

Implementing a region program for POCT service to emergency departments

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Take-home-message

- Going from workshop to regional service is different
- Structured, multi-level relationship with customers



Where is Skåne?



The region of Skåne

- 1.2 million inhabitants
- Regional health system
 - 10 hospitals
 - 150 primary care centers
 - One labmed organisation



And then suddenly....

1. Merging of all ten labs

One POCT organisation and leader

2. Venous blood gas analysis

Creatinine!



The POCT mission

Top-management decision:

“Actively participate in and be a knowledge-based support to regional and local health care.

Be responsible for quality assurance and the choice of methods and instruments in point of care testing in Region Skåne.

Agreements shall be signed between health care providers and Labmedicin Skåne.”

POCT organisation in Skåne

- Strong management support
 - Follow up of our mission
- Coordination via "The Customer Group"
- New clinical chemistry organisation
 - Leadership
 - Medicine
 - IT
- Local POCT coordinators
 - Hospitals
 - Primary care
- Clinical contacts at all levels



Our markets

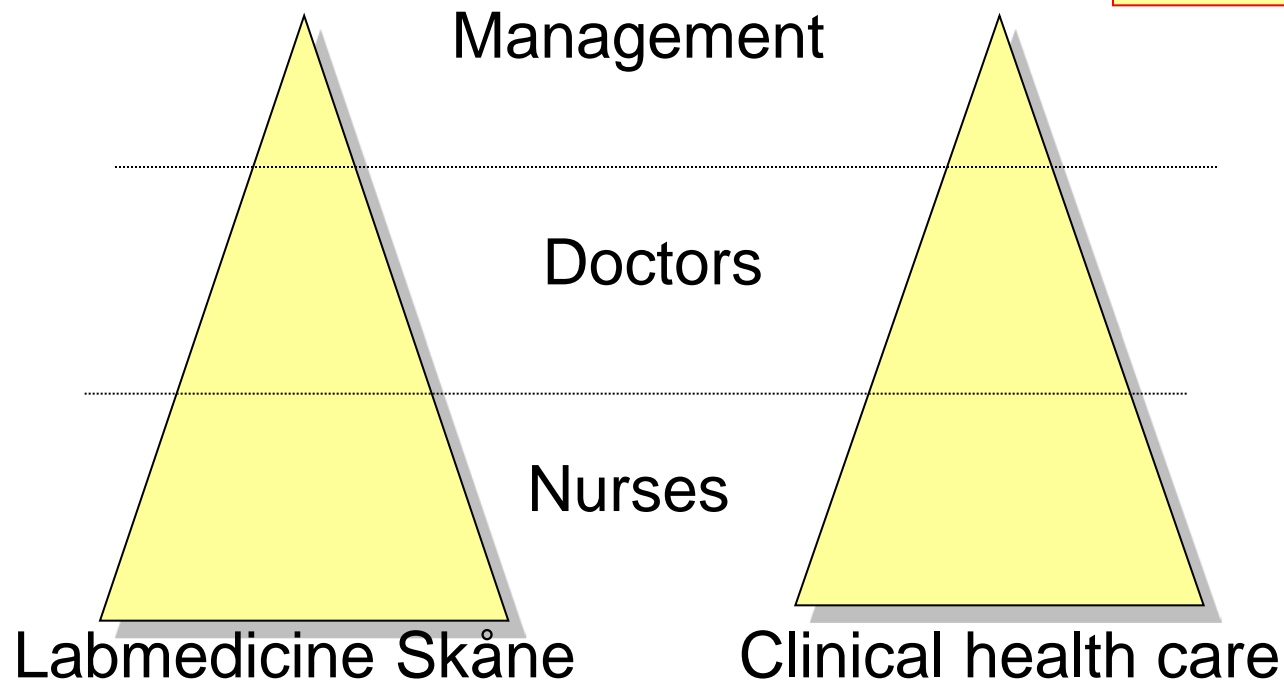
- Primary care
- Local hospitals
- **Emergency care**
- Specialised care

