Africa Health
By Informa Markets

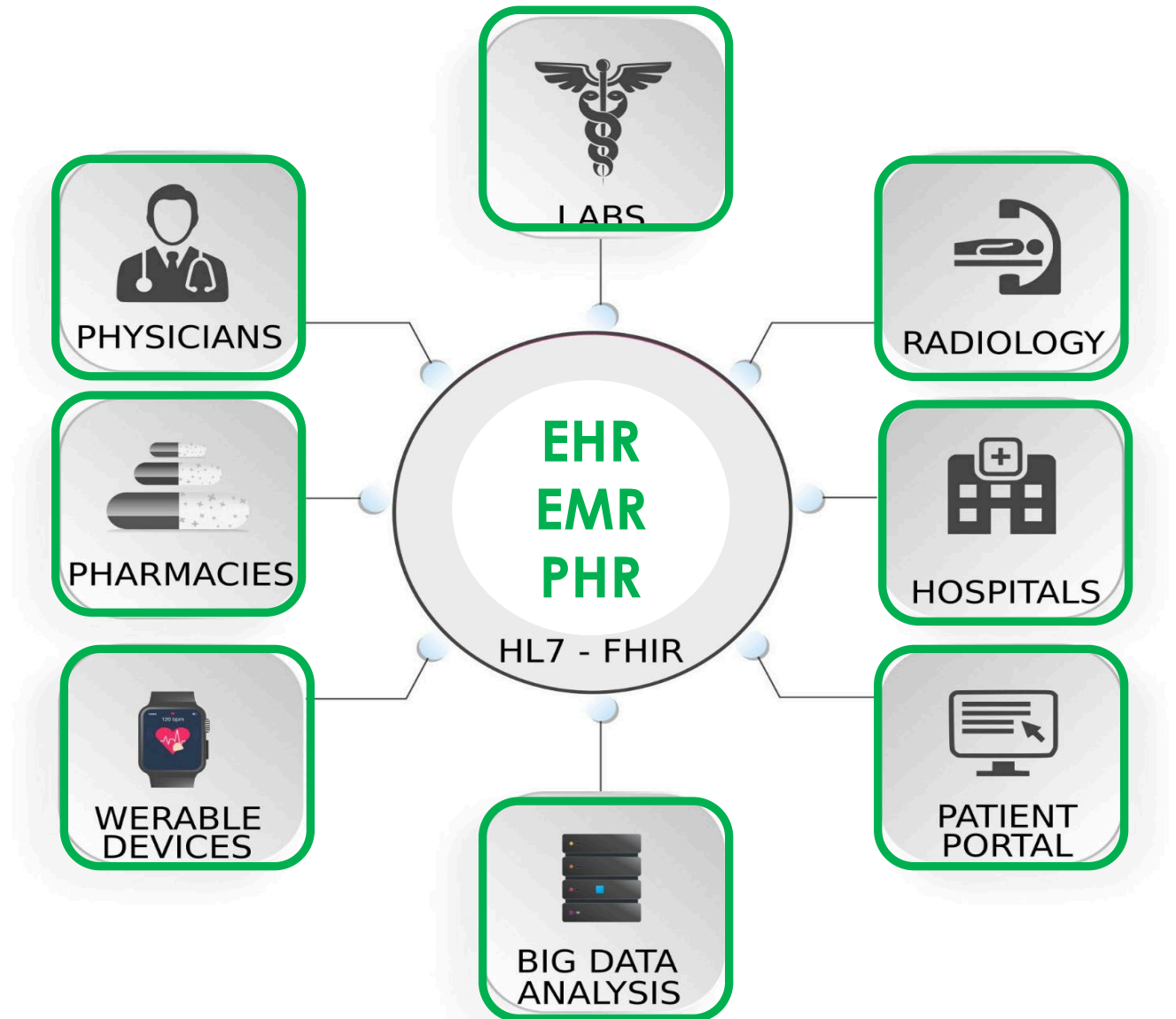# Challenges in Implementing Electronic Health Records

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The Definition of the Electronic Health Records

- An Electronic Health Record is a collection of secure, real-time Electronically-stored health information records for a patient that make information available instantly and securely to authorized users.
- It is a digital version of a patient's paper chart and provides a comprehensive digital view of a patient's health history.
- It includes the key administrative, clinical data relevant to that persons care under a particular provider, including demographics, progress notes, problems, medications, and discharge summary.

