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AMSTERDAM 2014

6 - 7 NOVEMBER 2014

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ALIGNING PATIENT CARE AND IT

A significant impact on healthcare



Ale Houtsma

CIO – program director – COO

- > 25 years of experience in general and academic hospitals
- roles: care, quality, manager, board, project, program director
- surgery, OR, internal med, imaging, lab, IT
- complex IT-projects with big change component
- implementations of EPR, medication system, lab system, process redesign, HIMSS 6 & 7
- employee or independent ad interim

- former program director Beter 2.0 & CIO in **Radboudumc**
- together with **Gert-Jan Borghuis**
- project director at **Dutch Hospital Data**
- auditor and program advisor **HIMSS**

The Netherlands (??)





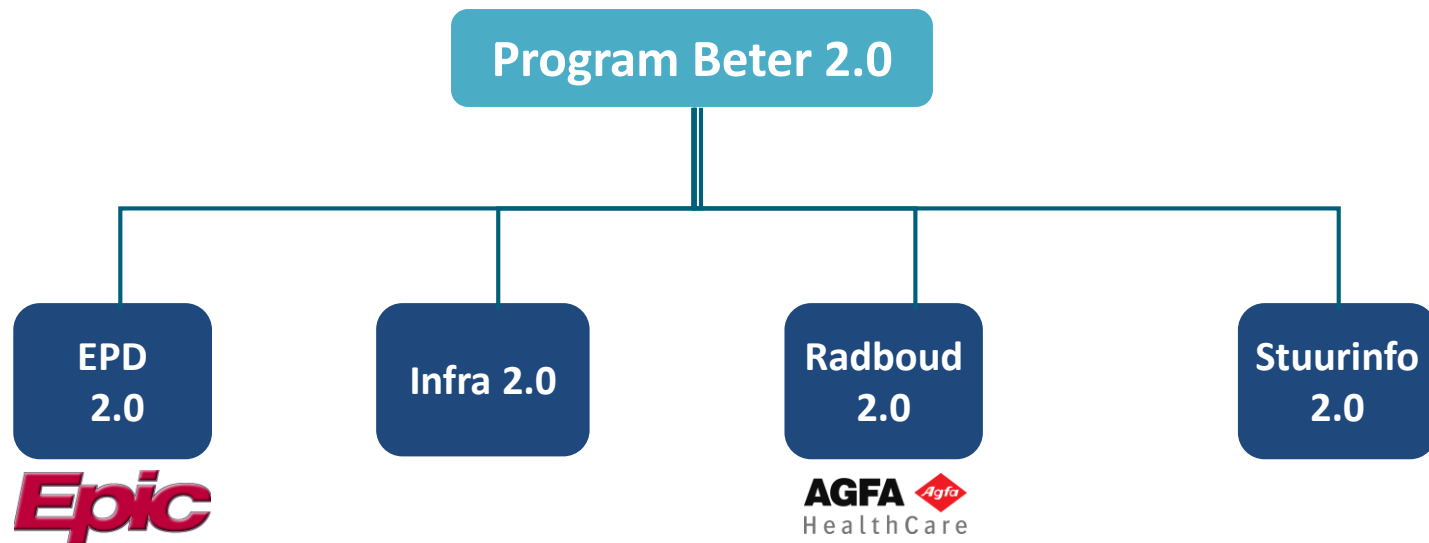
Our vision

- Frontrunner in innovation
- Next steps:
 - Excellent quality
 - Participatory and Personalised healthcare
 - Operational excellence
 - Sustainable networks

Survival rates of cancer online



Radboudumc



1. EPR – implementation EPIC
 2. Infra – renew infrastructure for IT
 3. Radboud – projectportfolio on applications, f.i. medical images, speech recognition, research
 4. Steering info
-
- Report to board of directors
 - 25-30 projects (150-200 fte) and support (130-180 fte)
 - April 2012 – 15 May 2014

