

A Doctor's View on IT Systems in Medicine

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14.09.2013

Tartu



IDA-TALLINNA KESKHAIGLA

About me

- I was not born with an iPad in hand
- Graduated from medical school in 1991
- Gastroenterologist since 1998
- My current position is the head of the Diagnostic Clinic of East Tallinn Central Hospital
- I can practise gastroenterology in the outpatient clinic

About me

- My first office PC 1994
- My first home PC 1997



My laptop from 2005



About me

- My first mobile 1998



Doctors' accessories today

- PC or Laptop
- Smartphone
- Tablet

and

- Google
- Gmail
- Medscape

Computers in our hospital

- 371 doctors and 938 nurses
- Good access to computers
- That means more than a thousand computers

Doctors and IT

- Doctors' officework today is computerised
- Is it helpful?
- Do I like it?
- How does it affect the doctor-patient relationship?

What does a doctor need in web?

- Product information for drugs
- Information about diseases
- Scientific articles
- Guidelines

What does a doctor need to know about a patient?

- Patients' personal data
- Epicrises
- Test results (x-rays)
- Analyses
- Referral letters
- Outcomes of consultation
- Prescriptions to patients and whether they have been purchased or not

Electronical Medical Record (EMR)

- A doctor's gateway to IT medicine

EMR

For on-site use

- Patient list, database
- Making appointments
- Case data
- Invoicing

EMR

Data export

- Case summaries
- Images
- Prescriptions
- Referral letters
- Certificates for sick leave
- Notifications to the infectious diseases registry and tumour registry

Hospital Infosystem – do i like it?

- No perfect system available (in Estonia)
- Why?

Weaknesses of Hospital Infosystem

- It should support our work processes and it should be applicable or customisable to suit with the working environment
- Its sellers recommend we rearrange our work to suit with the system's logic
- User-comfort is not an aim
- Details are unpolished
- Incompatibility of software and hardware

5 steps to printout

- It seems the author of the system did not think printing is necessary
- The patient often needs the results on paper
- The author has offered a solution...
- ...well, let's see

UJLUS - gastroskoopia koos biopsiaga

KASUTATUD RAVIMID

Xylocain spray 10%

BIOPSIA

Duodenum 2 tm, antum 2 tk, korpus 1 tk.

KIRJELDUS

Söögitoru põletikuta. Magu tavaline, limaskest roosa. Bulbus ja alanev duodenum on normis, hatuline joonis jälj

DIAGNOOS

Haigusliku leiuta

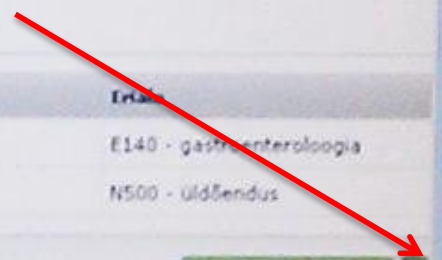
MEESKOND

Koosseis	Nimi	Erala
✓ Arst	Karus, Toomas - D01342	E140 - gastroenteroloogia
Õde	RAGNI, MARTA - N09781	N500 - üldšendus

Salvesta tüüpvastusena

Näita versioone

Trüki saatekirjaga



Tellimus 13-250117

Staatust: Registreeritud
Teenusegrupp: Ösofagogastroduodenoskoopia
Uuring: EEITK050920130BQ vajalik vastus
Registreeritud: 05.09.2013 10:42

Tellimuse lisainfo

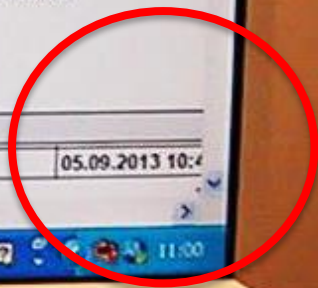
Küsimus
Gastroskoopiaks.

Triikikuva

IDA-TALLINNA KESKHAIGLA
Reg nr: 10822068
Tegevusload:
Address: Ravi tn 18, 10138 Tallinn
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E-post: info@itk.ee
Ees- ja perekonnanimi:
Isikukood:
Suunaja/tellija
AS Ida-Tallinna Keskhaigla
Kariis, Toomas
E140 - gastroenteroloogia
250212 - ambulatoorne gastroenteroloogia (Ravi)
Telefon: 6207902
Teostatud teenused:
GA1003 - Ösofagogastroduodenoskoopia
Artikkel: 7551

Saatekirja vastus nr. 13-250117-1
Haigusjuht nr: 20130904-333278/662682

Teostaja: 250234 - Endoskoopia (Ravi)



