

# Electronic Health Records; A Quality improvement Strategy

Development of an in-house hospital information system in a hospital in Pakistan

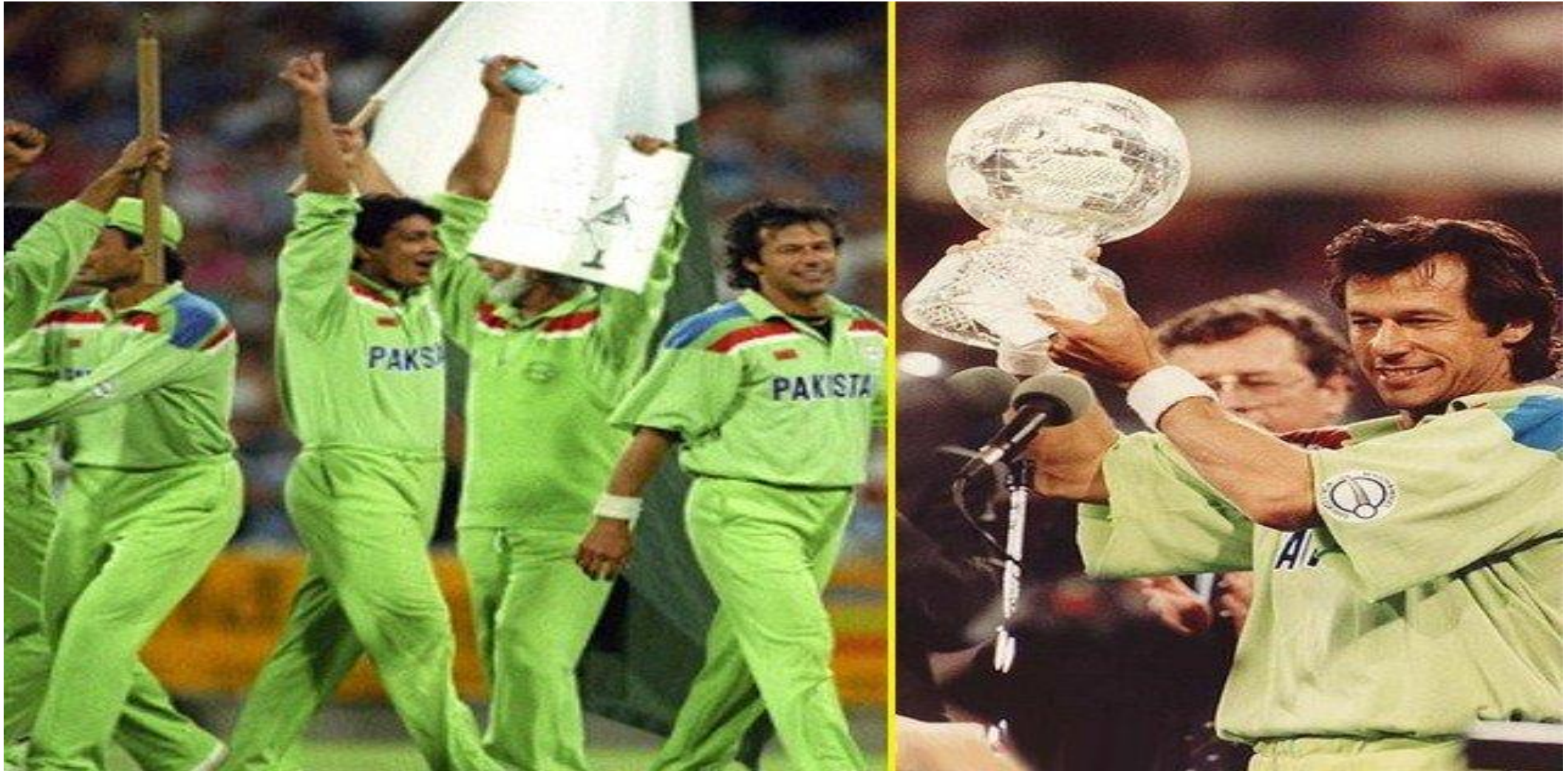
Ayesha Aslam



# Components



This is how it all began....