LABS

PHYSICIANS

RADIOLOGY

EHR
EMR
PHR

HL7 - FHIR

PHARMACIES

HOSPITALS

WERABLE DEVICES

BIG DATA ANALYSIS

PATIENT PORTAL

The History of the Electronic Health Records

- The history of EHRs **began in the 1960s –** the Mayo Clinic in Rochester, Minnesota was one of the first major health systems to adopt an EHR.

- In the **1960s, EHRs were so expensive** that they were only used by the government in partnership with health organizations.

- The US federal government implemented an **EHR in the Department of Veteran Affairs** called the De-Centralized Hospital Computer Program

- **Health Level 7 was founded in 1987** to address standardization issues as EHR development pushed forward

- The Institute of Medicine set a goal in 1991 that all **physicians would be using computers in their practice by 2000.**.

- **Interoperability has been a concern since at least the mid-1990s**, when a growing clinician user base made it necessary for systems to communicate with each other to effectively coordinate care, "The Computer-Based Patient Record: An Essential Technology for Health Care: Revised Edition."

- Obama Care-**The Affordable Care Act** (ACA) addressing a host of issues **beyond EHR, access to care**, including the **cost and quality of care and fraud and abuse in health programs.**

Difference between EHR,EMR and PHR

DIGITAL HEALTH RECORDS

Electronic Medical Record (EMR): An Electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization.

Electronic Health Record (EHR): An Electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization

CPR: Computerized Patient Records
EPR: Electronic Patient Records
CCR: Continuity of Care Record

Personal Health Record (PHR): An Electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.

Standalone PHR
Tethered PHR.
PCR: Patient Carried Record

Patient Clinical records are important for the communication between
- **Among the health care providers** across the **continuum of care and also**
- between the **health care providers and the patients**.

