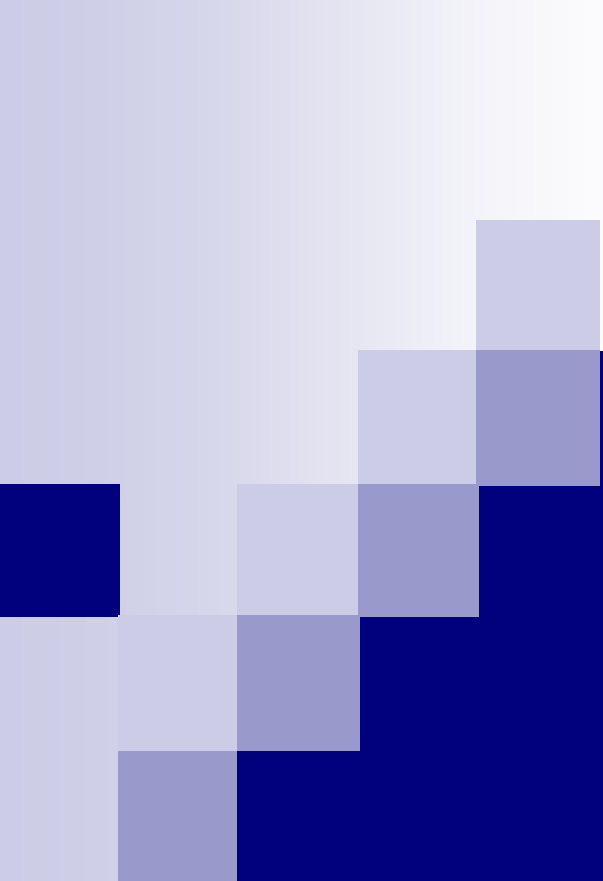




Improving healthcare delivery through efficient information flows

Prague 23 June 2005

Baldur Johnsen BSCS MBA

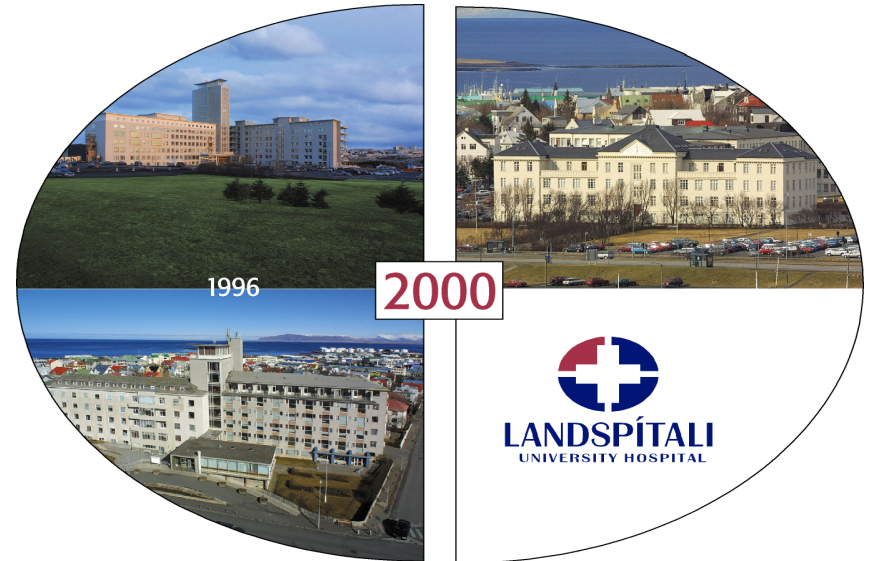


Agenda

- Areas for improvement in healthcare
- Patient Safety
- Quality of Care
- Efficiency
- Lower barriers to access

Landspítali – University Hospital

- Iceland's largest healthcare institution (the largest organizational entity in the country)
- 4800 employees
- 860 beds
- Operating expenses in excess of 300 mio EUR
- Provides all medical specialties and most subspecialties
- Operates in 25 locations



Two characteristics of the healthcare market

■ Information failures

- Customers lack the information necessary for informed choice

■ Moral hazard

- Because usually a third party pays for the service, there is an incentive for the physician to over-supply medical services





Barriers to access

“Evidence points to a large difference in health status among population groups in the OECD countries, some groups are at a disadvantage e.g. in terms of geography”.

