

POCT – point of care testing

Test request



Result interpretation

Result



Sampling



Specific problem:
point of care
testing (POCT)

POCT – what is that / when is it justified?

- There is no lab nearby
- Immediate decision is required
- Logistics – hard to be resolved
- More simple / cheaper when it done on field

POCT

Generally done

- Glucose
- Blood gase / electrolytes
- Urinary strip / chemistry / pregnancy
- Blood in stool
- Hemoglobin
- ESR
- Blood typing
- Strep test

POCT

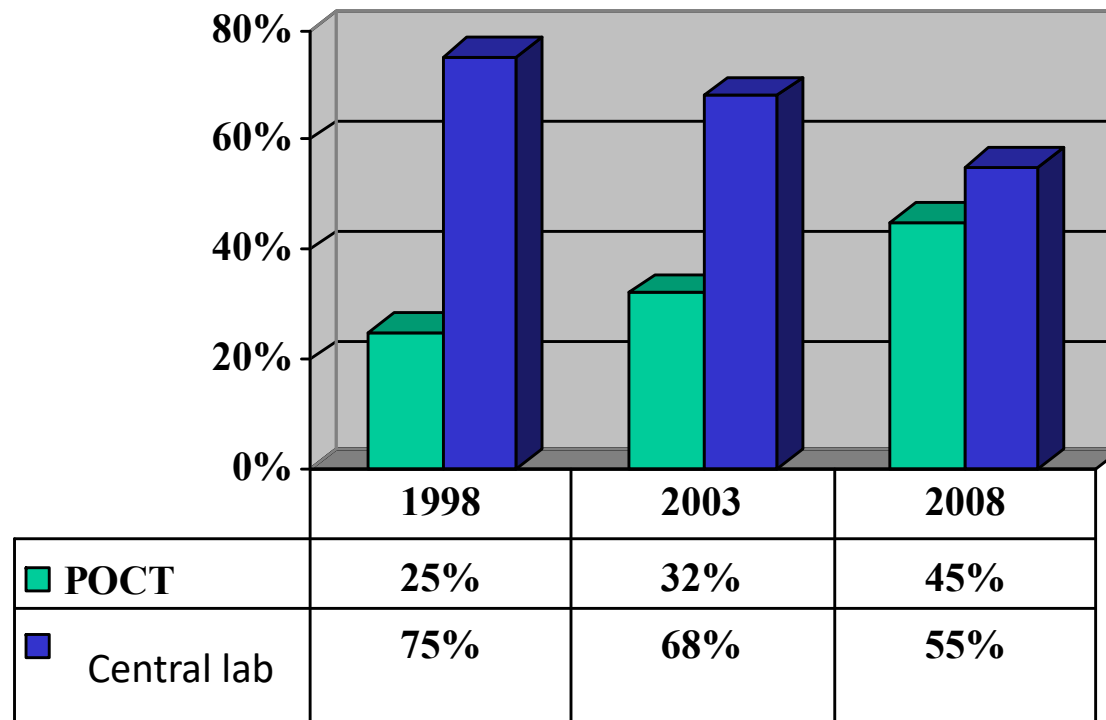
Other options

- Cardiology markers
- Drug / toxicity
- Hemostasis tests
- D-dimer
- Lactate
- Lipid
- HbA1c
- Microalbumin, creatinine
- H.pylori, rotavirus, influenza
- PTH, ACTH, growth hormone
- Sepsis
- Stroke
- DNA

POCT

- **BEDSIDE TESTING**
- **EMERGENCY TESTING**
- **POINT-OF-CARE TESTING**
- **CRITICAL CARE TESTING**
- **PATIENT FOCUSED TESTING**
- **NEAR PATIENT TESTING**
- **DECENTRALIZED LAB. TESTING**
- **SELF/HOME MONITORING TESTING**
- **PÁCIENS KÖZELI LABORVIZSGÁLAT**