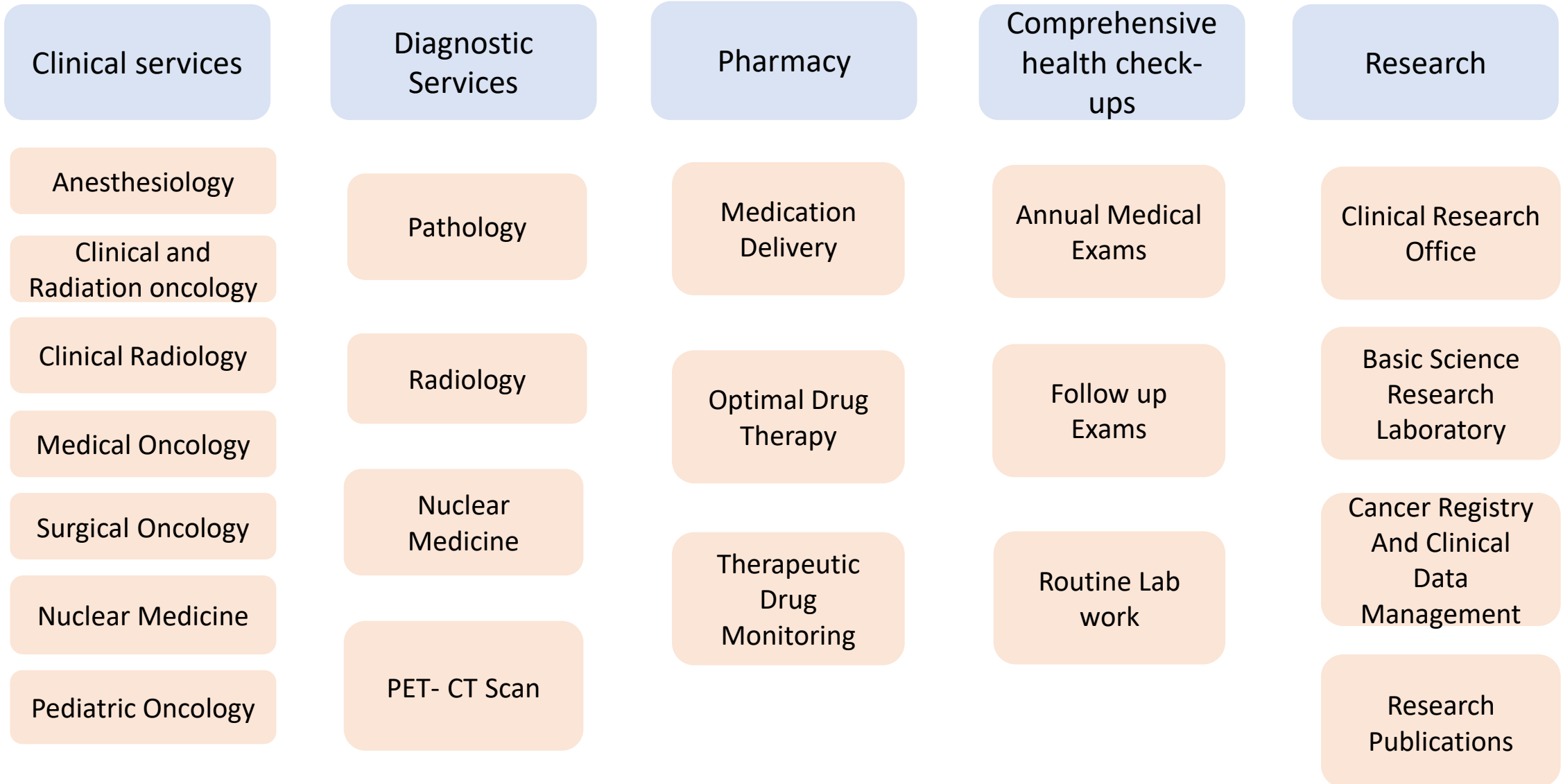






**Shaukat Khanum**  
Memorial Cancer Hospital  
and Research Centre

# Structure of the Hospital



# Statistics ,2011

- 180 bed Hospital
- 1800 Employees
- Over 6000 patients annually

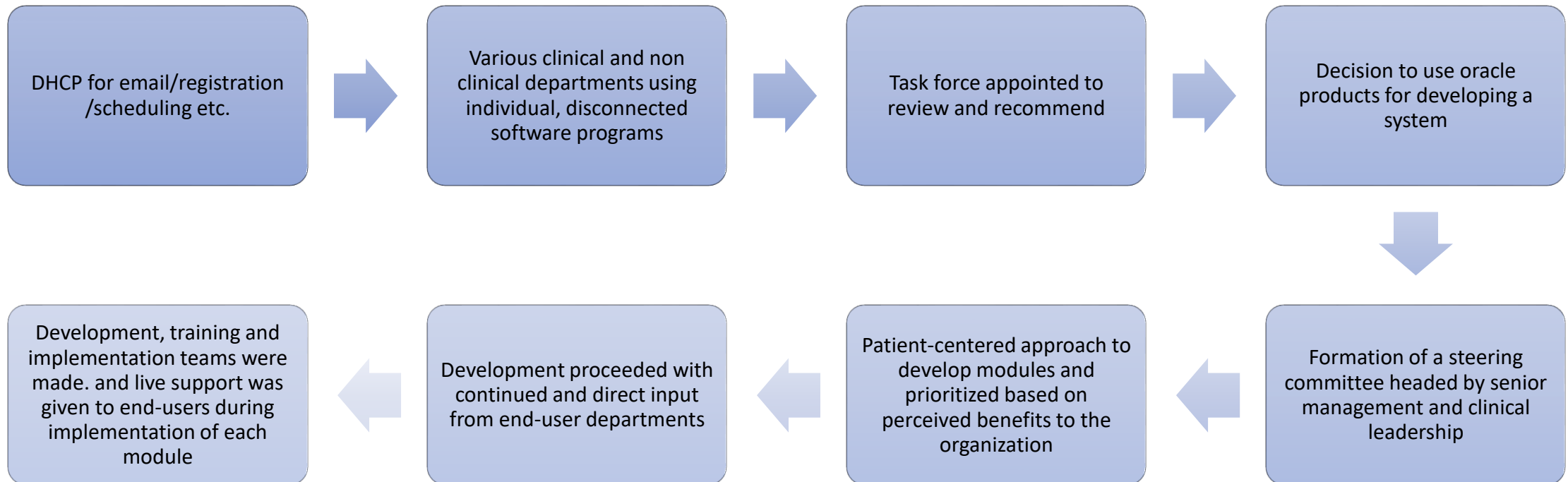
- 142,000 out patient visits
- 7600 admissions
- 7800 surgical operations
- 54,600 chemotherapy visits
- 44,500 radiation treatments
- 144,000 imaging procedures
- 3.25 million lab tests

# Objectives of the study

## Review:

1. The experience of development and implementation of an electronic hospital information system
2. Costs and return on investment
3. Assessment in improvements of key quality standards

# Development Process of HIS Implementation





# Key Modules and Implementation dates

Module	Implementation Date
Patient Registration and scheduling	April 2001
Patient Financial Assessment	June 2001
Human Resources module	January 2002
Physician order entry	February 2002
Pharmacy, including inventory	February 2002
Radiology process flow and reporting	April 2002
Medical Records – coding and tracking	April 2002
Pathology Modules, including machine interfacing	November 2002- February 2004
Outcome Analysis Modules for common cancers	December 2002 - January 2004
Financial modules	March 2003 – December 2004

*Continued..*

Module	Implementation Date
Inpatient units – admissions and Discharges	May 2003
Surgical Modules	May 2003
Blood Bank	March 2004
Critical Laboratory alerts	2005