OECD – Towards High-Performing Health Systems 2004

Efficient flow of information can provide solutions

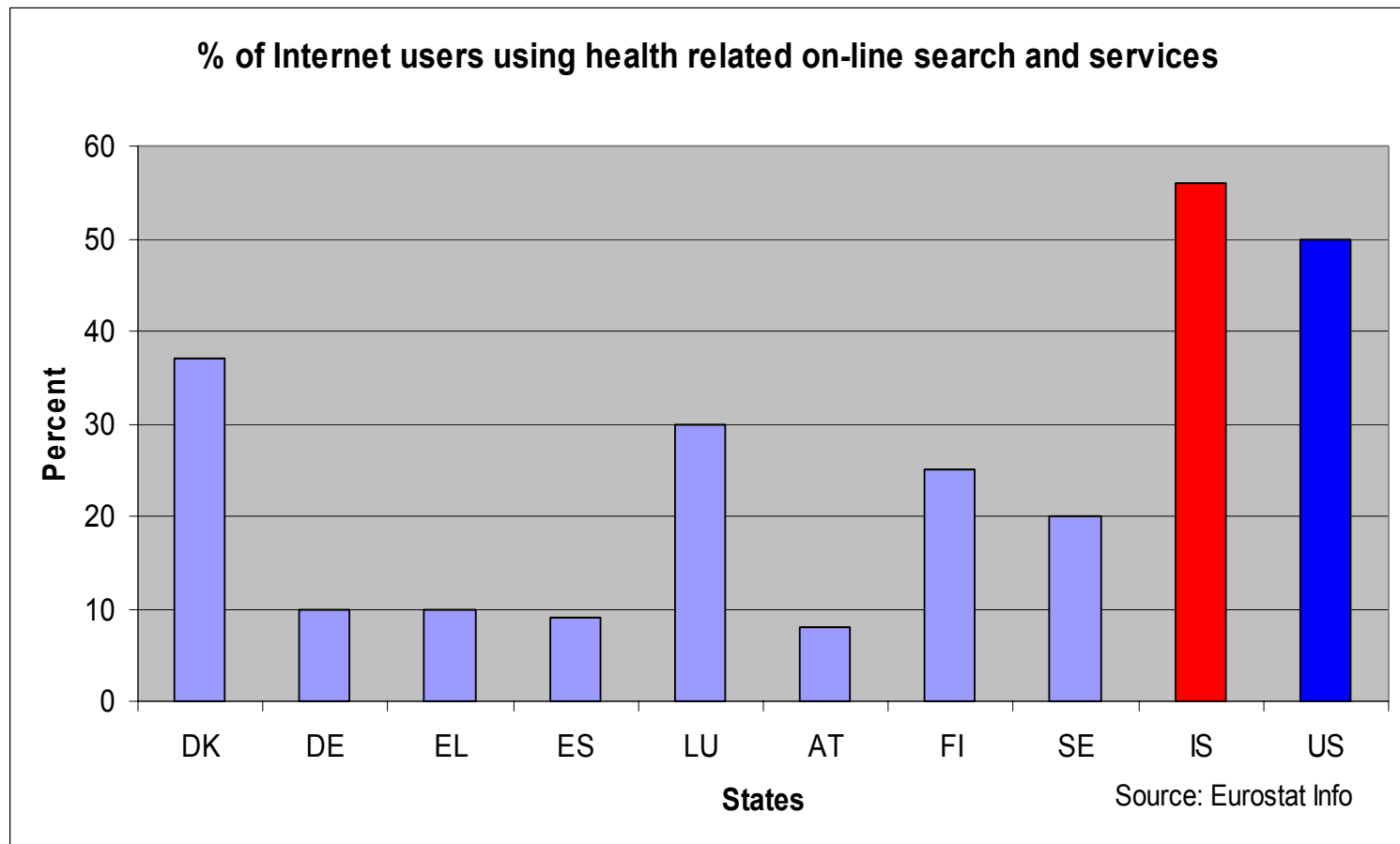
■ Information failures

- The Internet has provided a vast amount of information to consumers about medical condition and choices
- In the US info on health plans is #1 health content

■ Moral hazards

- Through ICT professional information such as guidelines, electronic identification of adverse drug effects etc. can help the physician to resist over-supplying medical services