Increase of POCT tests within total number of lab tests



POCT categories

Tests in an outpatient
setting

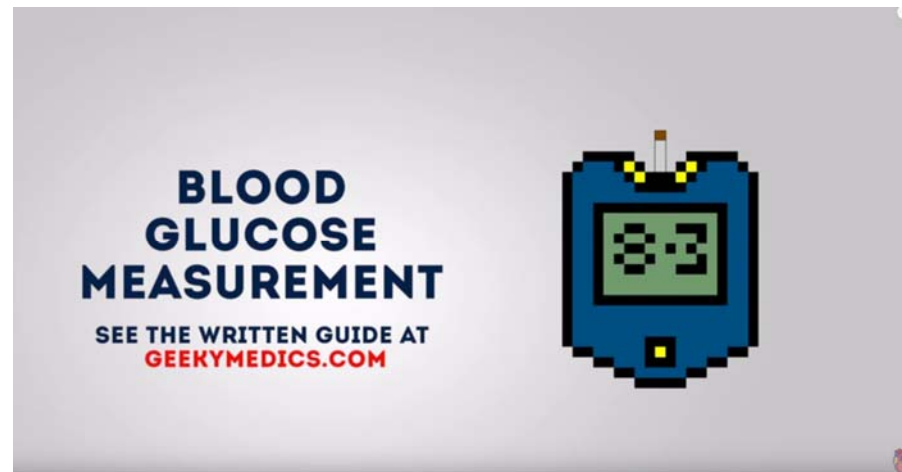
Self monitoring tests

POCT

Emergency tests

Specific tests

POCT - glucose



<https://www.youtube.com/watch?v=AyDHP9puCag>

Source of errors

- Measured in an inappropriate timepoint
- Few blood. Forced pressure; contaminated with lymph.
(Area should be warmed with water; side of finger 3 or 4 should be spiked).
- Too much blood; test area may be contaminated.
- Dirty reading area of test device
- Expired strip (inappropriate storage)
- Data are not recorded
- Not clear who use the device (data are not retrievable)

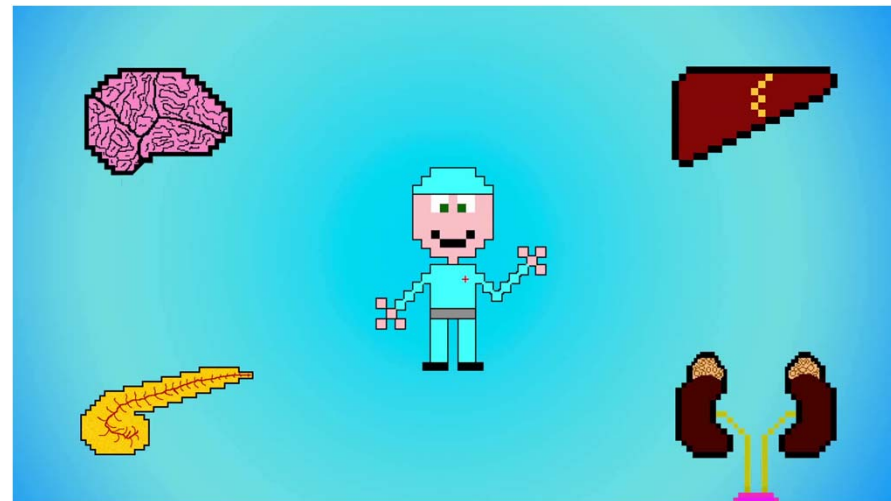
POCT – blood gase measurement



<https://www.youtube.com/watch?v=FE2KCjydPGE>

ABL90 FLEX analyzer
Product presentation

<https://www.youtube.com/watch?v=u-zUwK8fO6M>



<https://www.youtube.com/watch?v=0BSv4iN8T2E>

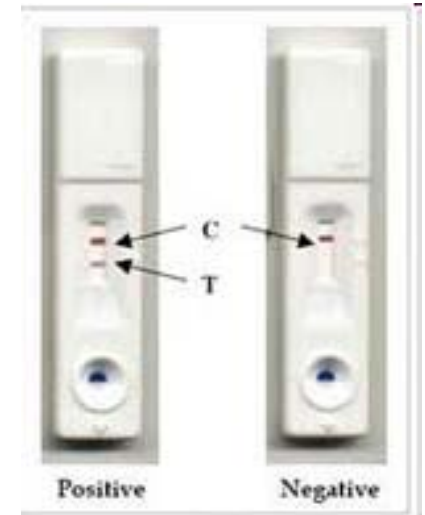
Other analytes – specific tests

- hCG test - detects one week of pregnancy
- Drug detection – severe limitations (not sensitive to derivatives)