Document Management
Medical Records
Patient Clinical Records
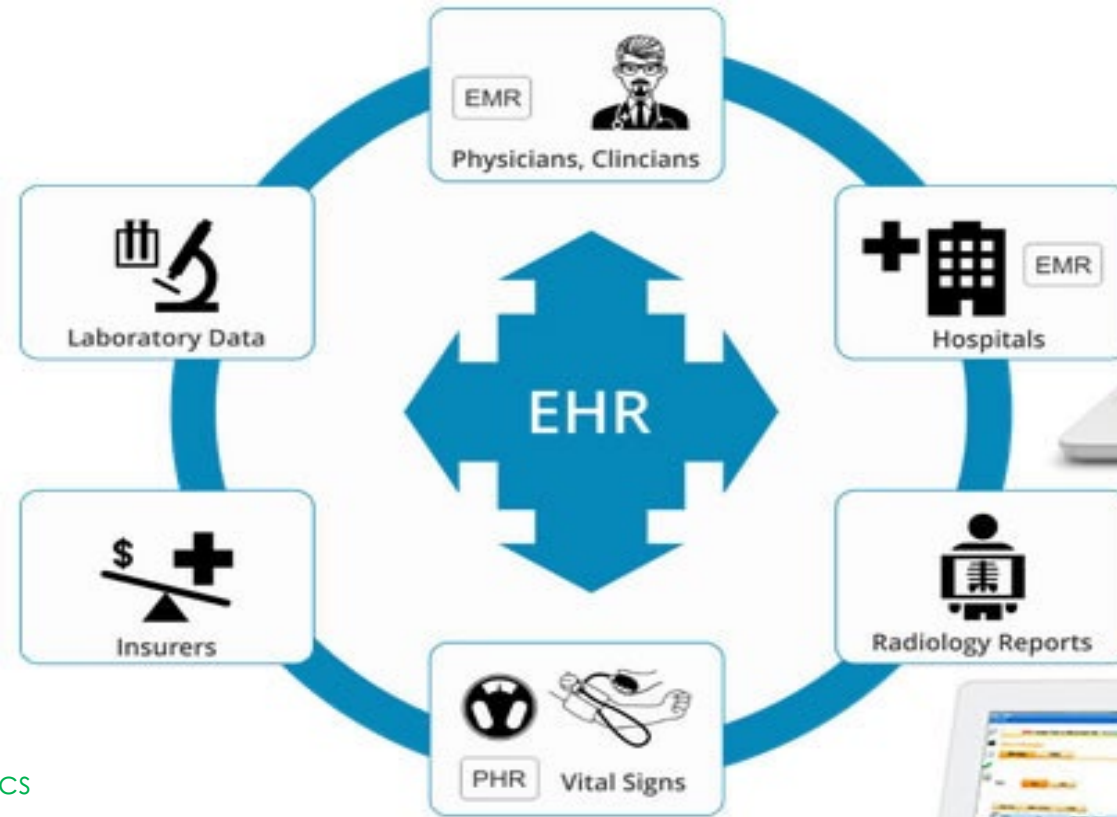
1. Patient Demographics
2. Progress Notes
3. Diagnosis, Symptoms and Complaints
4. Vital Signs
5. Prescriptions, Medications and Immunizations
6. Medical History
7. Laboratory and Radiology reports
8. Scheduling and Appointments
9. Procedure and Office Visit Level Coding
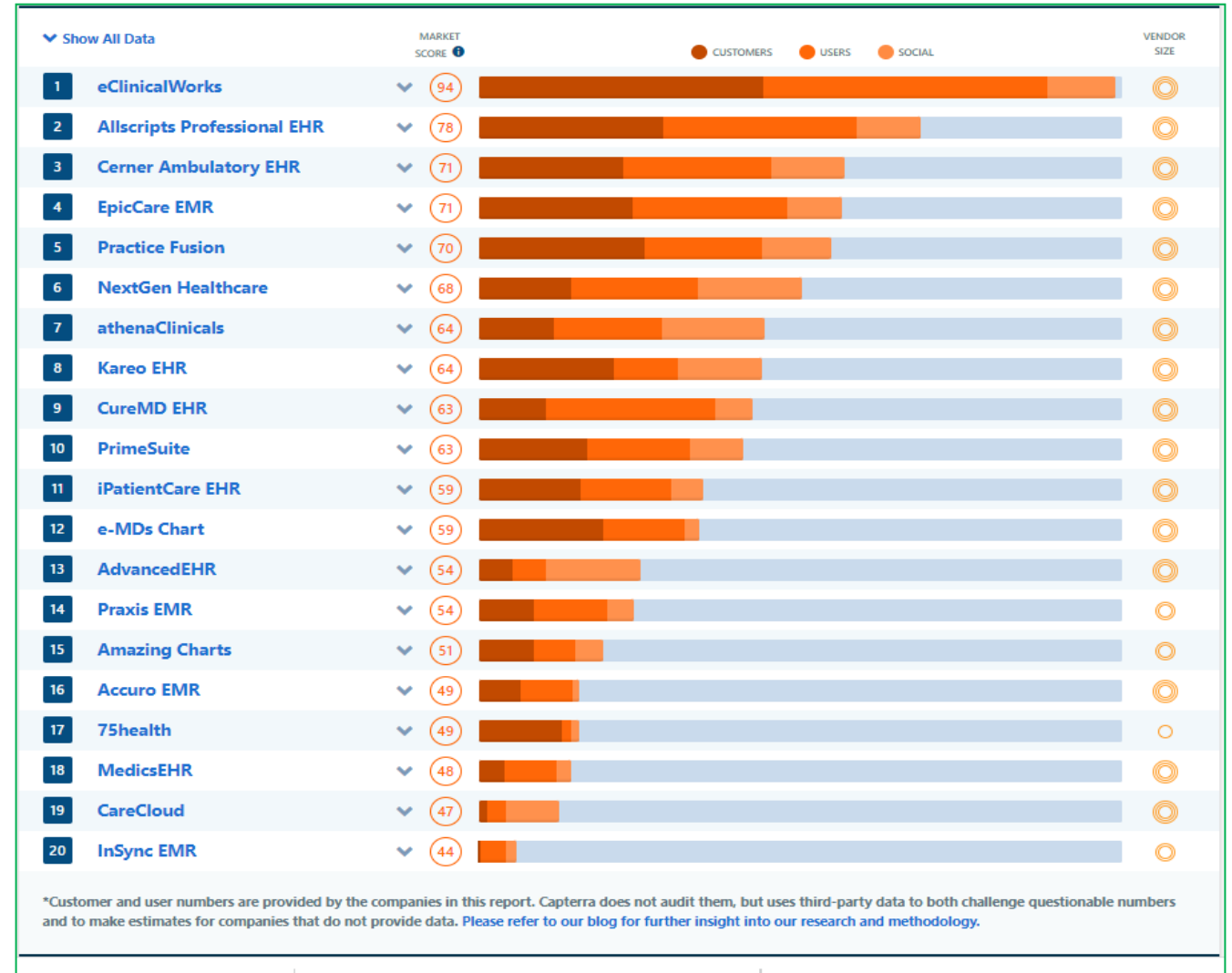10. Discharge summary

