QC net in hospitals POCT

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University Medical Centre Ljubljana

2 179	Patient beds
101 631	In-patient admissions
761 824	Out-patient visits
5,59 days	Average length of stay
7 713	Employees
1 197	Physicians and dentists
3 693	Nurses, midwives
5,113.527	Number of lab. test (Institute for Clinical Chemistry and Biochemistry)

Legislation, Standards, Guideline, Regulatory requirements

- ## By-law
  - Pravilnik o pogojih, ki jih morajo izpolnjevati laboratoriji za izvajanje preiskav na področju laboratorijske medicine (Ur.list RS 64/2004)

- ## Standards, Guidelines

  - **ISO 15189**   Medical laboratories — Requirements for quality and competence
  - **ISO 22870: 2006**   Point-of-care testing - Requirements for quality and competence
  - **CLSI**   POCT Guidelines   (> 12)

2005 - 2006

■ Institute for Clinical Chemistry and Biochemistry organized seminar for nurses, midwives and technitian in UMC Ljubljana

❑ **Guidelines - How to perform Point-of Care Testing**

■ Institute for Clinical Chemistry and Biochemistry & Nurses and Midwives Association of Slovenia

❑ **Seminar with hands on workshop: Guidelines – How to perform Point-of Care Testing**

Project at the tertiary level UMC Ljubljana

- **Creating qaulity improvement opportunities for point-of-care testing in UMC Ljubljana**
- **Implementation and management of a safe and effective POCT service within the hospital environment.**

  - Number of POCT devices
  - Interdisciplinary committee for POCT in UMCL
  - Organizing sheme of POCT responsibility
  - Quality assurance audit at all sites
  - External Quality Assessment Sheme in UMCL
  - Connecivity to LIS

Governance of UMC Ljubljana

- ■ Interdisciplinary committee for POCT in UMCL

  - ❑ Central role of Institute of Clinical Chemistry and Biochemistry
  - ❑ Institue of Clinical Chemistry and Biochemistry is responsible for the quality assurance programme.
  - ❑ A quality assurance audit was set up to audit all sites that perform POC testing.
  - ❑ The committee is responsible for the selection and procurement of the most POCT equipment
  - ❑ The group is responsible for implementation, monitoring of process-related protocols
  - ❑ Internal quality control and participation in external quality assessment scheme
  - ❑ POCT co-ordinator responsibility
  - ❑ determining budgetary responsibility for individual POCT services

Situation in UMC Ljubljana

- **LIST of POCT devices**

    - Glucose meters   139
    - Blood gas analysers   25
    - Hemoglobin meters   16
    - Coagulation meter   10
    - Troponin   10
    - Urinalysis (including analysers)
    - ???
    - ??
    - ?

