Evidence-based Information Technology

Evidence-based Information Technology (EbIT) using evidence to save resources in health care management

Palermo:

09/10/-09/14/2003

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District Hospital Mainkofen

Psychiatry Forensic Medicine Neurology Rehabilitation

800 beds 42 wards 1.300 staff

Mainkofen -



Forensic Medicine

200 beds 15 wards 300 staff Straubing

District Hospital Mainkofen



EbM – a new context



Evidence-based Information Processing



Implementing Eb-Concepts



Evidence-based Information – User Help Desk (data driven IT)



Evidence-based Information – Example: problem categories

Top 11 Kategorien (Anteil in % von 938 Aufträgen)



Evidence-based Information – Example: problem causes



Interaction of subsystems

Structure of our HIS

Network

Groupware

Groupware - our Intranet

collaborative software

bar

The doctor's desktop

quick information finding and sharing

Structure of the clinical information system

Stationsleitstand micom Medil				
Station Anneldung Ansicht Hilfe				
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Info	Patientenliste	Anforderungen		
Test 9, Isolde Gesch, W Gesch, W Gebod, 05.05.1955 Fall-10, 00000000005013 Auswohl Stationsmaagement Patientenakte Pat	Ashee × Name 2 Test 1, Wolfer 1 Test 2, Etricole 1 Test 3, Etricole 1 Test 4, D 1 Test 5, Etricole 1 Test 5, Etricole 1 Test 6, F 1 Test 7, Got 7, Test 8, H 1 Test 9, H 1 Test 1, Wolfer 1	Anforderungen erstelle ID 773 Name Test 3 Geburtsdatum 05.05.1905 Adresse Bereiche Radiologie Kardiologie Endyschie Physiotherapie OP Laber Zurück	n Fall Vorname Geschlecht Krankenkasse	00000000050013 Isolde W

ward's view

- overviews
- requets
- EPR
- documentation

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	08:30					
	09:15					
ĺ.	10:00					
	10:45					
	11:30					
	12:15					

functional unit's view

- scheduling
- planning
- documentation
- results

Evidence-based clinical information system

Scheduling of patients time

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Stationsmanagement	Test 5, E Test 6, F	1				auf	20.00.	21.05.	22.03.	20.00.	24.00.	
Patienteninfo	Test 7, G	1				ADPUT 08:00						
Patientenauskunft	Test 9, H	1				- 09:00						
- Voraufenthalte	Testx 1, Walter	1				09:00	09:26 - 20:01					
Laborbefunde		📴 Info	für Isold	e Test 3			TION	-				
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+-Medizinische Dokument		Datum/Z	eit 09.0	04.2002 12:49	_							
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Ordering of resources

Request: resources - Laboratory

Labor-Anforderung					
Patient Arzt					
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Aktueller Patient	Anfordernder Arzt		Arzt-Präsenz		Aktuelles Datum
Test 3 Isolde	demo, demo		Persönlich		09.04.2002
Standard-Profile			Fachricht, / Konsil	Abnahme	-Datum Uhrzeit
Standardprofil		•	•	<< 09.04	.2002 >> << 13:00 >>
Standard-Laboranforderungen		1 1 1 1 2 2 2 1 2		< [
OBlutzucker			Priorität		
Chemie 1 Serum			<u></u>		•
Chemie 2 Serum			Größe des Patienter	n in cm 🛛 🖯	Gewicht des Patienten in kg
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Gerinnung Citrat			Gewählte Anforderu	ngen	
Liquor			Alk. Phosphatase		
Punktate			Calcium CK		
Stuhluntersuchung			Creatinin		
			Gamma GT		
			Kalium		
			Kleines Blutbild		
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			Natrium		
			PTT		
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Results: Laboratory