The Top 20 EHR Software Solutions...

The past few years saw a significant increase in the adoption of EHR by healthcare providers. In fact, the adoption rate for EHR in USA currently stands at 89%.

Among the many reasons contributing to this is the need for fast data retrieval and cross-department data sharing.

As adoption continues to grow, it is projected that the global EHR/EMR market will reach $34 billion by 2024.

Indeed, health record management is changing dramatically as more healthcare providers and professionals are embracing the benefits that EHR provides.

	Show All Data		MARKET SCORE		VENDOR SIZE
1	eClinicalWorks	⌄	94		◎
2	Allscripts Professional EHR	⌄	78		◎
3	Cerner Ambulatory EHR	⌄	71		◎
4	EpicCare EMR	⌄	71		◎
5	Practice Fusion	⌄	70		◎
6	NextGen Healthcare	⌄	68		◎
7	athenaClinicals	⌄	64		◎
8	Kareo EHR	⌄	64		◎
9	CureMD EHR	⌄	63		◎
10	PrimeSuite	⌄	63		◎
11	iPatientCare EHR	⌄	59		◎
12	e-MDs Chart	⌄	59		◎
13	AdvancedEHR	⌄	54		◎
14	Praxis EMR	⌄	54		○
15	Amazing Charts	⌄	51		◎
16	Accuro EMR	⌄	49		◎
17	75health	⌄	49		○
18	MedicsEHR	⌄	48		◎
19	CareCloud	⌄	47		◎
20	InSync EMR	⌄	44		○

CUSTOMERS USERS SOCIAL

*Customer and user numbers are provided by the companies in this report. Capterra does not audit them, but uses third-party data to both challenge questionable numbers and to make estimates for companies that do not provide data. Please refer to our blog for further insight into our research and methodology.

Important pitfalls-Paper based systems

- Healthcare costs
- Medical errors
- Litigation…
- Access and disparities
- Information not in real time
- Compromised patient and provider satisfaction
- Compromised clinical outcomes

Healthcare IT Solution: Cost challenges force the need to examine how to **provide appropriate care** in a **more cost effective manner** for the entire delivery system.

Healthcare IT is the answer…

The Objectives of an Electronic Health Record

✓Health information and data.
✓Result management.
✓Order management.
✓Decision support.
✓Electronic communication and connectivity.
✓Patient support.
✓Administrative processes.
✓Reporting
✓Population health Mx.

The features of Electronic Health Record

✓Automated scheduling.

✓Monitoring patients' status. ...

✓Managing tasks. ...

✓Generating support documentation. ...

✓Processing claims. ...

✓Digital chart. ...

✓Voice and handwriting recognition. ...

✓Generating reports.

Information in real-time is key for patient outcomes

With EHRs, **information** is available **whenever and wherever** it is needed across the **continuum of care**.

- Improved **Patient Care**.
- Increase **Patient Participation**.
- Improved **Care Coordination**.
- Improved **Diagnostics & Patient Outcomes**.
- Practice **Efficiencies and Cost Savings**.

The Common Challenges in EHR Implementation

1. **Technology**
   - Limitation of the Technical Resources...
   - Infrastructure – Hardware/Connectivity/Software
   - Training is time-consuming... ongoing
   - Data Migration...