*“Biggest Health IT
program in EU”*

European EMR Adoption Model

Stage	Cumulative Capabilities
Stage 7	Complete EMR; CCD transactions to share data; Data warehousing feeding outcomes reports, quality assurance, and business intelligence; Data continuity with ED, ambulatory, OP.
Stage 6	Physician documentation interaction with full CDSS (structured templates related to clinical protocols trigger variance & compliance alerts) and Closed loop medication administration.
Stage 5	Full complement of PACS displaces all film-based images.
Stage 4	CPOE in at least one clinical service area and/or for medication (i.e. e-Prescribing); may have Clinical Decision Support based on clinical protocols.
Stage 3	Nursing/clinical documentation (flow sheets); may have Clinical Decision Support for error checking during order entry and/or PACS available outside Radiology.
Stage 2	Clinical Data Repository (CDR) / Electronic Patient Record ; may have Controlled Medical Vocabulary, Clinical Decision Support (CDS) for rudimentary conflict checking, Document Imaging and health information exchange (HIE) capability.
Stage 1	Ancillaries – Lab, Radiology, Pharmacy – All Installed OR processing LIS, RIS, PHIS data output online from external service providers.
Stage 0	All Three Ancillaries (LIS, RIS, PHIS) Not Installed OR Not processing Lab, Radiology, Pharmacy data output online from external service providers.

feb-14: score 6+

nov-12: score 2,43

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Some key items for HIMSS 5, 6 and 7


- EPR suite hospitalwide
- medical images
- CPOE
- closed loop medication with barcode administr.
- discrete data
- clinical decision support
- mobile (virtual) workstations, Wifi

HIGHLIGHTS

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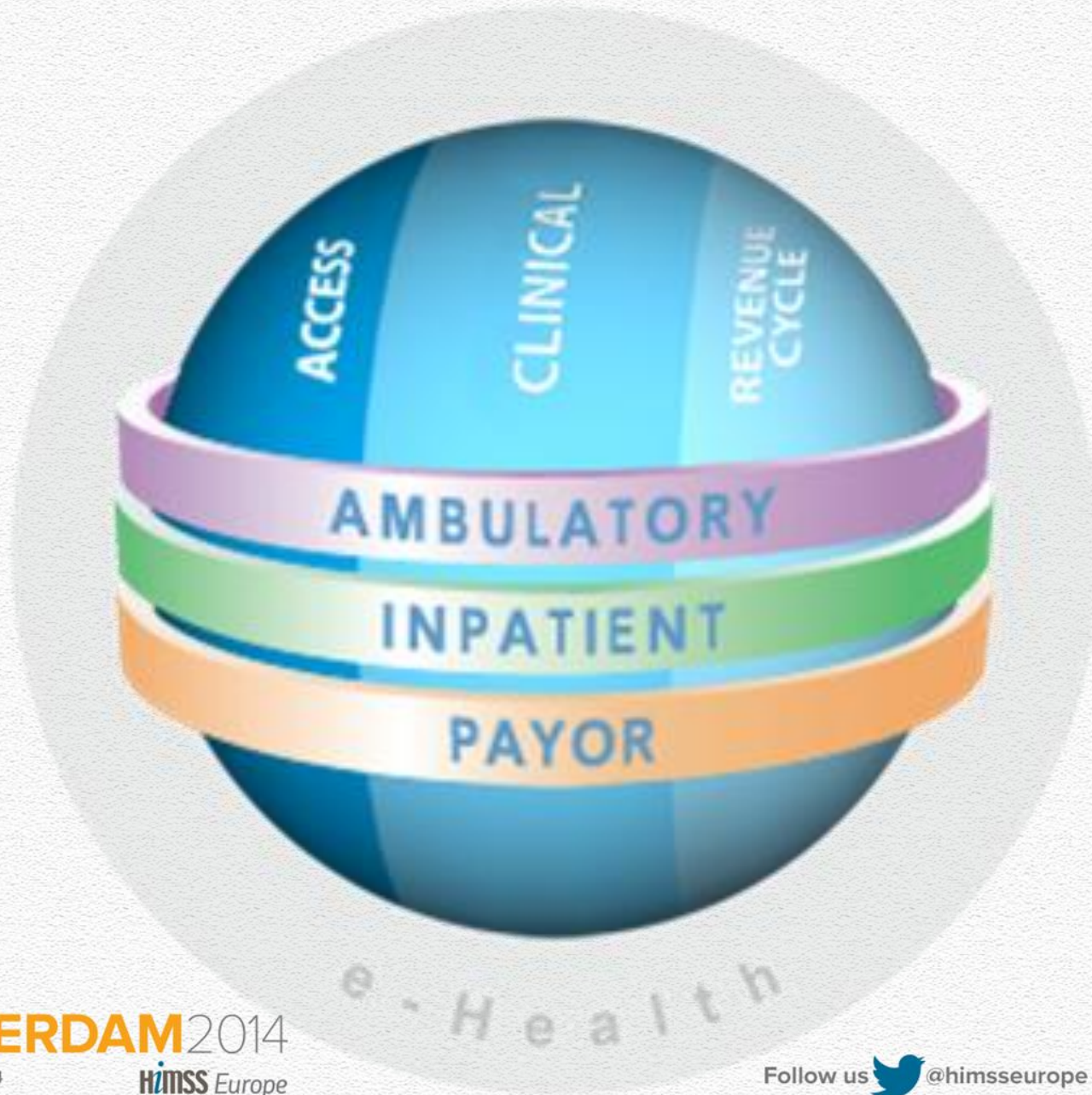
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**69% of Stage 7 US Hospitals use EpicCare.
90% of Stage 7 Clinics use EpicCare.**