Physician's Notes	2006
Corporate Patient billing	December 2006
Endoscopy	December 2008
Materials management, Procurement life cycle	December 2009
Radiation Oncology	December 2010
Chemotherapy	December 2011
Cardiology	December 2012

# Challenges

- Resistance from staff esp. at the implementation of major modules, mainly due to
  - Inertia
  - Fear of a new system
  - Poor computer literacy
  - Poor Command over the language
  - Fear of work delays
- System Breakdowns

# Solutions

- Individual discussions of expected benefits
- Use of computer expertise resources
- Implementation of individual modules carried during low activity times
- Direct documentation of service provision/billing by physicians
- Investment in an off-site server room with back up servers
- Real-time back-ups

# Methods

## **Cost Calculation**

- 1- Direct cost of the project
  - Data on development staff salaries
  - Analysis of records of purchases
  - Software licensing
  - Maintenance costs
- 2- Training costs from HR data
- 3- Calculated costs on yearly estimates of prints
  - Invoices, receipts and number of patient reports by clinical and non clinical depts.
- 4- Analysis of cost of impact of automation

## **Savings Calculation**

- 1- Savings calculation from paper printing
- 2- Radiology films savings
- 3- Man Power



# Costs

## **Total expenses**

- Salaries and Benefits
- Hardware and maintenance
- Licensing and professional Services
- Supplies, stationary, insurance etc.