2. **People**
   - Shortages
   - Staff Resistance
   - End user involvement…
   - User friendliness ….
   - No of clicks…

   - The workflow break up...
   - lack of incentives for end users to adopt

3. **Organization**
   - Governance issues
   - Lack of Proper Planning…

4. **Resources**
   - Cost of Implementation- expensive affair…

5. **Policy.**
   - Strategic plan
   - Interoperability...
   - The concerns with privacy…

1 Challenges Facing Technology in Healthcare

- Security. ...

- Stringent regulations

- Integration and Cost Effectiveness. ...

- Standards DICOM/HL7/FHIR

- Data Migration...

- Data Privacy and Regulations. ...

- Cybersecurity risks. Risk related to breach of protected health information Simple User Experiences. ...

- challenging misinformation.

- Training is time-consuming

Way forward

- Impersonal patient-doctor interaction / patient isolation. Patients interact with technology instead of a live care provider. ...

- Improve Technical support

- Improve Infrastructure –Hardware/Connectivity/Software

- Ongoing Training…

2 Human Resources Challenges

- Staff Shortages

- Staff Resistance- Welcoming new technology. ...

- End user involvement…workflow design...

- User friendliness .... No of clicks…

- Battling against employee burnout. ...

- lack of incentives for end users to adoption

- Managing employees and patient dissatisfaction. ...

- Providing adequate training and development. ...

Way forward:

Technological advancement can have a huge impact on the HR department of an organization. It allows the company to improve its internal processes, core competencies, relevant markets and organizational structure as a whole. Human Resource must mainly be focused on the strategic objectives of the organization.

3 Organizational

- Governance issues

- organizational decision making

- lack of coordinated efforts toward more theoretically-informed work

- Lack of Proper Planning…

- Implementations of health information is inter-related technical, social and organizational factors need to be considered

Way forward:

- Improve the efficiency and effectiveness of processes that customers use to judge organizational performance information/data management);

- Develop partnerships and form regional alliances with companies Medical device manufacturers, Imaging informaticians, pharmaceutical companies to develop disease management to improve patient outcomes and continuum of care in particular;

- Reach consumers directly to solidify brand names and eliminate intermediaries (disintermediation);

- Improve, differentiate, and deliver new services to key customers.

4 Financial Resources

- Financial barriers arise from the complex and sometimes perverse mechanisms for funding technology in health care.
  - Availability of Funding
  - Allocation of Funding
- Care providers are often rewarded for treating disease rather than preventing it
- Providers cannot receive reimbursement for care provided at a distance using electronic communications technologies.
- Cost of Implementation-expensive affair…

Way forward:

- Administrative and political will in allocating funding for health care IT
- Telemedicine/ teleradiology, could reduce the cost of care

Logical Implementation cost breakdown shown is to *understand the potential costs* and *choose the right approach* for your needs.

EHR Implementation **Costs**

Direct costs
- $200,000 Approximately to implement
- $25,000 maintenance/yr.
- $55,000 Hardware $25,000 Connectivity
- $25,000 Cloud server
- ...

Staffing related costs
- practice management software or email servers)
- Training...
- Data
- Change requests
- ...

Indirect Costs
- Training...
- EHR downtime threats
- ...

Direct

Indirect

Staffing-related

Unexpected

Unexpected Costs
- Nobody can fully predict every cost that they might incur during an EHR implementation.
- ...

