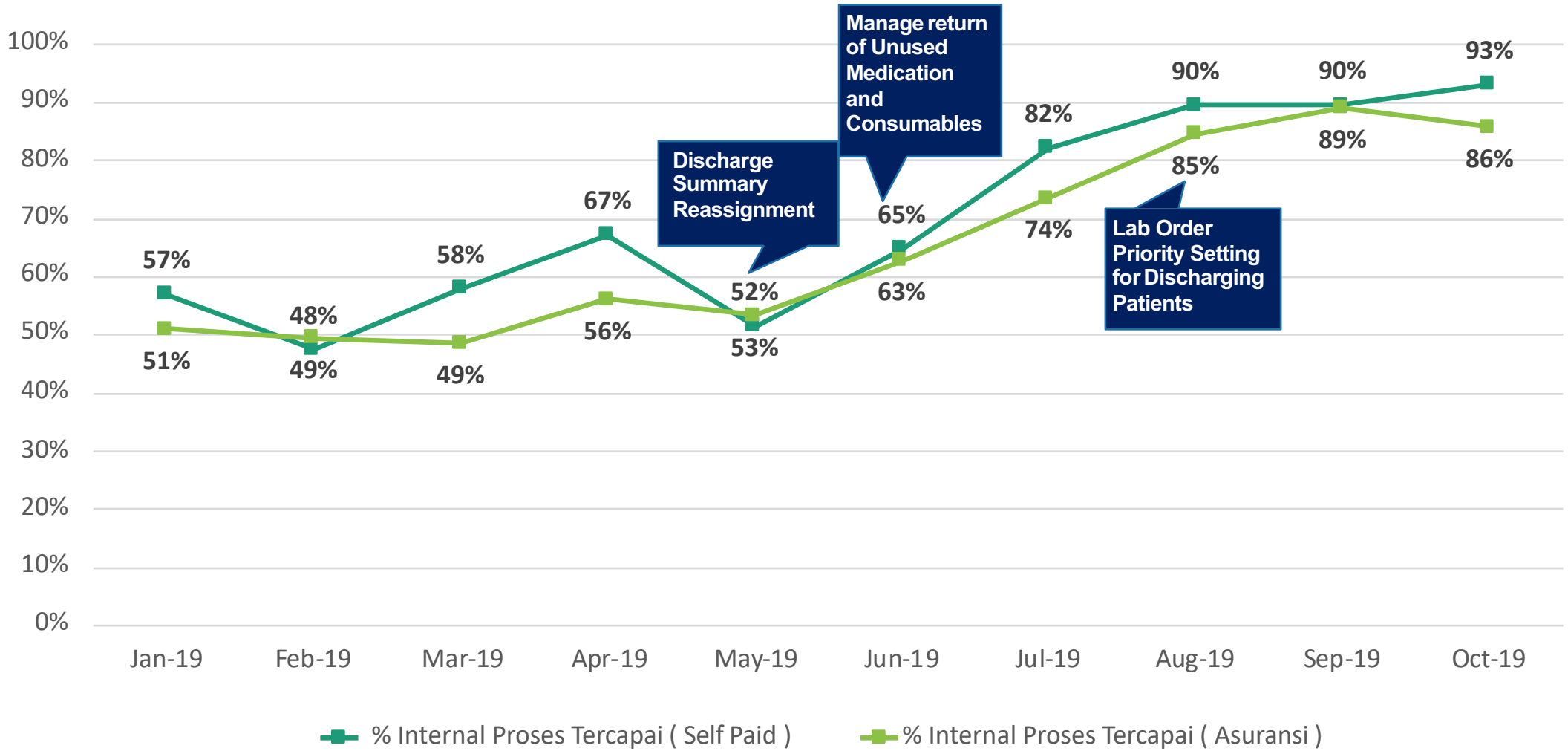
- **Easy to Monitor Compliance**
- **Improved Safety**