Health related Internet usage in EU



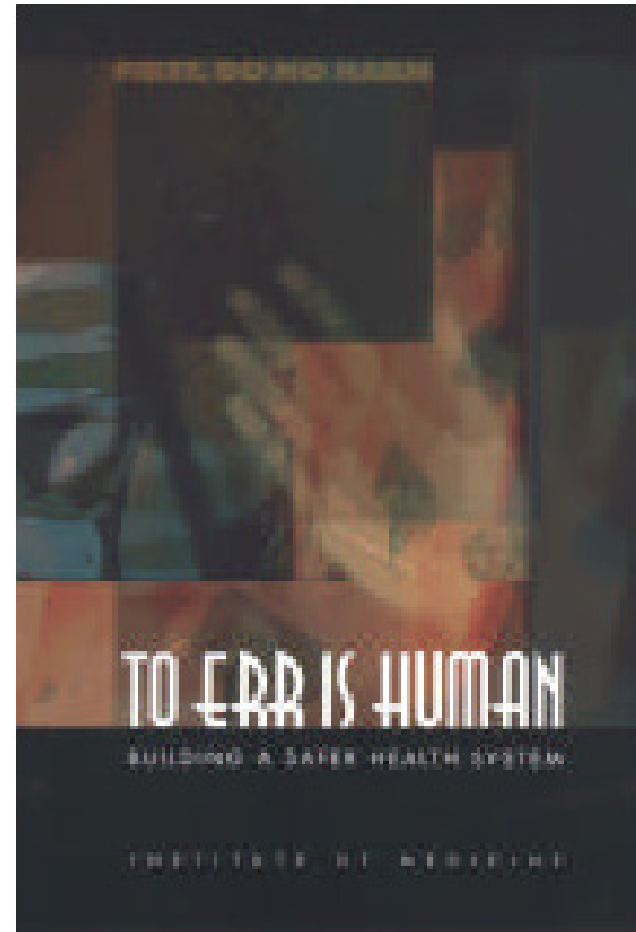
Quality of service

- Quality improvement
(Institute of Medicine, The World Alliance for Patient Safety)
- Quality standards
 - ISO 9000
 - Six Sigma
 - EFQM
 - TQM
 - Kaizen
- Evidence Based Medicine
- Quality and the bottom line
 - UK – USD 6 Billion