SelectHub

5. Policy readiness
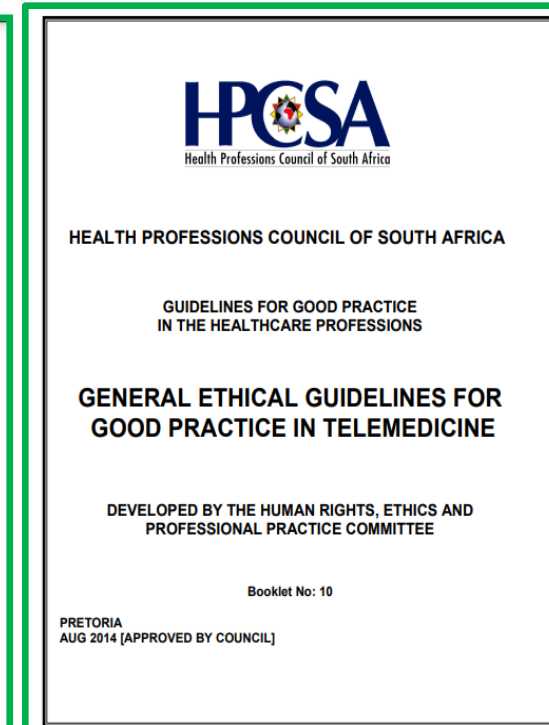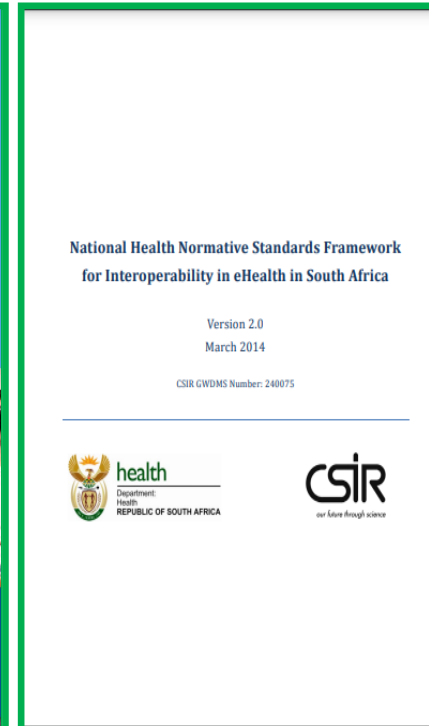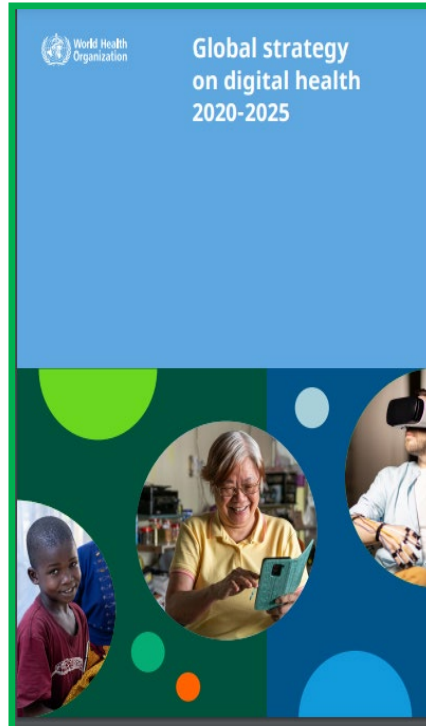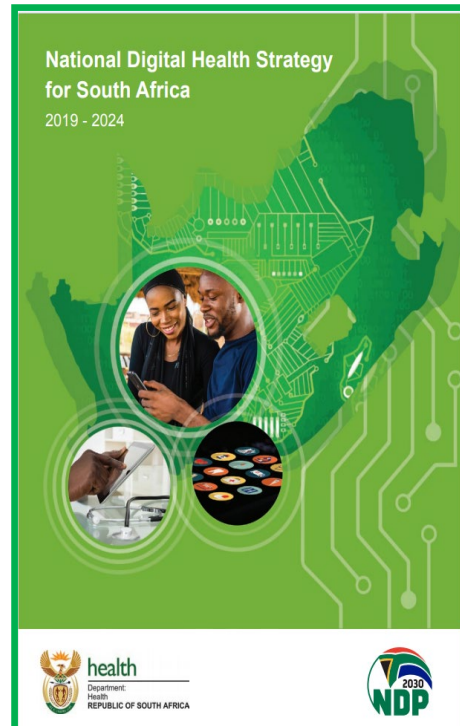
- The **Department of Health gazetted the National 2021 Health Normative Standards Framework (HNSF)** for Interoperability in Digital Health on Friday (21 October), which details the government's plans to **establish a comprehensive national health information system.**
- In view of the unique challenges posed by ever changing service delivery environment, including the recent COVID-19 pandemic, the **HPCSA reviewed** some of its ethical guidelines to allow Telehealth (formerly called Telemedicine) to **enable remote management of patients using virtual acceptable platforms, including video and telephones**

A Strategic Roadmap for effective EMR adoption and Maturity

The Electronic Medical Record Adoption Model (EMRAM) is an eight stage (0-7) model that harnesses technology to support optimized patient care, reduce medication errors, improve operational throughput and achieve a near paperless environment.