10 hospitals and EDs



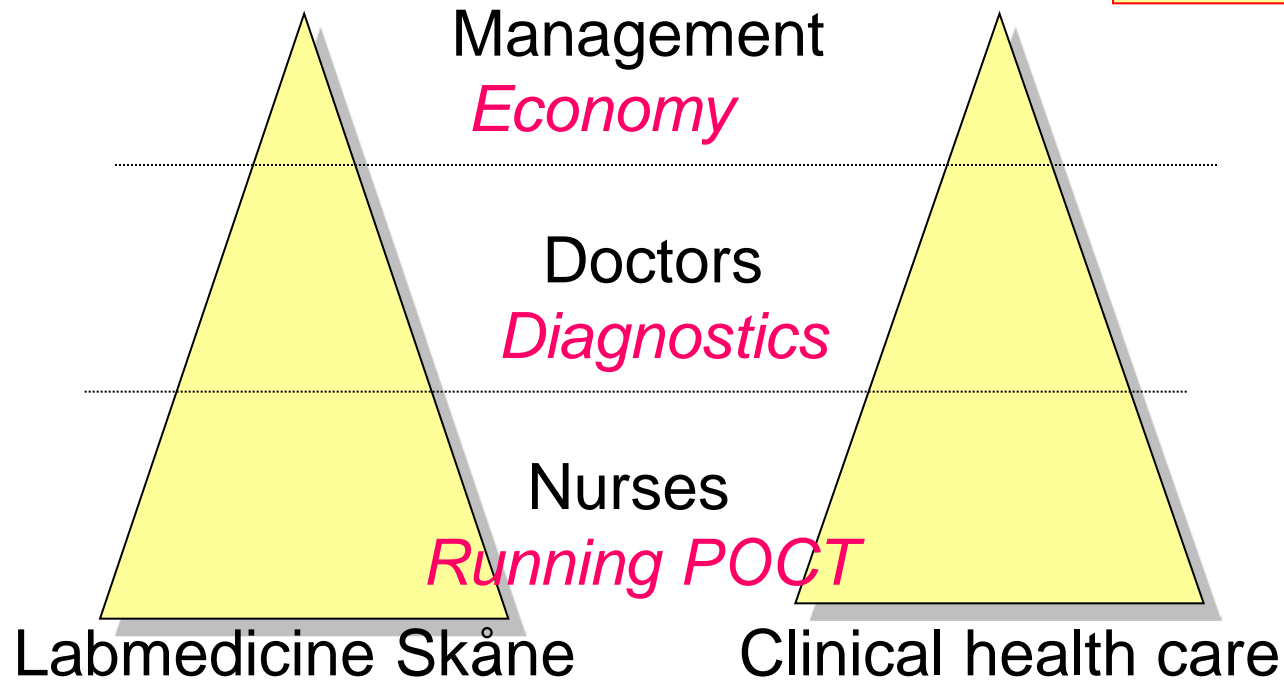
Our customers

Different
interests,
responsibilities
language ...



Our customers

Different
interests,
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Merging of all labs

Background

- six independent labs
- 10 years of regional collaboration
- Focus on arterial blood gas analysis
- Focus on intensive care
- Quality management system – *all inclusive*
- POCT coordinators
 - QA, training, IT, service, logistics, accreditation.



Merging of all labs

- From collaboration to one team
- Harmonisation and standardised services

- Procedures
- IT
- QA and accreditation
- Training
- Agreement with customers
- Economy



- Clinical chemistry charges 18 000 euro/year for each instrument
- 31 POCT blood gas instruments in operation

Venous sample, automatic sample handling and reporting to LIMS and HIMS

.... *Basic biochemistry within minutes*



Venous sample, automatic sample handling and reporting to LIMS and HIMS

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POCT introduced at the four
major emergency hospitals