with the patient at the heart

Epic



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EPR – scope



- patient registration ADT, Welcome
- portal for patients
- physicians & nurses, inpatient & outpatient
- scheduling, RIS
- physician enters order (CPOE), thesaurus Dutch Hospital Data
- medication, barcode admin
- emergency, ICU, OR, anesthesiology
- billing
- interfacing with ~ 45 applications
- bedside device integration (> 600)
- many reports
- virtual desktop, remote access, iPad & iPhone, touchscreen

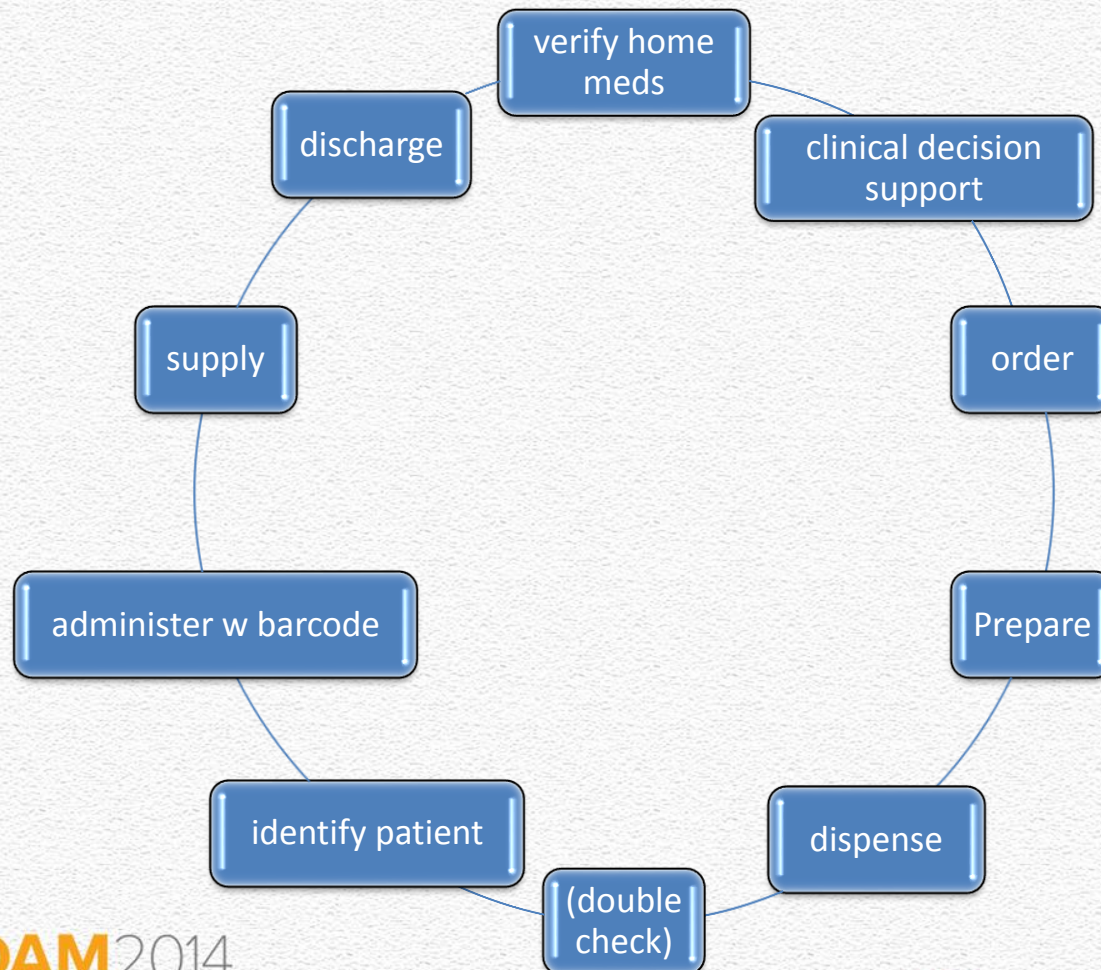
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Closed loop medication



CDSS: clinical rules for meds

Clinical decision support system (CDSS) for meds:

- Based on national consensus / best practice
- Integrated in Epic workflow, f.i.