HIMSS *Analytics*® **EMRAM**

EMR Adoption Model Cumulative Capabilities

STAGE	
7	Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security
6	Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting; Full CDS
5	Physician documentation using structured templates; Intrusion/Device Protection
4	CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity
3	Nursing and Allied Health Documentation; eMAR; Role-Based Security
2	CDR; Internal Interoperability: Basic Security
1	Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM image management
0	All three ancillaries not installed

Source: https://www.himss.org/sites/hde/files/2022-01/emram-info.pdf

A strategic roadmap to digital imaging maturity

The Digital Imaging Adoption Model (DIAM) is an eight stage (0-7) model that provides guidance for imaging and IT experts to identify and adopt the right digital strategy and improve health outcomes for patients.

Stage	HIMMS *ANALYTICS* DIAM The Digital Imaging Adoption Model
7	External Image Exchange and Patient Engagement
6	Clinical Decision Support and Value-Based Imaging
5	Advanced Imaging Analytics
4	Fully Integrated Image Management With Efficient Enterprise-Wide Image Sharing Across Different Service Areas
3	Imaging Governance and Strategy; Workflow and Process Safety
2	Electronic Image Management Covering a Variety of Images Across the Enterprise
1	Electronic Image Management Covering the Service Area(s)
0	Little or No Electronic Management

Imaging informatics

Imaging informatics, also known as **radiology informatics** or medical imaging informatics, is a subspecialty of biomedical informatics that aims to improve the efficiency, accuracy, usability and reliability of medical imaging services within the healthcare enterprise.

Imaging informatics is part of the larger field of **clinical informatics** which is in turn part of **biomedical informatics**.

The components of Imaging Informatics:

- Analog or digital electronic display, capable of being used for more than one image acquisition device.

- Communication using local and extended networks, telecommunications, or video networks.

- Connection to image acquisition devices with analog or digital output.

- Digital archiving and storage.

The specific goal of imaging informatics is to improve patient care by better managing imaging data and making it as accurate and accessible as possible.

The Radiologist/Radiographers can use information technology (IT) in **four major fields**: namely, the **management of workflow**, the **interpretation of images**, the **treatment decision-making**, and the **communication with clinicians and patients**.