- 200 000 patients/year

Lab provides service at the
smaller hospitals

Venous blood gas analysis

- From error to routine

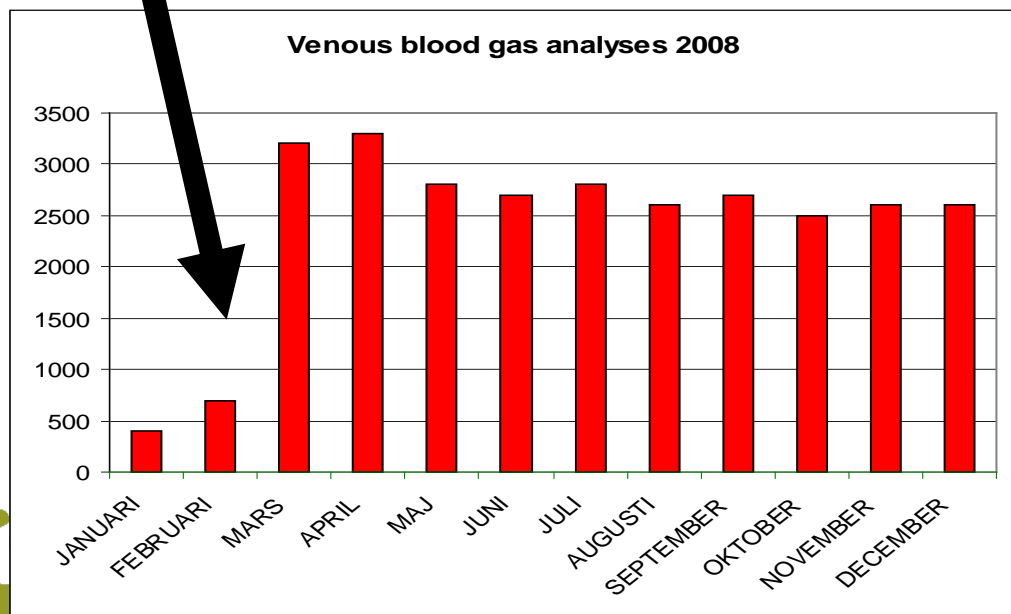
- 2008 – 2012:
- A ten-fold increase at ED