- Renal function
- Stomach protection
- Low/high potassium
- **Cumarines**

- Vitamin D prophylaxis
- Methotrexate
- Opiate-laxative
- Low sodium

- Oral oncolytics
- TDM vancomycin / amoniglycosides

- Shown to ordering physician (CPOE-rate meds 93%)
- Includes follow-up actions

Patient identification

- Wristband with barcode
- Scan patient & medication, blood, etc



Barcode medication administration

- Right patient (wrist band)
- Right drug, right dose, right time, right route



The NEW ENGLAND
JOURNAL of MEDICINE

HOME ARTICLES & MULTIMEDIA ▾ ISSUES ▾ SPECIALTIES & TOPICS ▾ FOR AUTHORS ▾ CME ▸

SPECIAL ARTICLE

Effect of Bar-Code Technology on the Safety of Medication Administration

Eric G. Poon, M.D., M.P.H., Carol A. Keohane, B.S.N., R.N., Catherine S. Yoon, M.S., Matthew Dittmore, B.A., Anne Bane, R.N., M.S.N., Osnat Levzion-Korach, M.D., M.H.A., Thomas Moniz, Pharm.D., Jeffrey M. Rothschild, M.D., M.P.H., Allen E. Kachalia, M.D., J.D., Judy Hayes, R.N., M.S.N., William W. Churchill, M.S., R.Ph., Stuart Lipsitz, Sc.D., Anthony D. Whittemore, M.D., David W. Bates, M.D., and Tejal K. Gandhi, M.D., M.P.H.

N Engl J Med 2010; 362:1698-1707 | May 6, 2010 | DOI: 10.1056/NEJMsa0907115

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Abstract Article References Citing Articles (88) Letters



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verpleegafdeling

*algemeen interne geneeskunde
reumatische ziekten*

endocriene ziekten

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Virtual(!) workstations and peripherals

- 6000 zero clients
- 6000 desk tops
- 100 (+150) WOW's (workstation on wheels)
- 1500 laptops
(150 mounted on carts "WOW-light")
- 50 Zebra wristband printers
- 230 Toshiba label printers (lab/med)
- Gryphon barcode scanners (meds)
 - 490 wired
 - 250 wireless



Beeld 2.0 (images)

- hospital wide solution – VNA
- one user platform
- anywhere accessible, also remote (other hospital)
- quick access to archive images
- lower costs (TCO)
- Rad, NucMed, Card, KNO
- Agfa unless, now for DICOM:
 - PACS Agfa Impax 6.5
 - Agfa Xero viewer
- non-DICOM: one viewer Clinical Assistant
- viewers integrated in Epic
- new technology for storage



Steering info: for professionals, managers, board, external

For professionals: f.i. CDSS

- resistant micro organisms (RMO)
- intended blood transfusions – warning to screen for antibodies
- MEWS (modified early warning system) and sepsis
- MUST – malnutrition universal screening tool, order for dietician
- > 150 best practice alerts

Discrete data – problem/dbc (DHD),
allergies, medication, history, etc



Radboudumc

Discrete data – problem/dbc (DHD),
allergies, medication, history, etc



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No time to talk more about ...

- implementation strategies
- speech recognition, stop dictation
- document scanning and shredding
- health information exchange & continuity of care
 - EpicCare Link, Zorgdomein, Zorgmail
- myRadboud patient portal, FaceTalk, Hereismydata
- organizing users: CNIO, CMIO, CSIO, user groups
- virtual workplace





Next step:
continuity of care with
patient as a partner

Patient as a partner: myRadboud



Patient as a partner: myRadboud



Take away

- ***More > better > different***
- Technology drives business > data drives process
- HIMSS 6 & 7 is a verb: not a certificate but a change process
- validated clinical rules
 - improve safety
 - and prevent alert fatigue
- barcode administration of medication
 - is the proven way to improve safety
 - is really possible, also in Europe ;) (99% of drugs on barcode)
- virtual workstations
- **Next step:**
 - patient as a partner to improve the quality of data
 - exchange with hospitals and GP's

‘To make a significant impact on healthcare’



Thank you



Radboudumc



Dutch Hospital Data

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