- **GLUCOSE METERS**

    - ABBOTT
    - HEMOCUE
    - ROCHE
    - BAYER
    - J & J
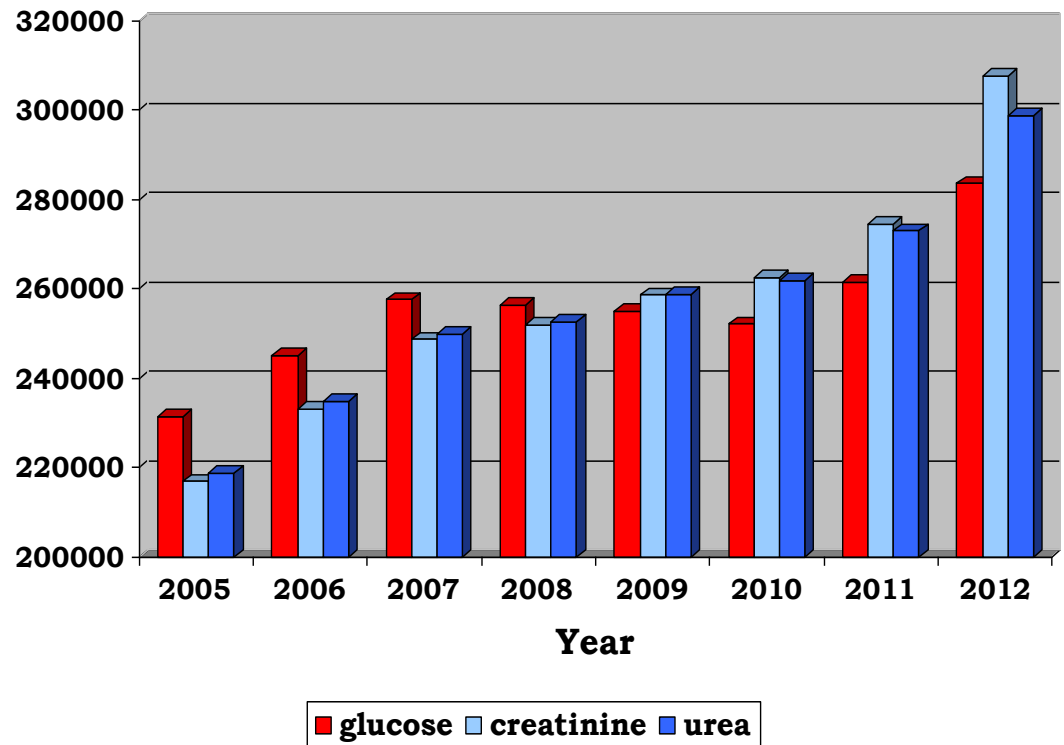   - ???

- **GAS ANALISYS**

    - ABBOTT
    - RADIOMETER
    - ROCHE
    - ??

Number of tests (glucose, urea and creatinine) in Institute of Clinical Chemistry and Biochemistry
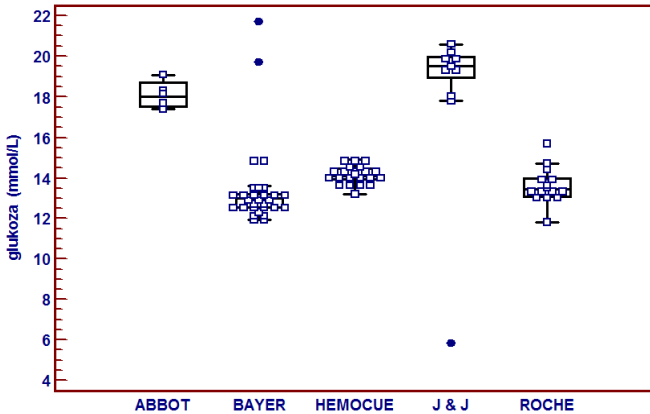
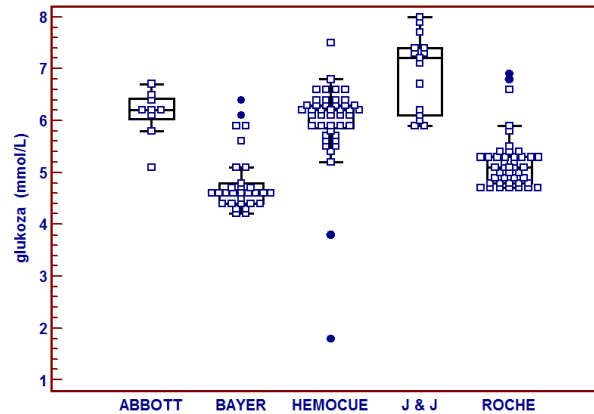# Glucose reagent slide

2010   379 300 €
2011   390 235 €
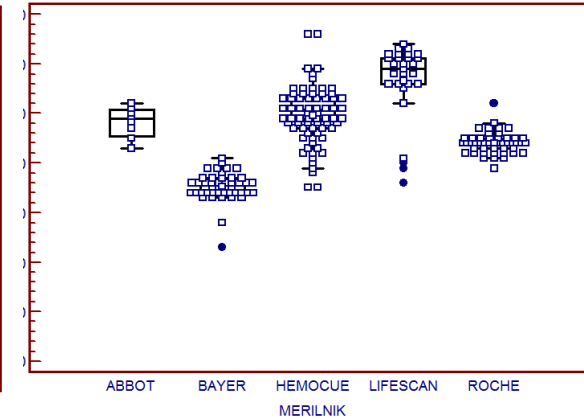
External Quality Control Results