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Anze	ige-Profile S	e Ak	tueller Patient M, 31	Befundart T
Bezeichnung	Einheit	11.04.2002 07:58		
*** Anforderungsnummer ***		00166031		
Chemie 1 Serum				
Bilirubin ges. (Bili)	mg/dl	<u>∕</u> 0.48		
YGT (yGT)	U/I	11		
GOT (GOT)	U/I	<u> </u>		
GPT (GPT)	U/I	<mark>∕\$</mark> 8		
Alk.Ph. (AP)	U/I	☆110		
LDH (LDH)	U/I	133		
CK (CK)	U/I	<u></u> 29		
Lipase (Lip)	U/I	<u>余</u> 93		
Crea (Crea)	mg/dl	0.83		
Natrium (Na)	mmol/I	144		
Kalium (K)	mmol/l	4.44		
Glucose (Gluc)	mg/dl	81		
CRP-Quanti (CRP/q)	mg/l	2.2		
Chemie 2 Serum				
TSH (TSH)	uU/ml	1.1		
Hämatologie EDTA				
Leukozyten (LEU)	10^3/u	6.2		
Erythrozyten (ERY)	10^6/u	5.51		
Hämoglobin (HGB)	g/dl	17.2		
Hämatokrit (HKT)	%	49.3		
MCV (MCV)	fl	89.5		
MCH (MCH)	pg	31.2		
MCHC (MCHC)	g/dl	34.8		
Vtb.d.Erys (EVB)	%	12.4		
Thrombozyten (THR)	10^3/u	217		
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Documentation of the medication

Request of therapy

Anforderungen - demo, demo			
Patient Arzt Textbausteine			
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Anforderung	Patienten-Status	feststehende Termine	Terminwunsch
Anforderungs-Spezifikation			09.04.2002
Kurzinfo Arbeitserprobung 1:			
Arbeiten mit Holz, Metall, Glas, und Speckstein Der Patient sollte eine gewisse Stabilität erreicht bahen	, Gruppenzuteilung	×	Uhrzeit
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Name Test 3	Vorname Isolde		
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Adresse	Krankenkasse		
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ordering of meals

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paper based form 1.600*365 = 584.000 cards $0,016 \in *584.000$ cards = $9.344 \in +$ printing costs

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annual savings of 10.000 €

Nursing – planning

Pflegeplan für Test 3 Isolde (Station ps	iy Zi. 1	Fachr. BE), 09.04.20	002 12:59	Angem	eldet: der	no (demo	, demo)									
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Septischer Verbandswechsel	 07:45 bis 15:45 																	
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Nursing activities

Pflege: Gruppenansich	t (1 Isolde Test 3)
Pflegeanamnese Pflegepla	nung Probleme Ressourcen Ziele Maßnahmen Bericht Stat. Int. Standards Klinikstandards Wichtige_Info
atmen	
ausscheiden	22.03.2002 22:46:49 (Federholzner, Bettina/)
essen trinken	Maßnahmen, Prophylaxen: Obstpationsprophylaxe (Nicht durchgeführt 22.03.2002 00:00) Patient/in, lehnt die Durchführung ab.
schlafen	21.03.2002 14:23:45 (Tkatsch, Nikolaus/)
sich bewegen	Maßnahmen, Verbände: Septischer Verbandswechsel !Std(Septischer Verbandswechsel) alle 4:00 Stunden; Dauer: bis zum
waschen kleiden	Absetzen der Maßnahme (21.03.2002: abgesetzt)
kommunizieren	19.03.2002 14:33:37 (Manier, Christa/)
regulieren Körpertemperatur	Maßnahmen, spezielle: Lumbalpunktion !Std(Lumbalpunktion) nach Standard; Dauer: bis zum Absetzen der Maßnahme
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Untergruppen	Prozeß Filter aus Gruppen aktuelle Ab 10.03.2002

Documentation today

Where is the time?

access time to clinical paper based information

Bott: p35

Where is the money?

According to Microsoft research, approximately 70 percent of health care transactions today are paper-based, resulting in administrative costs of up to 20 cents of each dollar spent.

Where is the money? Health Care (1 % IT Budget)

Industry (Banking) (up to 8 % IT Budget)

Paper based forms vs. dig. forms

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15 min. to fill in

2 min. to fill in

cost reduction with digital forms

- 7.500 admissions/year (example digital BADO-form)
- time reduction from 15 min. to 2 min. => 13 min.
- saved time 97.500 min => 203 days
- savings of 25.000 €year

digital forms save money

Future trends of health care in Germany

Problems:

- 2003/2004 start with the DRG-System
- 2006 start with the DRG-System in psychiatry
- 2005 legally demanded quality control
- increasing admission rate
- increasing demand of information
- decreasing time spent in hospitals (21 days in psychiatry)
- decreasing number of staff
- 25 % fewer hospitals

Future trends of health care in Germany

Solutions:

- health care process reengineering saves time
- internetworking in health care (hospitals, doctors)
- Evidence-based Information Technology (EbIT) saves money

Savings of 5 - 8 % of the annual health care costs in Germany with e-health-solutions:

11.5 – 18.4 billions ∉year

Estimation of IBM Business Consulting Services Krankenhaus-IT-Journal 4/2003, page 64