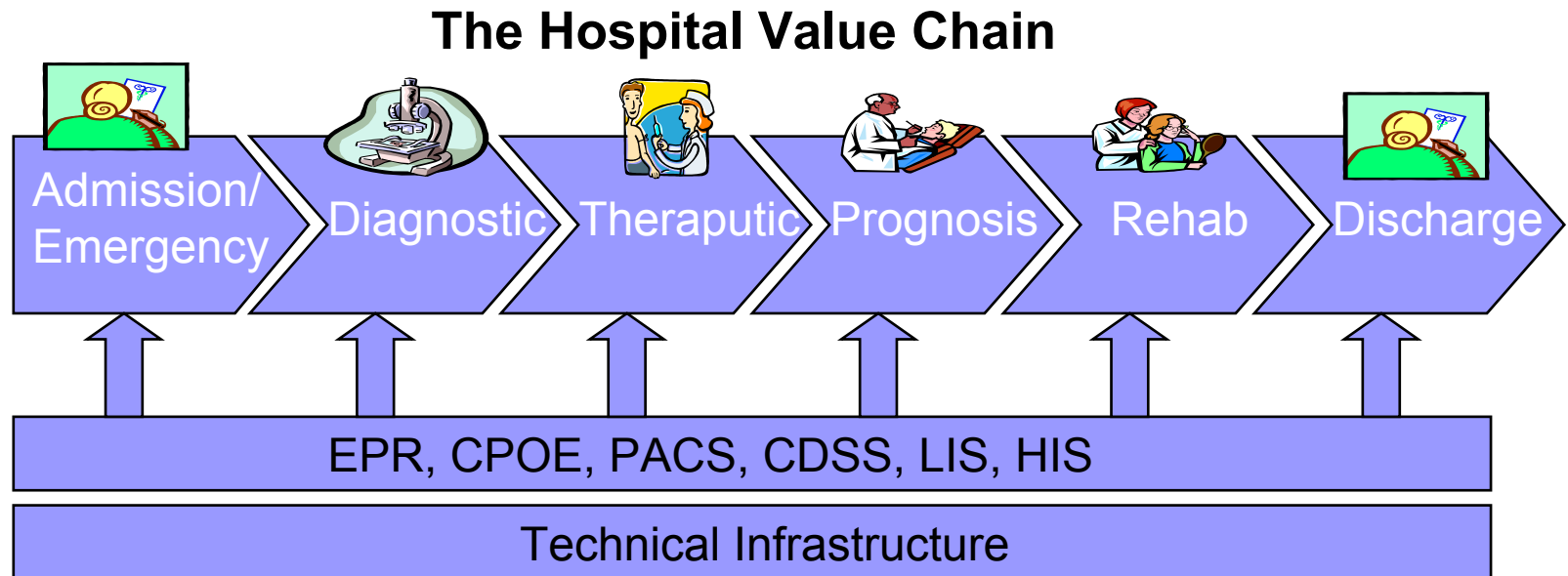
DC-10

17
years

Vioxx

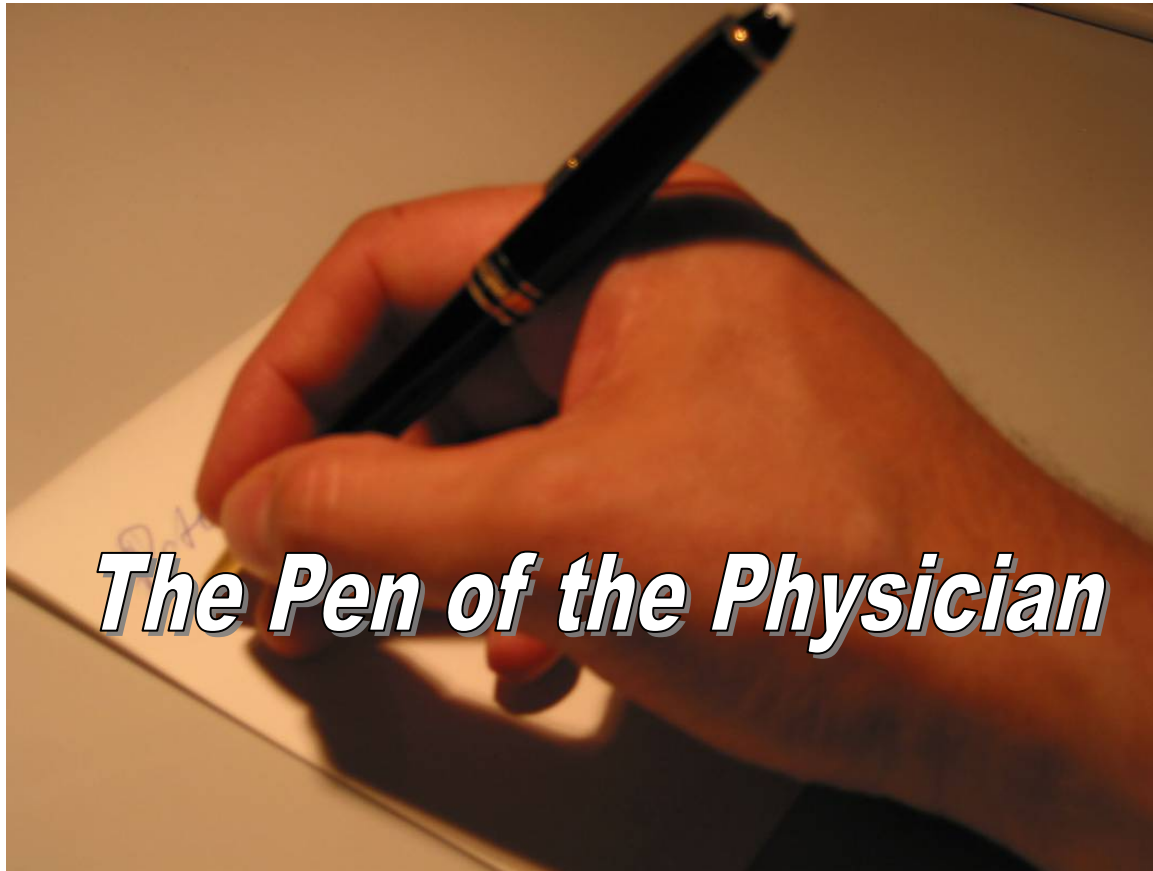


The role of information processes in healthcare



To support the healthcare value chain enabling increased patient safety, quality, efficiency and lowering barriers to access.

The most dangerous and costly device in healthcare



- Patient Safety
- Costs

2003



Blað: T
af: II

Fyrirmæli flutt: Dags: _____
af: _____

LYF GEFIN REGULEGA

Dags. kl.	Lyfjaféir (samheiti einsklegt) Skömmtun	Hvernig gefið	Læknir	Tími gílar Strýki spáala	Dags. 8/12	Dags. 9/12	Dags. 10/12	Dags. 11	Dags. 12	Dags. 13	Dags. 14	Dags. 15	Dags. 16
8/12 16:00	ly. Paricillin 1x6	iv		02 06 10 14 18 22		02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22	02 06 10 14 18 22				
	T. Magnyl 150mg 1x1	po		9		9	9	9	9		9	9	9
	T. Nexium 20mg 1x1	po		9		9	9	9	9		9	9	9
	T. Indin 30mg 1x1	po		9		9	9	7	9		9	9	9
	T. Subit 15mg 1x4	po		9 12 15 18 21		9 12 15 18 21	9 12 15 18 21	9 12 15 18 21	9 12 15 18 21		9 12 15 18 21	9 12 15 18 21	9 12 15 18 21
	T. Paracet 625mg 1x1	po		9		9	9	9	9		9	9	9
	T. Aspirin 100mg 1x2	po		18		18	18	18	18		18	18	18
	T. Imu 7.5mg	po											
	T. Penic 300mg	po											
8/12	T. Kvar	po											
7/12	Lenox (400mg x 1)	po		9		9	9	9	9		9	9	9

**There is evidence of
4-10% of patients experiencing
ADE's during a single hospital stay**

Lyklar af
hliðgjöf sleppt

F Spjáltingar fastandi
D Spjáltingar með egleðis/þopla
A Astand spjáltingar leyfir ekki
S Fyrirmæli ófjör / sláttur ekki
E Spjáltingar fyrirsmek / í hefi