Modified Early Warning Score

2019 – Discharge- Internal Process – 1 hour



MRI 2 years apart

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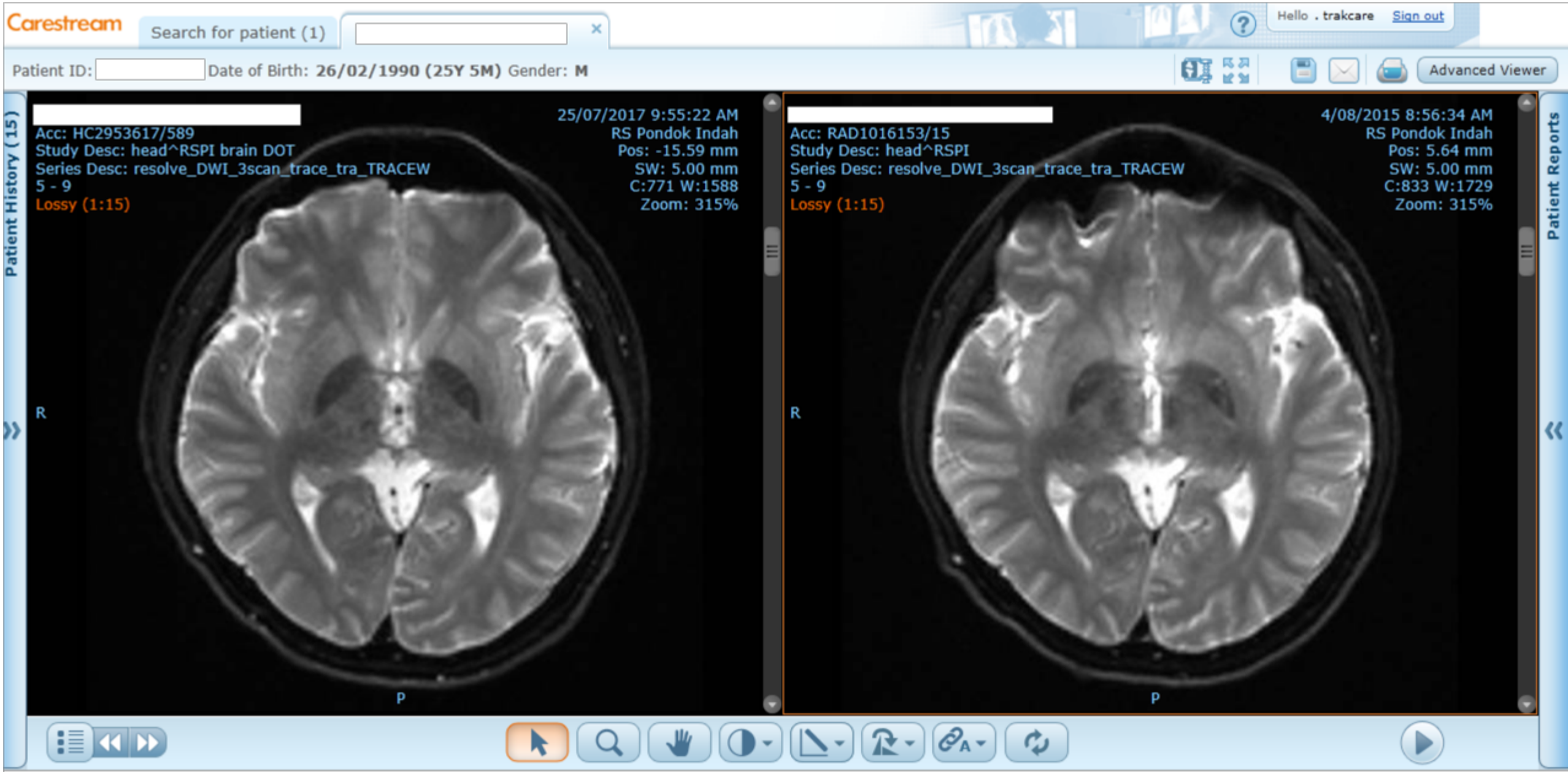
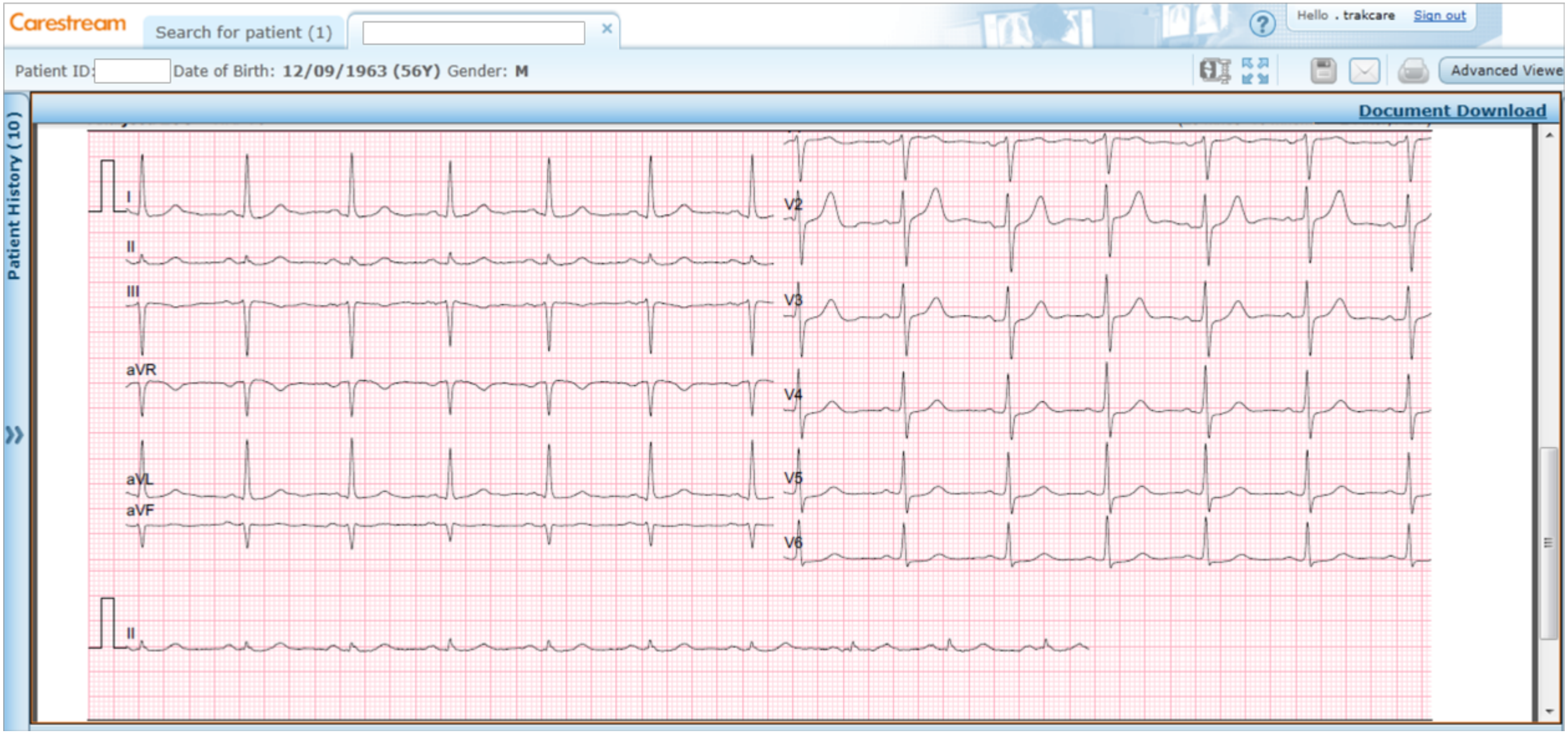
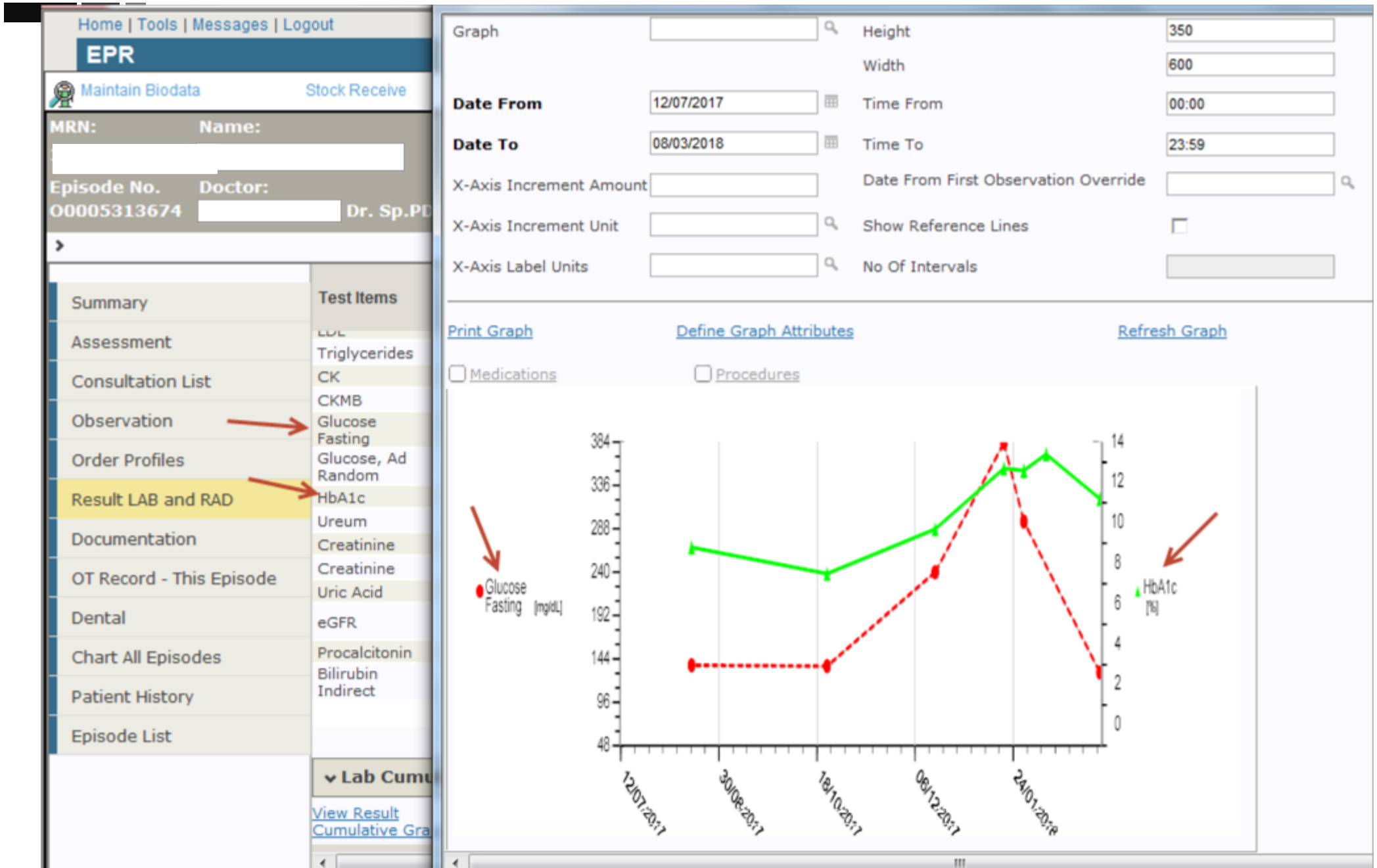


Integrated electronic ECG



Cumulative Lab Result



Key Factors for going digital to Smarter Hospital

- Create a culture for digital transformation.
- Consider technology that communicates.
- Make needed investments manageable.
- Organizations should create a strong, system-wide data infrastructure.
- Prepare for Talent
- Maintain cyber security

SMART HOSPITAL

- Technology is a tool, quality of care is the goal
- Take the first step : interconnected information systems, next step will be easier and impactful
- Prioritization, Change and Project Management – get some win every time

THANKYOU