Kontrolni vzorec 2010 / 1

Št. rezultatov	mediana	X	SD
4	18,0	18,13	0,75
21	14,1	14,17	0,45
15	13,4	13,6	0,893
28	13,4	13,48	2,17
9	19,05	18,04	4,6
77	15,59		

Kontrolni vzorec 2011 / 1

Št. rezultatov	mediana	X	SD
9	6,20	6,13	0,46
44	6,20	5,97	0,84
42	5,10	5,20	0,53
30	4,60	4,79	0,58
14	7,20	6,92	0,77
139	5,55		

Kontrolni vzorec 2012 /1

Št. rezultatov	mediana	X	SD
7	5,9	5,8	0,328
70	5,9	5,95	0,594
47	5,10	5,20	0,53
44	4,55	4,52	0,3
29	6,9	6,65	0,76
199	5,55		

Kontrolni vzorec 2013/1

Number of Participants

Standard deviation
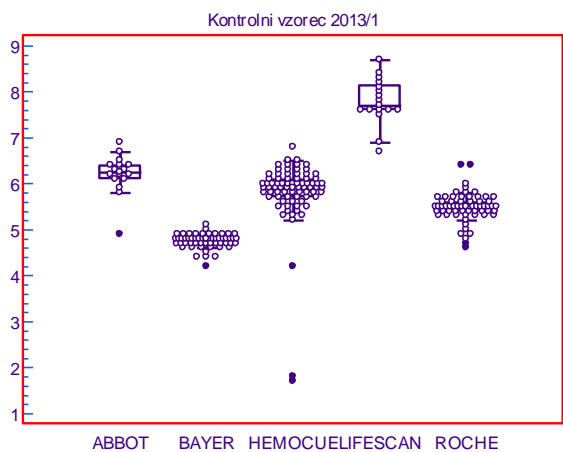
N	mediana	CV	SD
15	6.29	4.47	0.281
75	5.29	5.32	0.315
58	5.49	3.93	0.216
50	4.77	2.22	0.106
16	7.78	6.66	0.518
223			

ABBOT BAYER HEMOCUE LIFESCAN ROCHE
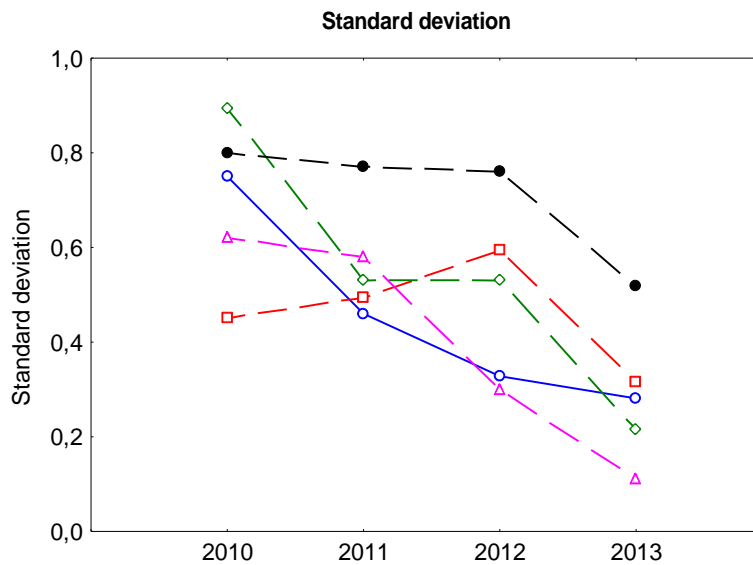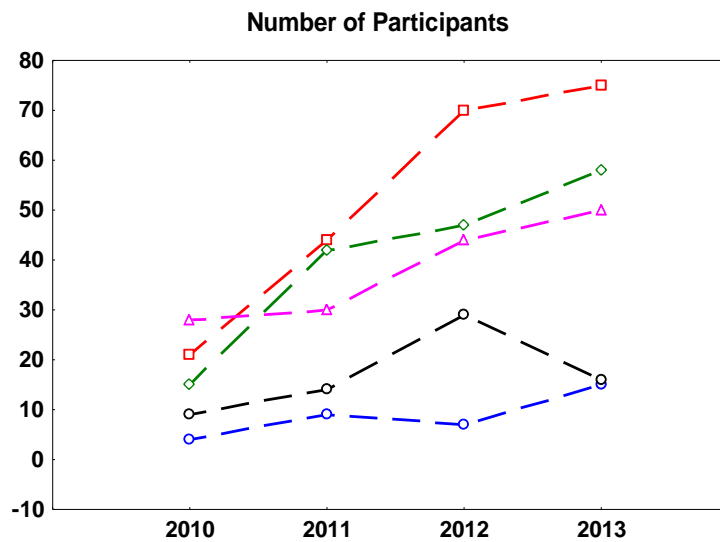
Barcode identification label for POCT