N Spjáltingar veita að teki lyf
E Lyf ekki til á dæði
Z Spjáltingar rafandi
T Tæðing bládrá
A Astand

Hjúkrunarfræðingur >
Læknir >

[Handwritten signatures and initials]

Prófunar Sjúklingur

Lyfjafyrirmæli Lyfjagjafir Lyfjablað Lifsmörk Lyfjakort Greiningar Innlögn

Samskipti

- Landspítali - háskólasjúkrahús
- Lungnadeild A6 - Rautt
- Sjúkradeild A6 TEST
 - júli test - 070707-1234
 - Júní Test - 060606-0606
 - Maí Test - 050505-0505
 - Prófunar Sjúklingur - 010101-AAA
 - 30.01.04
 - Saga
 - test test2 - 010101-AAA

Byrjar: mið. 31.03.2004 0:00 Breikka/brengja sýn

Lyf		31.03.2004		01.04.2004		02.04.2004		03.04.2004		04.04.2004		
Byrjar	Lyf	PN	14	22	12	12	14	12	9		Endar	
31.03.2004	KOVAR 2mg töflur Um munn 6 dag(ar)		3 mg	3 mg	2 mg		2 mg	3 mg	4 mg		05.04.2004	
01.04.2004	MAGNYL 150mg töflur Um munn 3 dag(ar)				150 mg	150 mg		150 mg			03.04.2004	
29.03.2004	MORFIN 10mg töflur Um munn 5 dag(ar)		20 mg		20 mg		20 mg				02.04.2004	

Improves the processes where 60% of Adverse Drug Events originate

Sjúklingaupplýsingar

Nafn: Prófunar Sjúklingur
Kennitala: 010101-aaa9
Þyngd: 81 kg (11:22)
BSA: <Ekkert BSA>
Ath: Þetta er ATH á nafn sjúklings
Fæðingard: <Ekkj þekktur>

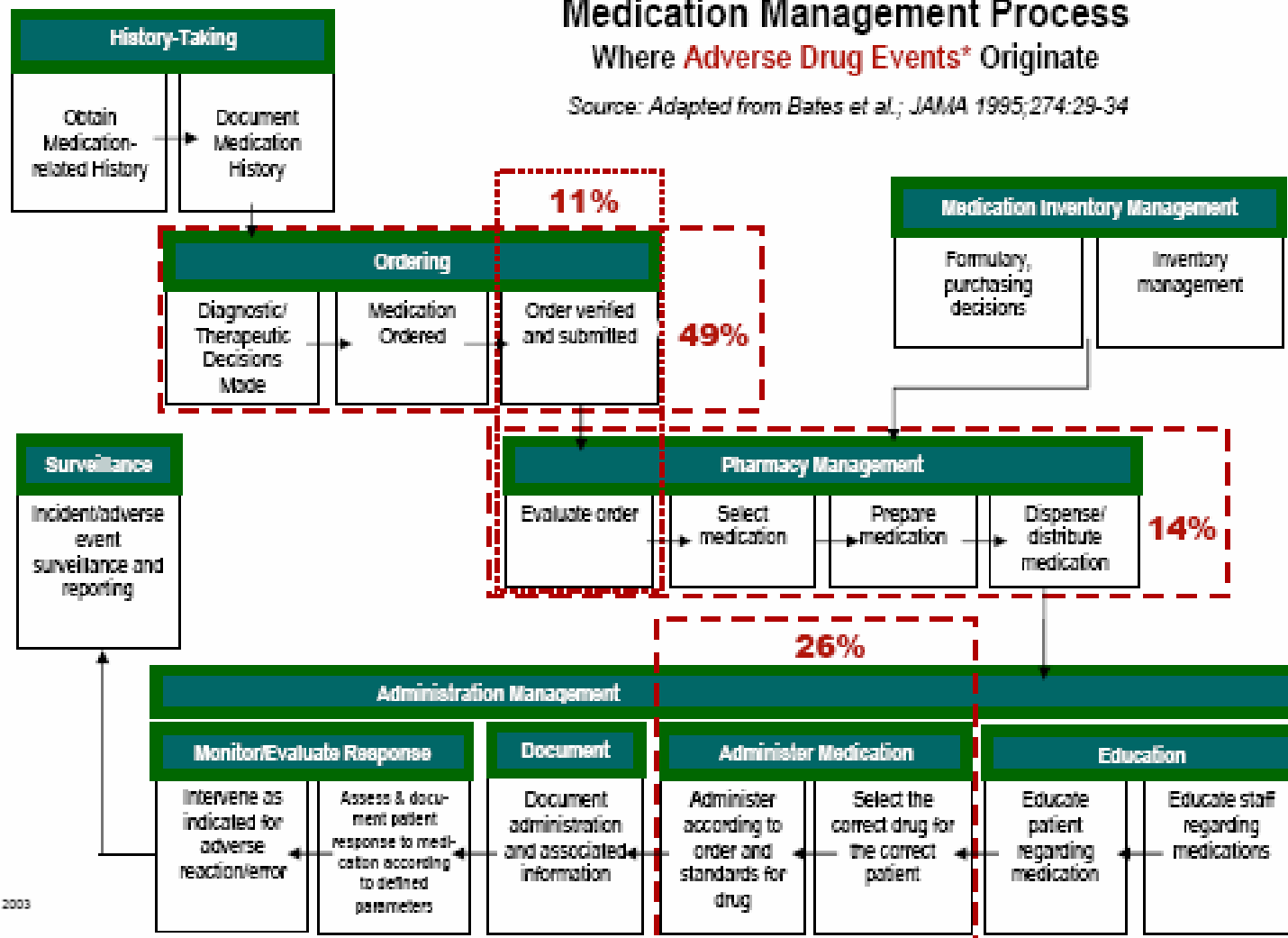
Lyf		Infusions		
Byrjar	Lyf	PN	31.03.2004 00:00 - 04.04.2004 23:59	Endar