- 130 000 samples – 1 000 000 results
 - 7 % of clin chem production

Income status:

pH, pCO₂, BE

Na, K, Ca, creatinine,

Hb, Glucose, Lactate

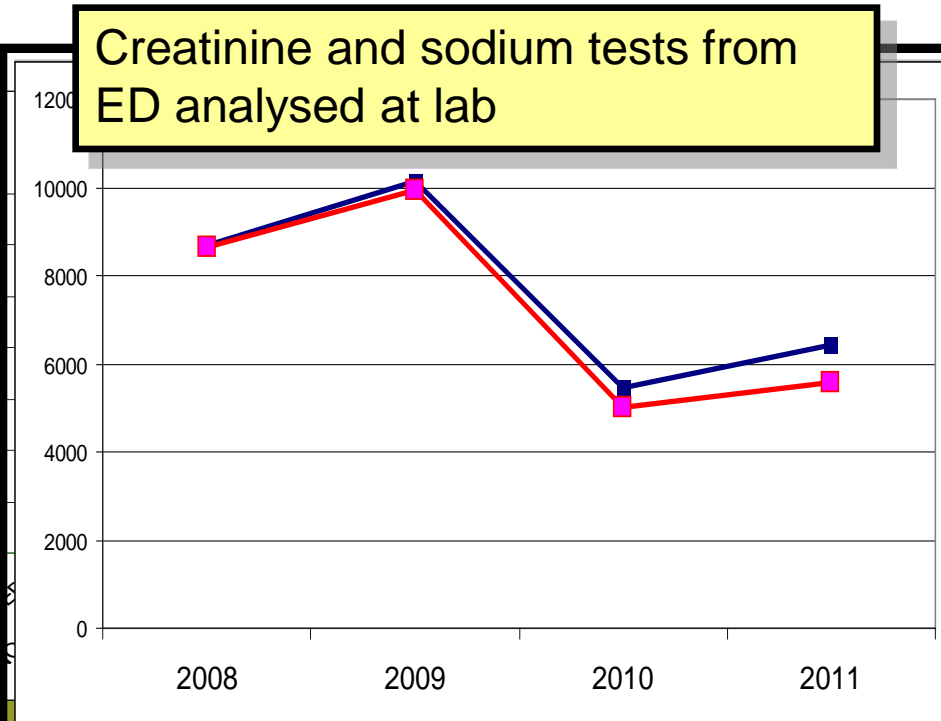
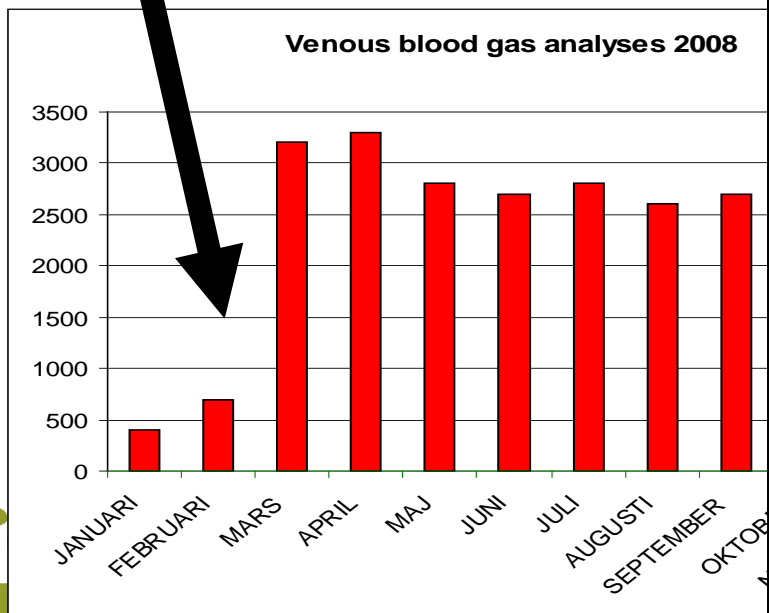