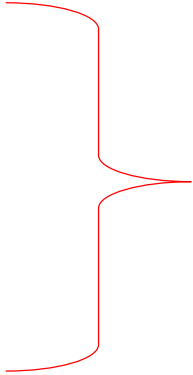


1,597,915

# Savings

## **Total savings**

- Paper Printing
- Radiology films
- Manpower



5,134,482

# Results

- Total saving of the project – US\$ 5.1 million
- Net saving – US\$ 3.5 million (2001- 2011)
- Net Present value – US\$ 3.2 million
- Pay back period – 3.4 years
- IRR is 86%

# Quality Improvement

Clinical pathways

Discharge summary

Specialized  
assessment  
templates

Handover/Receiving  
nursing templates

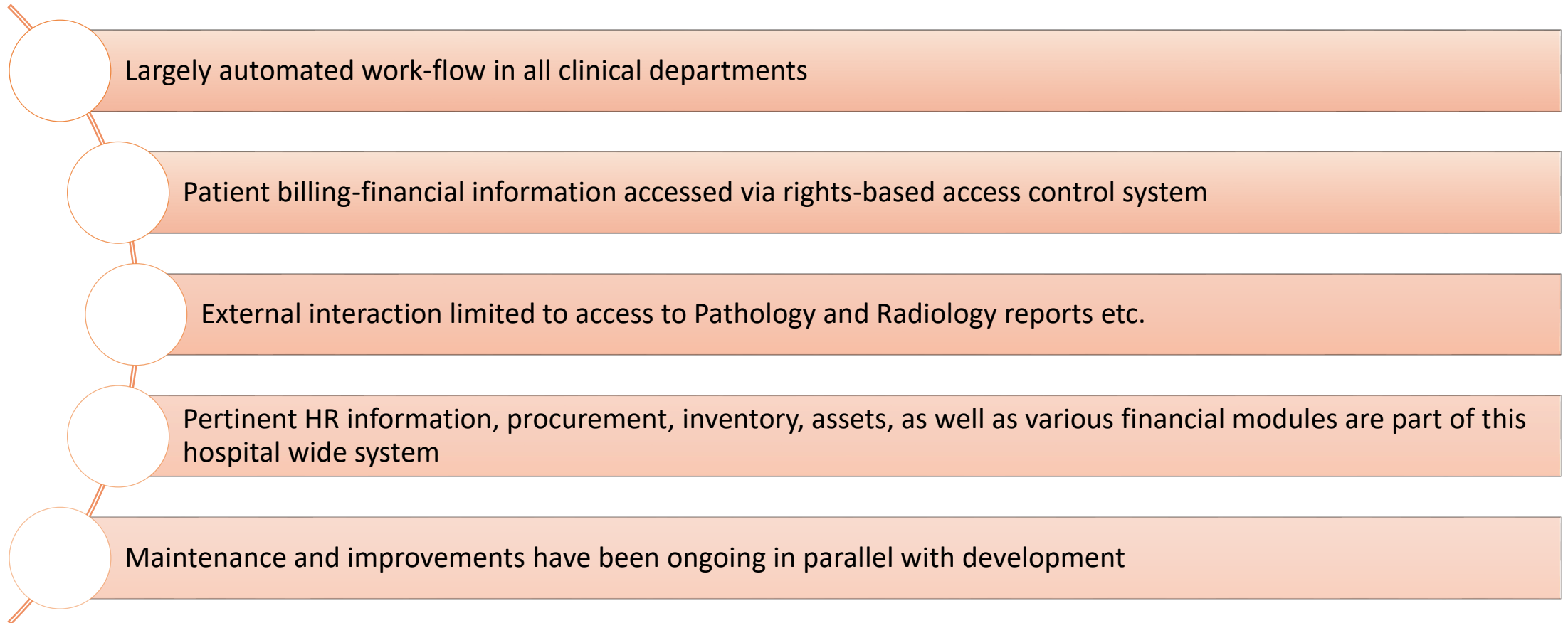
Incident Reporting

Adverse Drug  
Reaction reporting

Chemo check  
list/verification -  
online

Discharge Planning  
module

# Current State





# Summary Points

What was already known on the topic:

- Health information technology should lead to more efficient, safer and higher-quality care
- High cost project

What this study added to our knowledge:

- Clinical decision support system influences the interaction between the physician, patient orders with better clinical outcome
- There is a positive qualitative improvement after implementation of electronic hospital information systems
- High rate of return project

# From Paper to Electronic Health Records



Paper documentation wastes the valuable time of clinicians, supervisors and front desk personnel

Paper records occupy excessive space and are difficult to manage and organize



Reporting is an overwhelming and costly process when tracking client progress on paper

Paper billing slows the reimbursement process, while being tedious and inefficient



Save space and time by storing client records in the cloud

Electronic records create cleaner and better organized work spaces, promoting better staff morale



Faster and more accurate documentation, billing and reporting saves money while leading to more efficient, less stressed staff

Both clinicians and clients can easily access health records from anywhere because data is stored in a private, secured cloud



# References

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*Thank you!*



*Questions??*