Medication Management Process

Where **Adverse Drug Events*** Originate

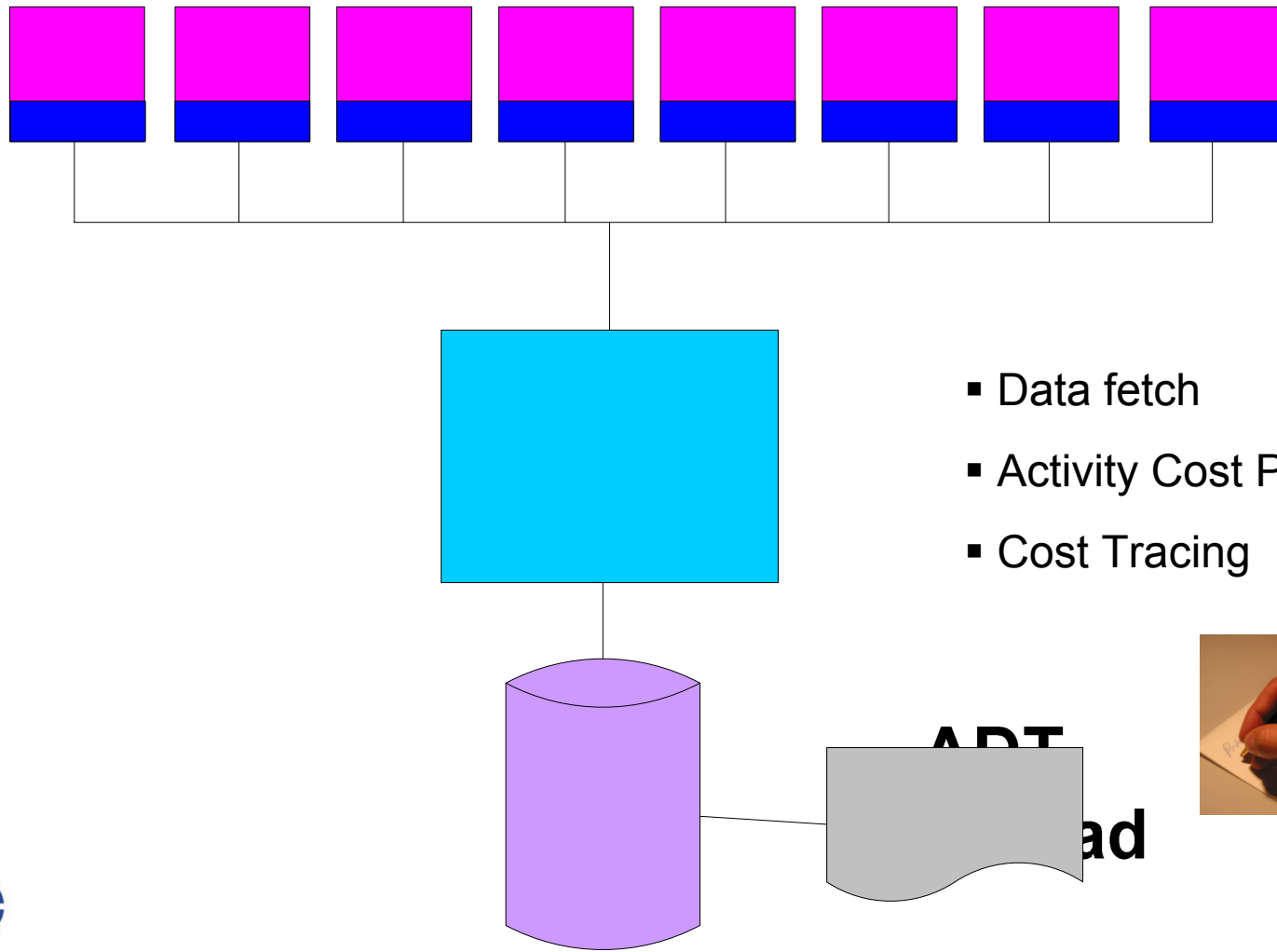
Source: Adapted from Bates et al.; JAMA 1995;274:29-34



*Dotted boxes represent the percentage of errors occurring at specific points in the medication management process.