- For users

- For patient ID

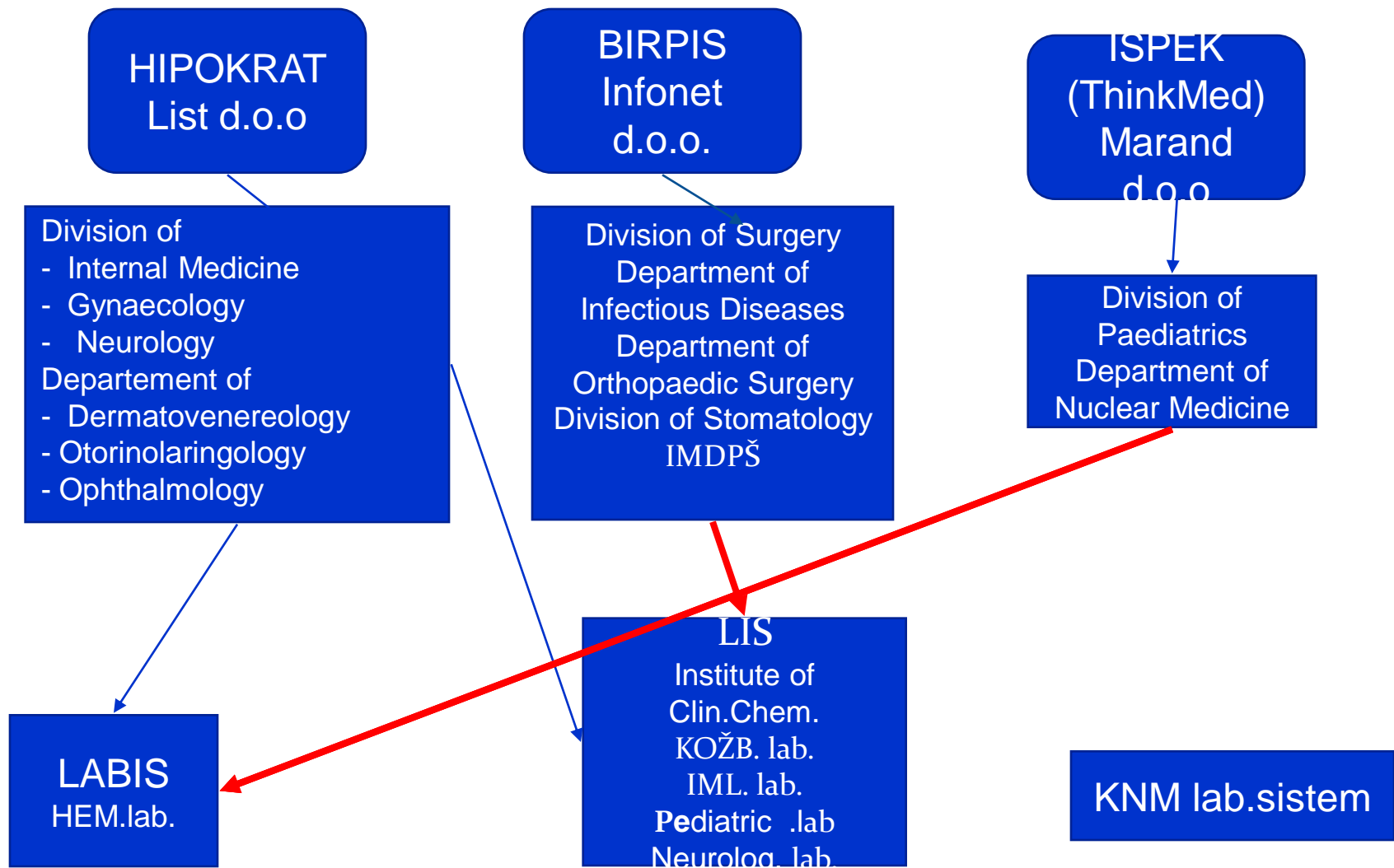
12345678

Name: John Smith

ID Number: * 1 2 3 4 5 6 7 8 9 0 *

Bar code printer, Bar code reader….

- Barcode printers   91   (150)
- Barcode readers

Hospital Information Systems in UMC Ljubljana

HIPOKRAT List d.o.o

BIRPIS Infonet d.o.o.

ISPEK (ThinkMed) Marand d.o.o

Division of
- Internal Medicine
- Gynaecology
- Neurology

Departement of
- Dermatovenereology
- Otorinolaringology
- Ophthalmology