Ees- ja perekonnanimi: JAKKINIK KILGI

Isikukood: [redacted] **vanus: 22a**

Suunaja/tellija: AS Ida-Tallinna Keskhaigla
Kariis, Toomas
E140 - gastroenteroloogia
250212 - ambulatoorne gastroenteroloogia (Ravi)
Telefon: 6207902

Teostaja: 250234 - Endoskoopia (Ravi)

Teostatud teenused:

GA1003 - Ösofagogastroduodenoskoopia		05.09.2013 10:42
Artikkel:	7551	Ösofagogastroduodenoskoopia 1
	7552	Histoloogilise koematerjali võtmine endoskoopial (kuni 5 tükki) 1
NCSP:	UJD05	Gastroskoopia koos biopsiaga

Vastus:
Söögitoru põletikuta. Magu tavaline, limaskest roosa. Bulbus ja alanev duodenum on normis, hatuline joonis jälgitav.

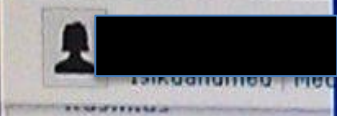
Diagnoos:
Haigusliku leiuta

Printi Tagasi

(SYS.08.4)

Some plugins used by this page

eHealth



Gastroskoopiaks.

Update Plugins...

UNT, JAANIKA Paus II Logi välja X

Haigusjuht: 20130904-333278 Kõlastus: 662682 X

Teostaja: 250234 - Endoskoopia (Ravi)

05.09.2013 10:4

koopia
i võtmine endoskoopial (kuni 5 tükki)

siaga

ulbus ja alanev duodenum on normis, hatuline j

Print

Printer: HP LaserJet 1020 Properties

Status: Ready

Type: HP LaserJet 1020

Comments and Forms: Document and Markups

Print Range

All
 Current view
 Current page
Pages: 1
Subset: All pages in range
 Reverse pages

Page Handling

Copies: 1 Collate

Page Scaling: Fit to Printable Area

Auto-Rotate and Center
 Choose paper source by PDF page size
 Use custom paper size when needed

Print to file

Preview: Composite

Units: Inches Zoom: 96%

1/1

8,27

11,69

Printing Tips Page Setup... Advanced

OK **Cancel**



Problems of Hospital Infosystem

- There are often few or no medics at all in the development team of HIS
- Upgrades are expensive and time consuming
- The hourly wage of a programmer is 4-5x higher than a doctor's
- There are even less good programmers than good doctors!

Future improvements for Hospital Infosystem

- Quick and rational
- Easy to use
- Automatical forwarding of Information to registries (no more re-entering of the same data)
- Electronic decision support (monitoring clinical work to avoid mistakes)
- Electronical process management and analysis

Examples of IT solutions I often use

- Picture archiving system (PACS)
- E-prescription
- eHealth database

PACS

- One of the first types of database between hospitals
- Today, the largest PACS – „Picturebank“, contains most of the imaging tests done in Estonia in many different hospitals
- Hospitals have allowed moving images between different PACS

eHealth today

- Foundation that strives to improve data linking between healthcare establishments
- An archive of patients' medical data
- Includes
 - Personal data of patients in case of emergencies
 - Case summaries
 - Results of radiographic imaging


eHealth tomorrow

- Results from lab tests and histology
- Results and images from diagnostical tests from all the different PACS
- Patient portal

Database of pharmaceuticals

www.raviminfo.ee



Ravimite Koostoimete Andmebaas  **Usaldusväärne info ravimite koostoimetest**

Menüü

Nimetuse otsing

Detailne otsing

Selgitused

Nimetus: tooteinfo ravimite andmebaasist. Kui nimetuse lõpus on tähis (RT), siis on tegemist raviarsti taotluse alusel väljastatava ravimiga.

ATC: sama toimeainega ravimite otsing valitud apteegist või regioonist.

Orig.arv: valik võimaldab arvutada ravi maksumuse patsiendi jaoks.


Piirhind: Sotsiaalministri määrusega kehtestatud piirhind, mis rakendus alates 01/01/2003

Sood.h.: ravimi maksumus patsiendile antud soodustuse korral. Hiireklõps soodushinnal teavitab retsepti väljakirjutamise tingimustest. Kui väli on tühi, siis ravim ei kuulu soodusravimite nimekirja.

Tere tulemast!

Raviminfo.ee eesmärgiks on olla abiliseks patsientidele ja töövahendiks arstidele. Sellel leheküljel saab tutvuda ravimite hindadega apteekides üle terve Eesti, leida hinnalt ja omadustelt sobivaimat ravimit ning tutvuda väljakirjutamise tingimustega. Lisaks leiab veel muudki huvitavat, mis on seotud ravimitega.