Safety

Activity Based Case Costing



Saga 3.1 [hulda:Tölvudeild]

Saga

Sjúkraskrá

Afgreiðsla

Forsíða 3.1

Sjúkraskrá

Eyðublöð

Vinnulisti

Pappírssjúkras

Bíðlisti

Textasýn

Lyfjakort

Notes-sjúkraskrá

Röntgen

RoS (rannsb. c

Rannsókn Fos

BAS - próf

Ónæmisaðgerð

Mínar stillingar

Skýrslur

Forsíða 3.1 - Prófunarsjúklingur (123123-1239)

Aðvaranir

Dagsetning	Aðvörun
06.06.2002 22:40	e.þ

Lyfjakort

Dagsetning	Heiti lyfs	Styrkur	Notkun
------------	------------	---------	--------

Eftirlit

Dagur	Starfsmaður	Staða	Deild
06.11.2002	Ása María Guðjónsdóttir	Ritari	
30.10.2002	Anna Sæmundsdóttir	Læknaritari	
10.06.2002	Anna Sæmundsdóttir	Læknaritari	

Flexlab gögn

Dagsetn.	Tími	Beiðni	Hver pantar	Staða
10.06.2002	16:46	0000252883	0748 Kristbjörg Sveinsd.	
10.06.2002	15:21	0000252848	0748 Kristbjörg Sveinsd.	

Ris gögn

Dagsetn.	Staður	Tegund rannsóknar	Hver pantar	Starfsheiti	Svar sent
10.06.2002	Fossvogur	8 TS heili	Michael V. Clausen		10075182
24.09.1999	Hringbraut	Eldri gögn			09593144
08.04.1998	Hringbraut	Eldri gögn	Kolbrún S. Benediktsdóttir		09543698
31.10.1996	Hringbraut	Eldri gögn	Þóroddur Þorkelsson		09493214

Komur á dag- og göngudeildir

Dags	Göngudeild	Bókað á	Kerfi
10.06.2002	Dag- og göngudeild augndeilda	Haraldur	Dagbók
06.06.2002	Fv-G2 Sýsa- og bráðasvið		

Legur

Tímabil	Sérgrein	Ábyrgur	Sjúkdómsgreining
10.06.2002-12.06.2002	Almennar barna	Haraldur	G438 Other migraine
17.05.2000-17.05.2000	Bráðamóttökuse	3585 Þóroddur Þorkelsson	G439 Migraine unspecified
25.09.1999-27.09.1999	Barnalyflækninga	0274 Gunnlaugur Sigrússon	G438 Other r

Starfsmaður

Prufuumhverfi

Skýrslugerð

Umsjón

Warnings

Medication

Access

Lab results

Radiology results

Outpatient visits

Inpatient stays diagnosis

Quality - Safety

123123-1239, Prófunarsjúklingur, Séstvallagata 12, 101 REYKJAVÍK, hs: 425-6066, gsm: 8955666

start

MSN Messenger

Novell-delivered ...

Hulda Guðmunds...

Ymislegt

Microsoft PowerP...

Saga

12:47

Digital Imageing

- Digital radiology growing fast
- Less redundancy – less waste
- Less risk for the patient
- Opportunities to streamline services
- Compelling business case – savings in films, developments, service provision
- Quality of information



Laboratory services

Safnsvör sjúklings **Beiðni**

Beiðandi

Deild: **Taugalækningar** Gangur: **Taugalækningadeild B2** Staðfesta val

Læknir: **Albert Páll Sigurðsson 0:** Teymi:

Stofna beiðni -->

Landsþítali Háskólasjúkrahús

Blóðmeinafræði og klínísk lífefnafræði

NÝ

Deild: **Taugalækningadeild B2** Kt.: **170644ROS9** Smithætta ☐

Læknir: **Albert Páll Sigurðsson 0257** Nafn: **Nemi 1**

Sýnatökutími: **09.03.2005** **20:09** Umbeðinn svartími: ☒ Rútína ☐ Bráða

Blóðtaka óskast **Blóðmeinafræði** **Storkurannsóknir** **Blóðgös** **Klínísk lífefnafræði** **Hormón** **Prótein** **Æxlisvísar** **Lyf** **Þvagsöfnun**