Division of Surgery
Department of
Infectious Diseases
Department of
Orthopaedic Surgery
Division of Stomatology
IMDPŠ

Division of
Paediatrics
Department of
Nuclear Medicine

LIS
Institute of
Clin.Chem.
KOŽB. lab.
IML. lab.
Pediatric .lab
Neurolog. lab.

LABIS
HEM.lab.

KNM lab.sistem

Connectivity System Components
Point Point – of Care Connectivity (POCT 01-A2)
(CLSI Clinical and Laboratory Standards Institute)
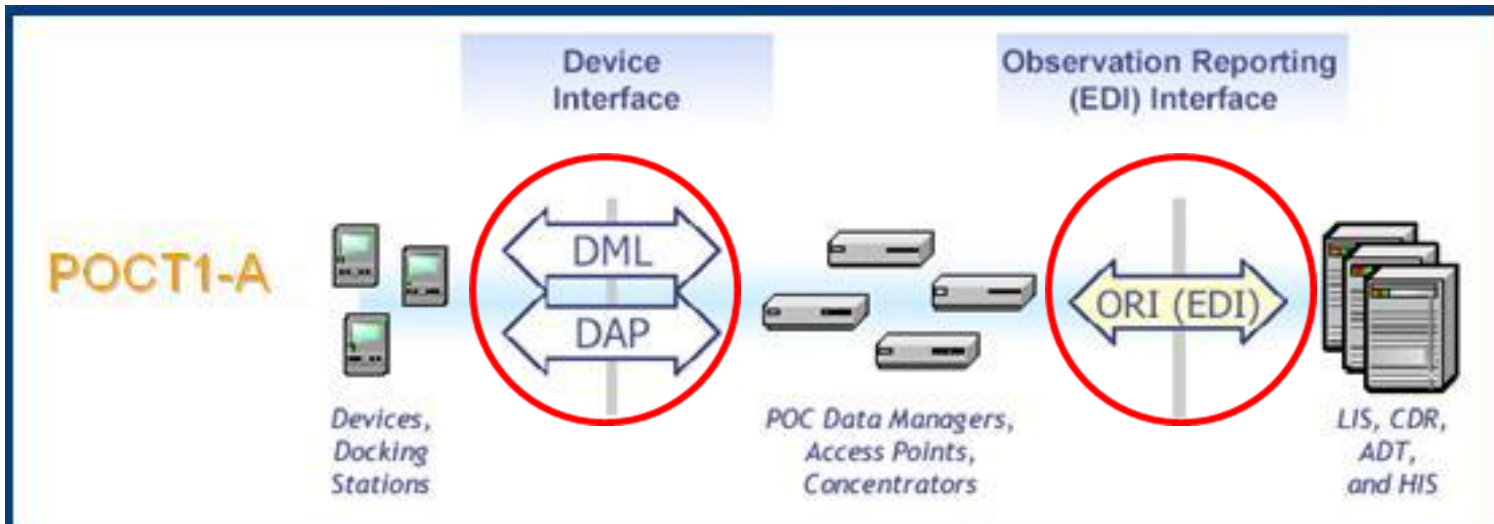
Connection Systems in UMC Ljubljana