Venous blood gas analysis

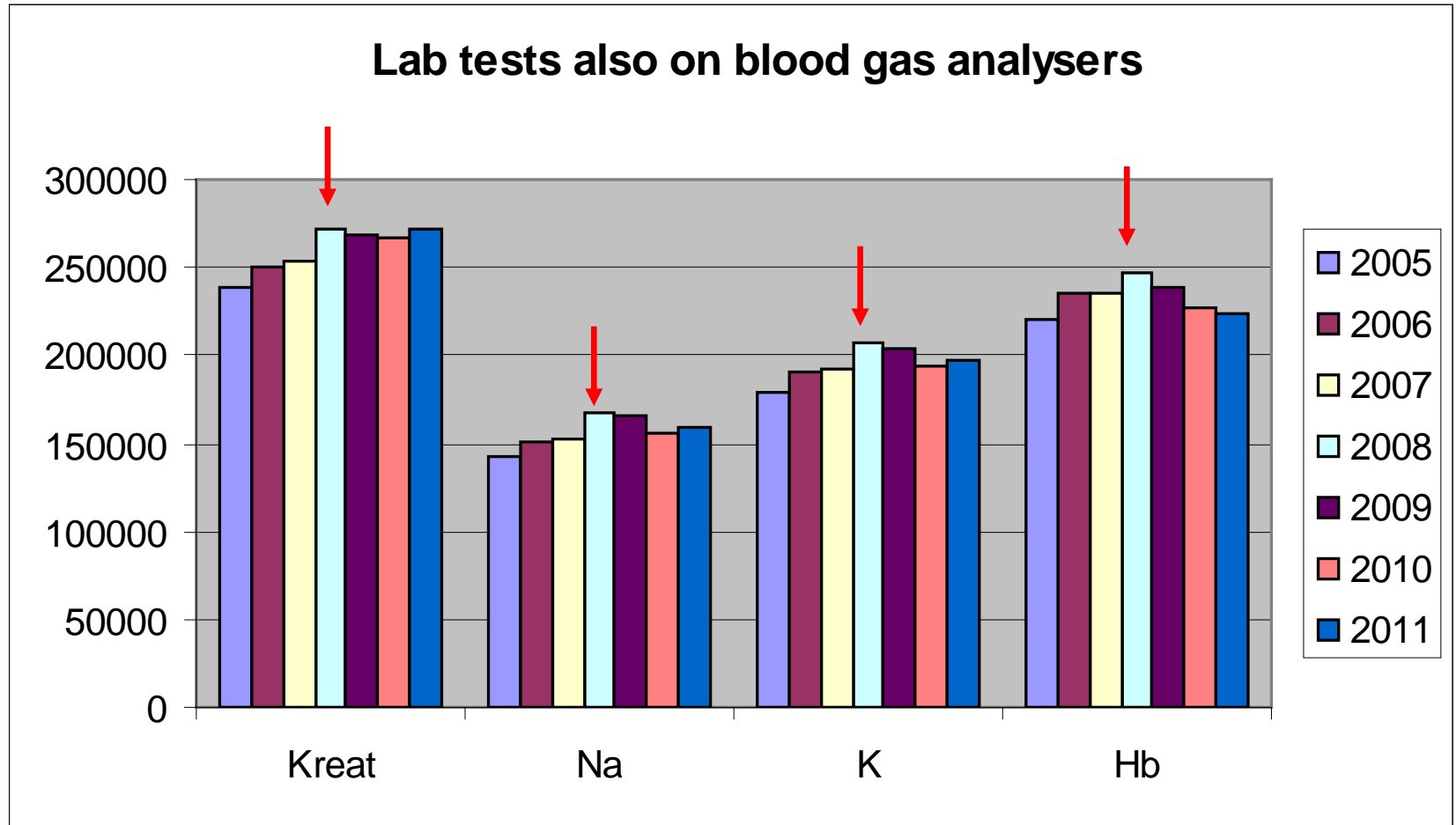
- From error to routine

- 2008 – 2012:
- A ten-fold increase at ED
- 120 000 samples – 1 000 000 results
 - 7 % of clin chem production

Income status:
pH, pCO₂, BE
Na, K, Ca, creatinine,
Hb, Glucose, Lactate



Effect of POCT on total lab production



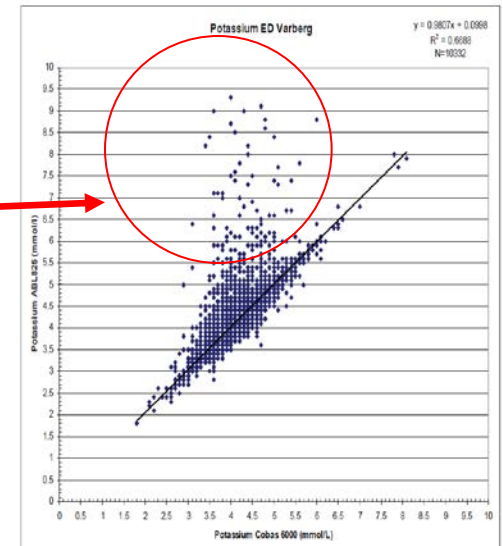
Quality issues to be handled

- Hemolysis
- Transferability of results
- New middleware for hospital networks
- New diagnostic strategies