Þvag **Mænuvöki** **Vökvar** **Saur**

S-TSH	S-Prógesterón	S-hCG	S-IGF-1	S-T4
S-frítt T4	S-Testósterón	P-ACTH	S-IGFBP-3	S-T3
S-frítt T3	S-frítt Testósterón	S-Kortisól	S-Insúlín	S-Týróglóbúlín
S-FSH	S-DHEAS	S-Aldósterón	S-Gastrín	
S-LH	S-17-OH-Prógesterón	S-Renín	P-PTH	
S-Östradíól	S-Prólaktín	S-Vaxtarhormón	S-25-OH Vitamín D	

Beint val á rannsóknnum:

Valdar rannsóknir:

Breyta

Rútína : **PROG TESTO KORT**

Bráða : **INR**

Leita að rannsókn

170644ROS9 Nemi 1

Quality - Safety - Efficiency

The management of chronic disease

- Est. 75% of total HC costs are related to chronic conditions
- Cannot be cured
 - Keep symptoms away
 - Large behavioural factors – Life style
- Objective: Keep chronic patients out of the Hospital
- Multiple conditions: Diabetes, Hypertension, Asthma, Arthritis....
=> A strain on GP level healthcare

Objective

- To bring the service closer to the patient
- Facilitate and ease communications between patient and provider
- Monitor conditions and prevent severe episodes
- Make the hospital a player in preventive services – extending the hospital boundary

Efficiency - Barriers To Access

Health Buddy® 2

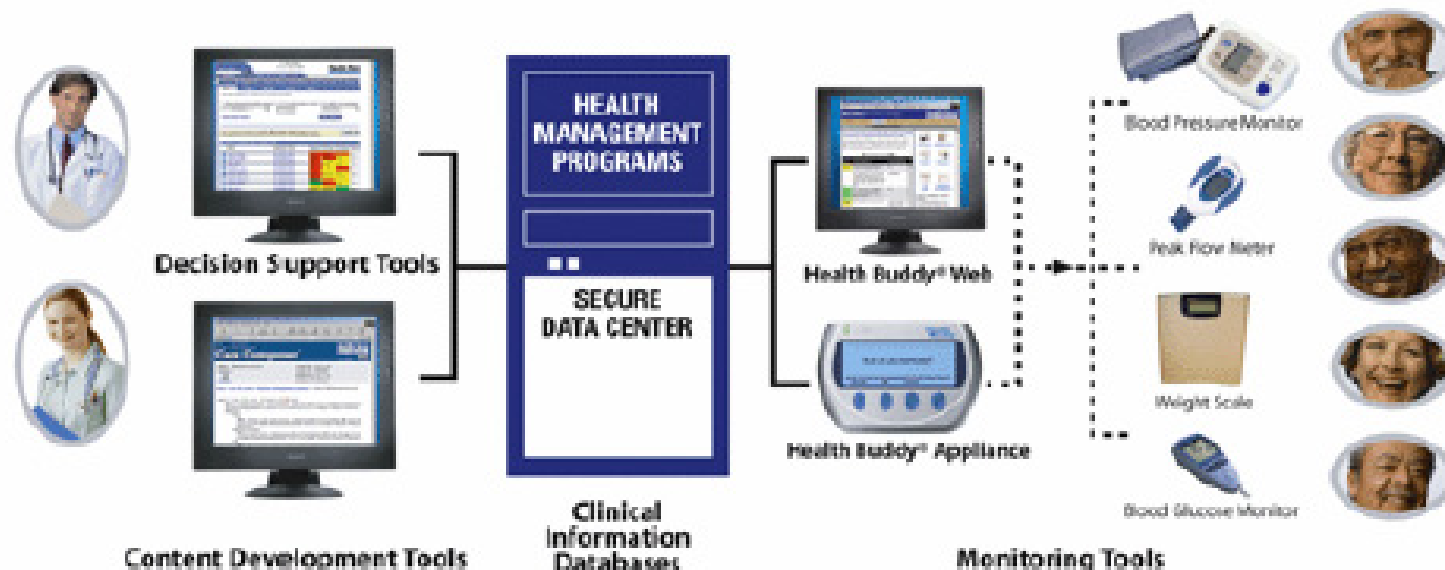
The Health Buddy® 2
Simple. Smart. Flexible.



- Easy-to-use, patient centric design
- Simple, intuitive four button operation
- Large, high resolution color screen
- Support for multiple languages
- Multiple medical device ports*
- Friendly tutorial preloaded on each appliance
- Uses remote configuration for patient customization
- Health Buddy System supports 45 health management programs including NCQA certified: Hypertension, Chronic Obstructive Pulmonary Disease, Diabetes and Heart Failure

Patients with chronic conditions

Daily communication between patient and case manager



Health Buddy® System*



Summary

- Patient Safety
- Quality of Care
- Efficiency
- Lower barriers to access



Thank you

For more information

E-mail baldur@lsh.is