- i-STAT System   *(Abbott)*
- IT 1000   (Roche)
- Direct Connection to LIS

- **Blood gases**

- <u>i-STAT System</u> *(Abbott)*
    - Division of Neurology
        - Neurological Emergency Unit
        - Department of Vascular Neurology and Intensive Therapy
    - Division of Surgery
        - Department of Anaesthetics and Surgical Intensive Care
    - Division of Paediatrics
        - Unit of Pulmonary Diseases

- <u>Radiometer</u> *(direct connection to LIS)*
    - Division of Surgery
        - Department of Paediatrics Surgery and Intensive Care
        - Department of Anaesthetics and Surgical Intensive Care
    - Department of Infectious Diseases and Febrile Illnesses

Glucose

- ## Accu-Chek Inform II System *(IT-1000 Roche)*
    - Division of Internal Medicine, Department of Intensive I Medicine
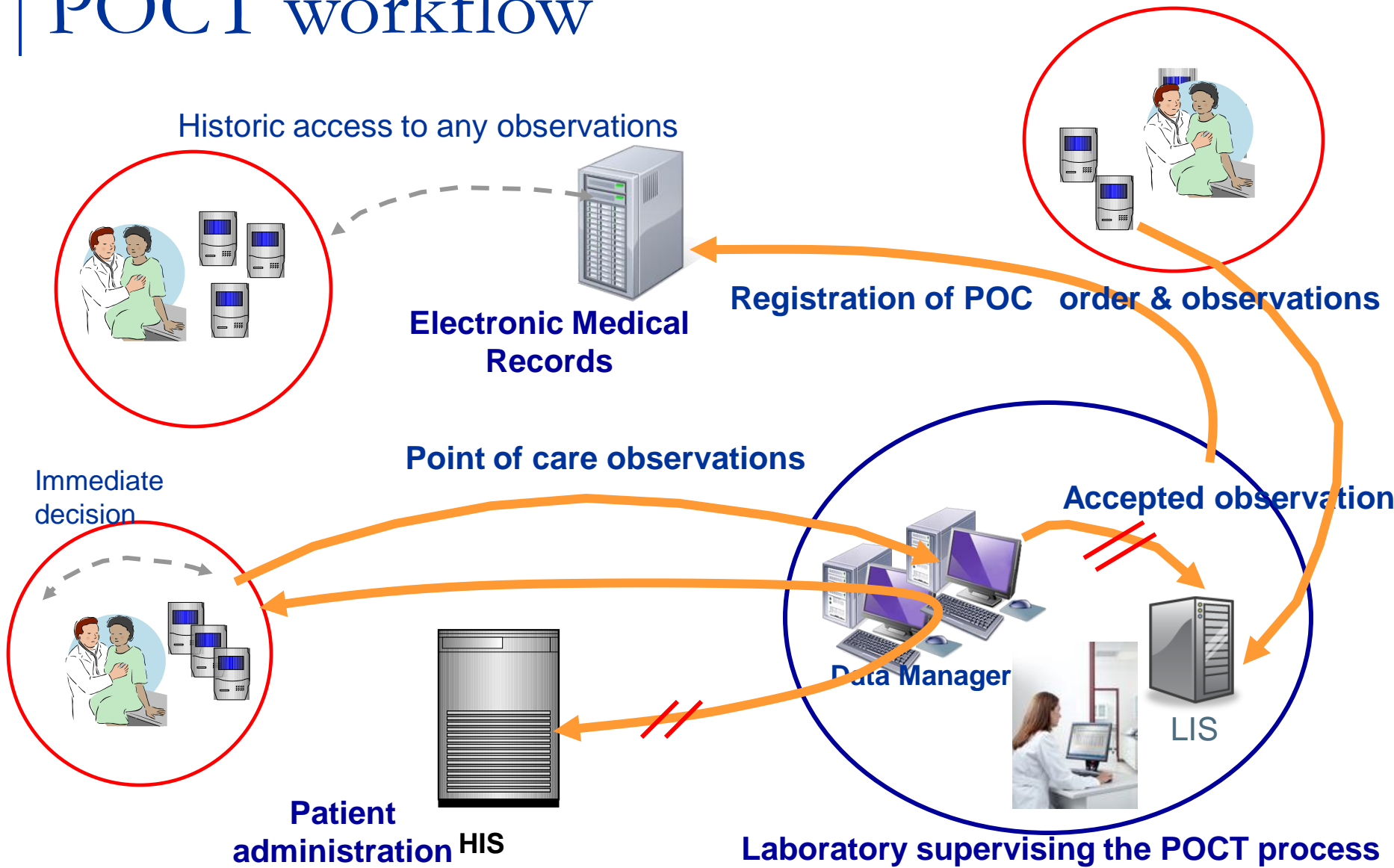   - Department of Infectious Diseases and Febrile Illne