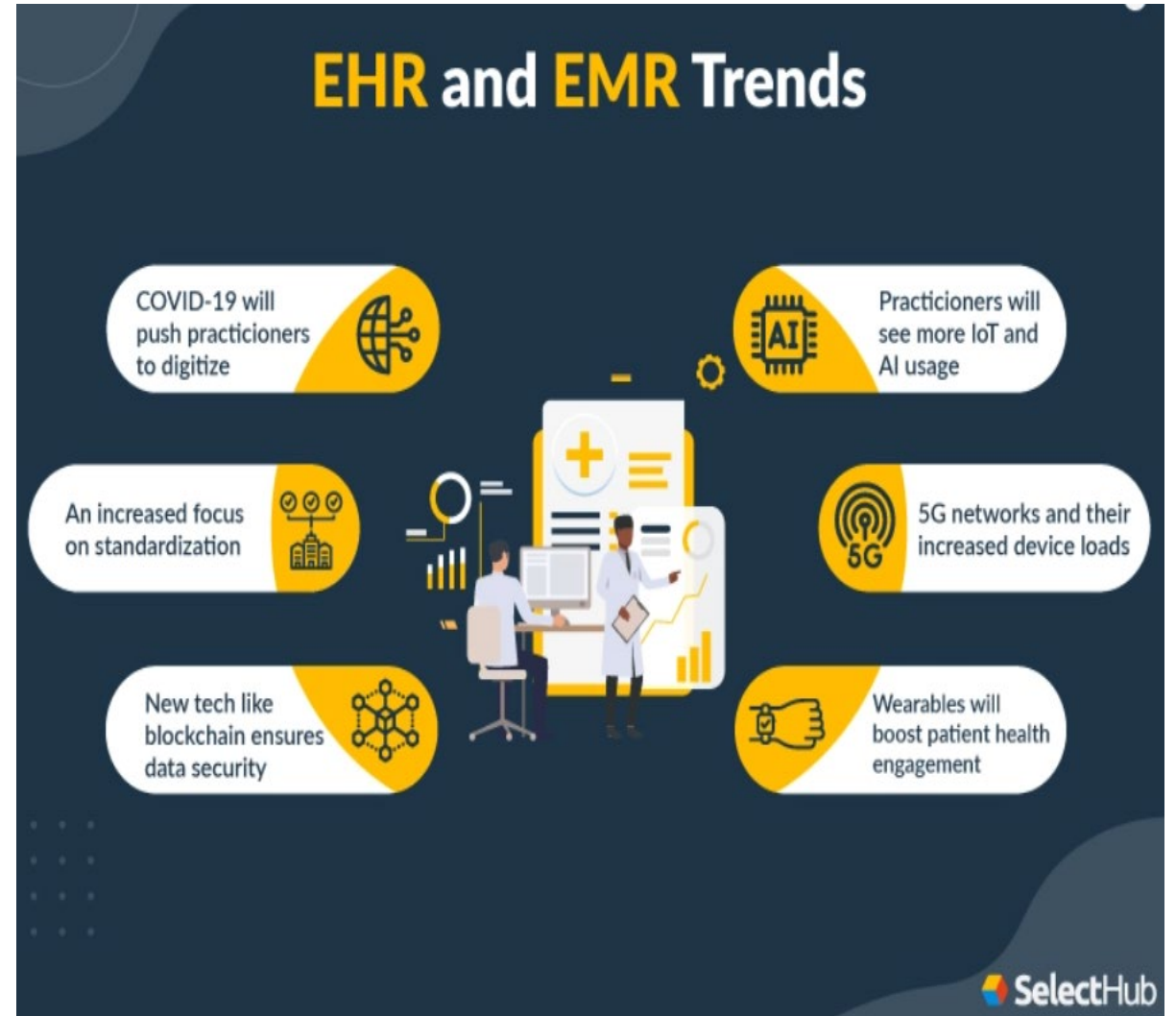# Benefits of Successful EHR implementation

Optimization of Activities for Improving Clinical Efficiency

1. **Reduce Information Overload** in Physician Notes...

2. **Specialize Clinical Workflows**. ...

3. Integrate Prescription drug monitoring data

4. Involve **Imaging Informaticists** in **EHR Optimization**...

5. Adopt Health IT Tools That **Improve Usability**...

The future of the Electronic Health Records...

The Electronic health records are here to stay...

- In the coming decades, we can expect to see significant growth in accessibility, integration, IoT devices and interoperability between EHRs and EMRs.

- Close collaboration is essential between Government, Industry, Academia and the Funders.

- Hopefully, the industry will improve the searchability and ease of use of their products– increased EMR standardization regulation could be crucial to this.

Source: https://www.selecthub.com/medical-software/ehr-implementation-cost

Steps to a successful EHR implementation

1. Appoint super-users. ... **End user involvement** is key
2. Allow the end users to be part of EHR **design process**
3. Train employees in the **specific component** they will be using.
4. Customizable clinical **workflows tailored** to the end user needs
5. Provide **customer support contact information** as well as training to utilize **online training material**...
6. Welcome **feedback, suggestions, and concerns**...

Steps to a successful EHR implementation

- Rural populations are better served via robust EMR
  - \>60% of patient's first port of call is a clinic.
- Technology- We take for Granted in Healthcare
- In the next 5 years, EMR is just going to be another technology that we use without really even thinking about it.
- We're not there as yet, but it will happen.

It's time for a bolder approach to healthcare innovation.

Get comfortable being uncomfortable.

Electronic health records
can assist us in implementing:
- National Health Insurance (NHI)
- Universal health coverage (UHC)
- Connected care
- Specialist care
- Accelerated care
- Improving Clinical outcomes
- Ultimately improving Patient & Provider satisfaction

I look forward to the day when we start to take EHR for granted.

Digitize all our facilities public and private including GPs, private hospitals, Laboratories, Pharmacies, radiological services, Clinics, CHCs, District, Regional, Tertiary and Academic Hospitals

Thanks for listening