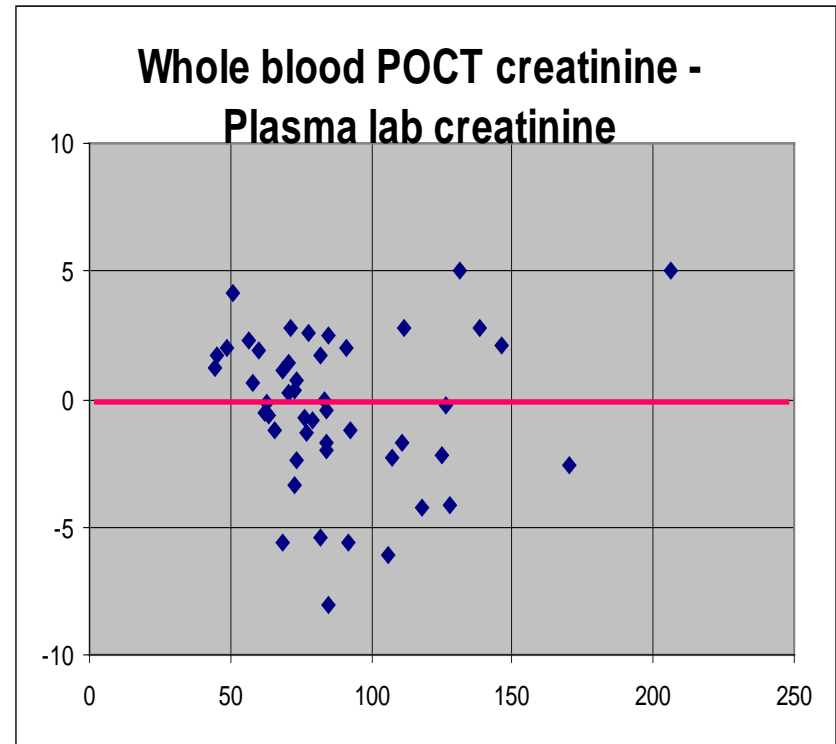
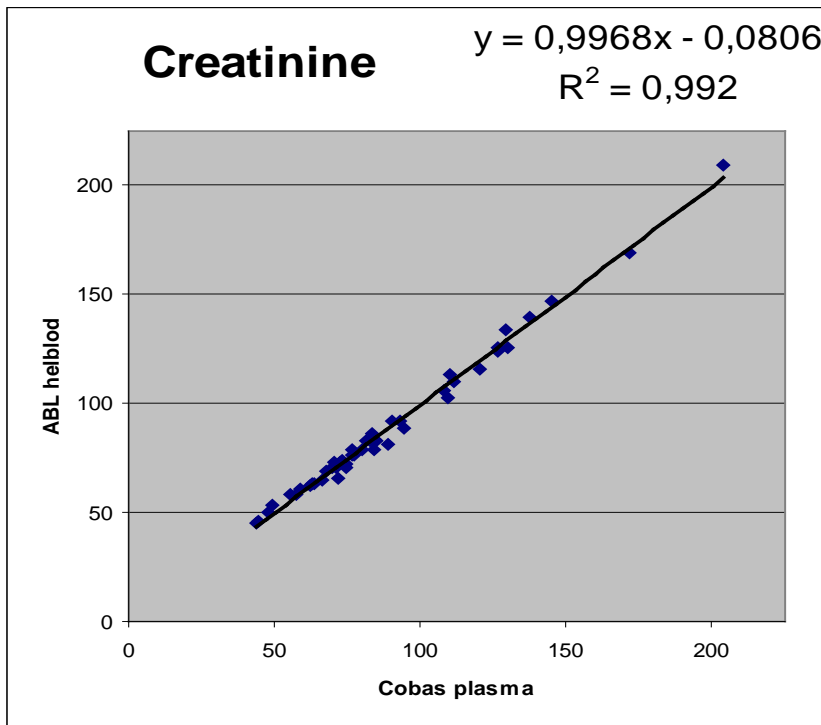
Hemolysis

- *"Blood gases are great. No problems with hemolysis!"*
- ED hemolysis rate approx 5 %
 - Highest rate in health care
 - Larsson and Lundahl 2012
- Continuous preanalytics training
 - Highest staff mobility in health care
- New detection method??



Transferability of results

1 million results from ED POCT



Transferability of results

- Acceptable transferability lab – POCT
 - *Moving target*
- As long as whole blood POCT results are compared to plasma results
- QA
 - Controls
 - EQA
- Split sample



Middleware for hospital networks

- Present system:
 - Radiance[©] blood gas system
- Future system:
 - System spanning the whole region
 - Requests, results, service, competence, e-learning, QA ...
 - ... and all of its POCT devices
 - CRP, Glucose, Hb, Urine



New diagnostic strategies

- New POCT applications
 - The TNT story
 - Use or Confusion?
 - Panels
 - Microbiology
- And getting rid of the old ones
 - The neglected aspect
 - Siamese twins: AST/ALT, PK/APTT,

Troponins as POCT

- STAT
- Diagnostic algorithms
- Logistics
- Economy



Troponins as POCT

STAT

Clinical needs:

- POCT to rule-out low probability cases
 - One third of cases
- Acute coronary syndrome
 - immediate treatment anyway
- Lab TAT: 90 % < 60 min
- POCT TAT: 15-25 min – *not 2 minutes!*

Troponins as POCT

Diagnostic algorithms

- New diagnostic guidelines based on high-sensitivity troponin assays
- POCT methods not there Yet
- ONE method – ONE decision limit



Troponins as POCT

Simple logistics

- One method for one analyte at one ED
- One destination for each tube



Troponins as POCT

Economy

"Is it cost-effective?"