Coagulometer

- ## i-STAT System *(Abbott)*
    - Division of Neurology
        - Neurological Emergency Unit
        - Department of Vascular Neurology and Intensive Therapy
    - Division of Surgery
        - Department of Anaesthetics and Surgical Intensive Care
    - Division of Paediatrics
        - Unit of Pulmonary Diseases

POCT workflow

Historic access to any observations

Immediate decision

Point of care observations

Registration of POC   order & observations

Electronic Medical Records

Accepted observation

Data Manager

LIS

Patient administration HIS

Laboratory supervising the POCT process

Quality control results

Dubrovnik, oktober 2013

Quality control results

Details

Site Name:	Klinični center Ljubljana	
Date - Time:	14.9.2013 09:46:01	**Location:** Nevro urgenca	**Result Type:** Control Result

Lot Number: 12310
Operator ID: 6
Department: Unassigned
Order Number:
Interface Comment:
Comment:

Original Operator ID: 6
Serial Number: 327906
Panel: CG8+
Sent: No

Test Results:

pH (37C)	6.561
PCO2 (37C)	12.02 kPa
PO2 (37C)	15.8 kPa
HCO3	8.1 mmol/L
BE	<-30 mmol/L
sO2	84 %
Glu	1.5 mmol/L
Na	100 mmol/L
K	2.1 mmol/L
TCO2	11 mmol/L
iCa	2.25 mmol/L
Hct	<10 %PCV
Hb	<> g/L

Extra Data: Less

Cartridge Lot	419W131110238
Control Lot	12310
Level	0
Panel Code	05
Battery Voltage	7,70V
Preferences Name	13705EFK
Software	JAMS135C-A26
Uses	7174
Star-out Code	00
Fluid Code	80
i-STAT ID	13
Instrument Temp.	25,2C
Pressure	738,4 mmHg
Preferences Revision	10
Test	2
Inst. Qualified Operator	YES
Instrument QC Due	NO
Inst. Qualified Reagent	YES