Kokku leiti 554 nimetust, näitame: 1 - 50

 **AASA APTEEK (10/09/2013)**

AptCode	Nimetus	ATC	Orig. arv	Hind	Piir-hind	Sood.h. (50%)	Sood.h. (75%)	Sood.h. (90%)	Sood.h. (100%)
MM0073397	DOLOPROCT REKTAALKREEM 1MG+20MG/G 15G	C05AA84	1	6.33	6.33	4.76			
MM0073476	DOLOPROCT SUPP 1MG+40MG N10	C05AA84	1	6.33	6.33	4.76			

ABJA APTEEK (10/09/2013)

AptCode	Nimetus	ATC	Orig. arv	Hind	Piir-hind	Sood.h. (50%)	Sood.h. (75%)	Sood.h. (90%)	Sood.h. (100%)
MM0073397	DOLOPROCT REKTAALKREEM 1MG+20MG/G 15G	C05AA84	1	6.32	6.33	4.76			
MM0073476	DOLOPROCT SUPP 1MG+40MG N10	C05AA84	1	6.33	6.33	4.76			

AIA APTEEGI HARUAPTEEK (10/09/2013)

AptCode	Nimetus	ATC	Orig. arv	Hind	Piir-hind	Sood.h. (50%)	Sood.h. (75%)	Sood.h. (90%)	Sood.h. (100%)
MM0073397	DOLOPROCT REKTAALKREEM 1MG+20MG/G 15G	C05AA84	1	6.30	6.33	4.75			
MM0073476	DOLOPROCT SUPP 1MG+40MG N10	C05AA84	1	6.30	6.33	4.75			

www.raviminfo.ee/piirhinnad

piirhinnaveeb

 **Raviminfo telefonis**

DIGIRETSEPT

Apotheka



E-prescription

- Is not simply a form filled in a computer but an IT solution linking the doctor with the pharmacy
- The system takes into account
 - the database of pharmaceuticals
 - discounts for patients
 - the doctor's prescribing rights

Pros of an e-prescription 1

- The system verifies if the patient is entitled to a price reduction due to their diagnosis, age and their doctor's subject field
- Minimises the damage to a patient or a doctor due to the doctor's mistake
- Reduces the doctor's errors and inaccuracies
- Sloppy handwriting – no longer a problem
- Makes renewing a prescription much easier

Pros of an e-prescription 2

- A thorough summary of a patient's medicine consumption:
 - A list of prescribed pharmaceuticals
 - Information regarding realising a prescription
 - Previous use of pharmaceuticals

Pros of an e-prescription 3

- The patients no longer need to visit their doctor to renew prescription
- Having provided identification, the patient can purchase their medicine in a pharmacy of their choice
- No risk of losing the prescription or leaving it at home

Changes in the doctor-patient relationship

- With the e-prescription available, patients often wish to acquire one via phone call or e-mail to the doctor
- First-hand communication with patients is reduced, but time is saved
- Routine is bound to increase in treatment methods, whereas follow-up monitoring of the efficiency of the treatment will decrease
- Supervision in medicine consumption is improved

Conflicts in IT medicine

- Time
 - Operating with increasing amount of technology takes ever more time.
 - This time is taken at the expense of the patient
- Data security
 - More data, please!
 - More privacy, please!

An example of how the computer has forced its way between a doctor and his patient



Cons of a huge database

- Access to large amounts of data brings forth a risk of a data leak
 - Technical risk
 - Human factor

Means of data security

- Individual responsibility
- Legal regulations
- Authentication with an ID card



What is actually done to minimise risks?

- If possible, medical workers turn to a different, preferably smaller medical establishment
- Documentation is deliberately fragmentary

Healthcare and IT costs

- The costs of building and maintaining a system are, for the most part, a responsibility of the healthcare provider
- The increasing percentage of IT costs in the final cost of a service
- Keeping up with the level of modern technology is expensive
 - Fast Internet connections
 - PC-s, servers
 - Software licences
 - IT upgrades

In conclusion

- There is no doubt that IT solutions are needed in contemporary medicine
- Computers are here to stay
- The quick need of background information and data linking
- Our „technological environment“ is only getting better

In conclusion

- Patient's only problem is his own health but doctors have a lot of patients and problems
- Patients need attention
- Patients should stay in the central position of the doctor-patient relationship
- At the end of the day IT solutions are still just tools

Me and IT solutions in healthcare

- Does IT help much?
 - Sure, but there is room for improvement
- Do I like it?
 - No, but I have got used to it
- How does it affect the doctor-patient relationship?
 - New ways to work with patients
 - Decrease in first-hand communication

So, how are you feeling?