Economic calculation model developed

- Investment
- Reagents
- QA
- Labour
- Lab price: 6.5 Euros
- POCT cost: 12.5 Euros
- No reduction in clinical costs to be expected from POCT

Optimising ED biochemistry

Simplifying:

POCT

- Reducing number and types of POCT instrument

Panels for triage

- Liver
- Gastroenterology
- Kidney
- Infection
- Sepsis

Optimising ED biochemistry

And getting rid of the old ones

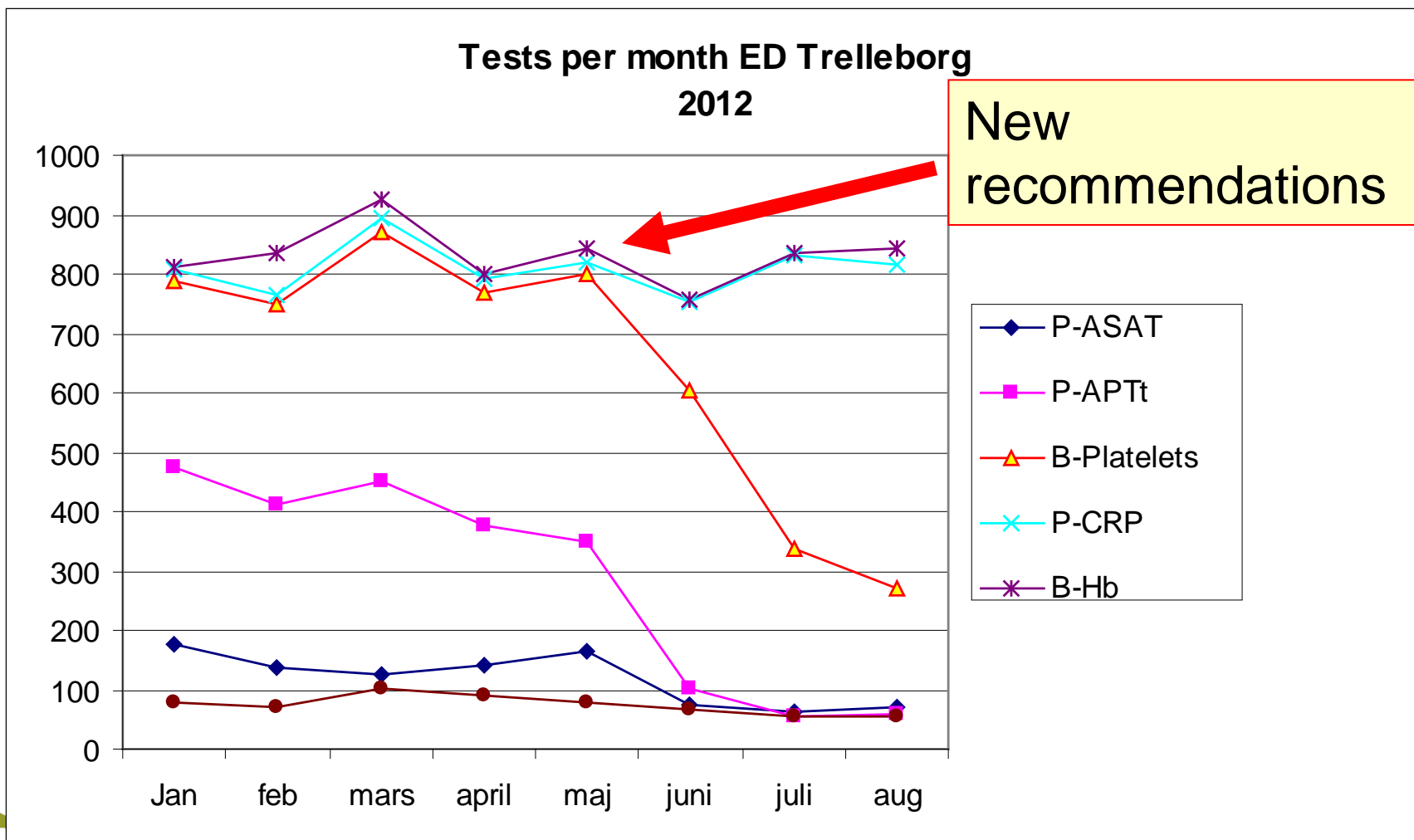
Recommendation to EDs:

- Reduced use:
 - AST, D-dimer, Platelets, APTt, Methanol
- Reduced use of combinations:
 - AST/ALT, PK/APTt, Ethanol/Methanol



Optimising ED biochemistry

And getting rid of the old ones



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