Print   Close

i-STAT® Level 1 Control
LOT 101032
Exp.: 2013-08

Barcode von Ampulle einscannen

CLEW: A25

CG8+, EG7+, EG6+, G3+,Crea & CG4+		LOT	K ,L, N, U, W or Y
		x̄ (Mean)	Zielbereich gemäß RiliBÄK 2008
Na	mmol/L ,mEq/L	121	117 - 125
K	mmol/L ,mEq/L	2,9	2,8 - 3,0
iCa	mmol/L	1,43	1,32 - 1,54
	mgdL	5,7	5,3 - 6,1
	mEq/L	2,9	2,7 - 3,1
pH		7,026	6,998 - 7,054
PCO₂	mm/Hg	57,6	53,9 - 61,3
	kPa	7,68	7,18 - 8,18
PO₂	mm/Hg	91	85 - 97
	kPa	12,1	11,3 - 12,9
Glucose/Glu	mg/dL	42	37 - 47
	g/L	0,42	0,37 - 0,47
	mmol/L	2,4	2,1 - 2,7
Creatinine/Crea	mgdL	3,9	3,5 - 4,3
	umol/L	345	305 - 385
Lactate/Lac	mmol/L	7,80	6,94 - 8,66
	mgdL	70,3	62,6 - 78,0
	g/L	0,703	0,626 - 0,780

Crea		LOT	A
		x̄ (Mean)	Zielbereich gemäß RiliBÄK 2008
Creatinine/Crea	mgdL	4,0	3,5 - 4,5
	umol/L	354	313 - 395

EC8+, 6+, EC4+, E3+ & G		LOT	F, G, H ,J or K
		x̄ (Mean)	Zielbereich gemäß RiliBÄK 2008
Na	mmol/L ,mEq/L	120	116 - 124
K	mmol/L ,mEq/L	2,8	2,7 - 2,9
Cl	mmol/L , mEq/L	79	75 - 83
pH		6,989	6,961 - 7,017
PCO₂	mm/Hg	68,1	63,7 - 72,5
	kPa	9,08	8,49 - 9,67
Glucose/Glu	mg/dL	40	36 - 44
	g/L	0,40	0,36 - 0,44
	mmol/L	2,2	2,0 - 2,4
BUN	mg/dL	65	58 - 73
Urea	mmol/L	23,2	20,8 - 25,6
	mgdL	139	124 - 154
	g/L	1,39	1,24 - 1,54

RiliBÄK 2008 -iSTAT Qualitäts-Datenblätter:
copyright: www.wa-labor.de   27.11.2012

L1_Control_101032_CLEW_A26_734388-01_B.pdf - Foxit Reader - [L1_Control_101032_CLEW_A26_734388-01_B.pdf]
File   Edit   View   Tools   Comments   Forms   Help

Fast mobile PDF reader on iPad

L1_Control_101032_CL...

i-STAT® Level 1 Control
LOT   101032
Exp.: 2013-08

CLEW: A26/C26

CG8+, EG7+, EG6+, G3+, Crea & CG4+	LOT		K, L, N, U, W or Y
		x̄ (Mean)	R (Range)
Na	mmol/L, mEq/L	121	117-126
K	mmol/L, mEq/L	2.9	2.6-3.2
iCa	mmol/L	1.43	1.33-1.54
	mg/dL	5.7	5.3-6.2
	mEq/L	2.9	2.7-3.1
pH		7.037	6.987-7.087
PCO₂	mm Hg	58.7	51.2-66.2
	kPa	7.82	6.82-8.82
PO₂	mm Hg	90	75-105
	kPa	12.0	10.0-14.0
Glucose/Glu	mg/dL	42	33-51
	g/L	0.42	0.33-0.51
	mmol/L	2.3	1.8-2.8
Creatinine/Crea	mg/dL	3.9	3.1-4.7

1 (1 / 1)   195.53%

Dubrovnik, oktober 2013

- The definition of connectivity is the ability to reliably transfer test information between a point-of-care testing device and an information system. Connectivity means no manual transcription in order to move test data into the LIS. Labs need point-of-care devices that capture all of the necessary information accurately and effectively.

- So, connectivity is the best solution for POCT quality assurance.