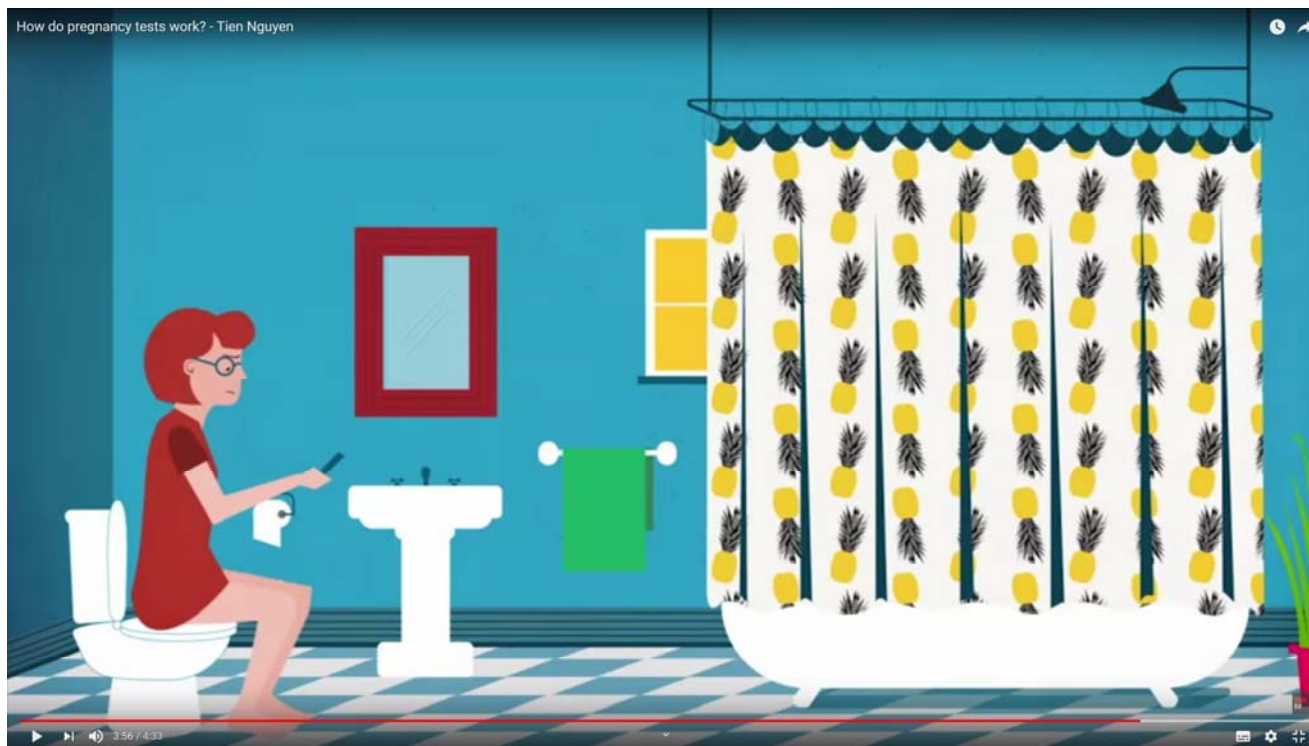
Serological quick test: GLORIA

- **Gold Labelled Optical Read Immuno Assay**

- **Ab** attached to vehicle +
- **Ag** present in sample
- = **Ab-Ag** Immune complex1
- +
- Gold labelled secondary antibody
- **Ab-Au*** (FREE)
- = **Ab-Ag~Ab-Au*** (BOUND)
- Basic principle of quick tests



Pregnancy test



<https://www.youtube.com/watch?v=aOfWTscU8YM>

1 perc

Instructions
www.origindiagnostics.com

1 Collect Specimen



2 Peel Back Label

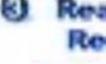


3 Read the Results

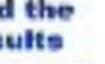




**Read results at five (5) minutes.
Results stable up to sixty (60) minutes.**



NEGATIVE



NON-NEGATIVE



INVALID

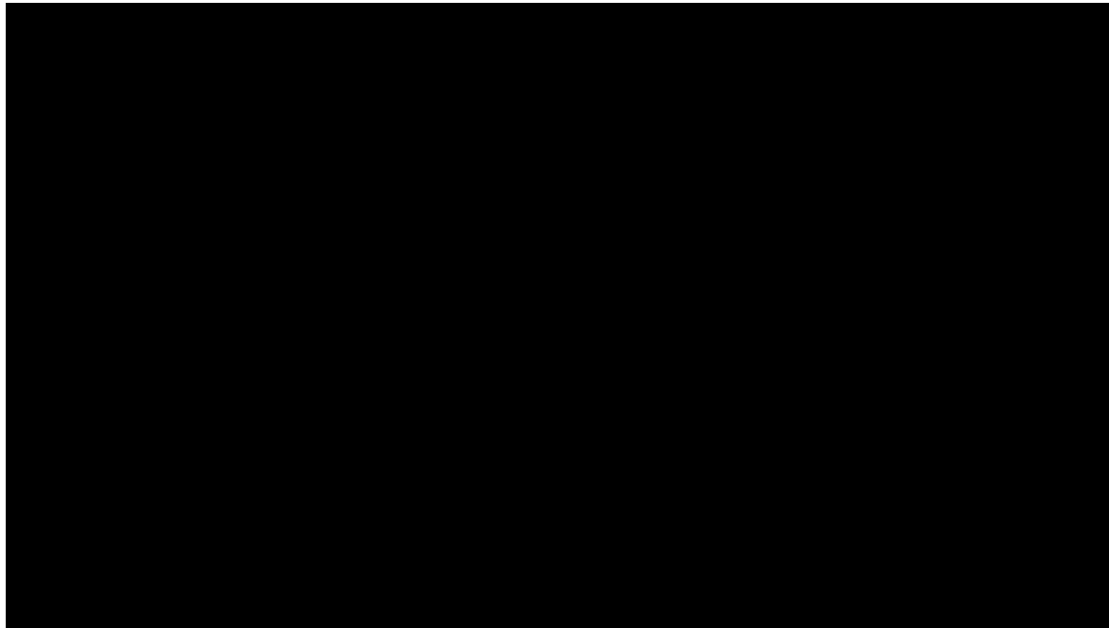


SAMPLE ONLY - Color chart NOT Exact

2.perc

Determination of blood test

- FOBT & FIT
- (colorimetric & immune-based blood detection in stool)



<https://www.youtube.com/watch?v=z8d1LT0VnXI&t=23s>

Detection of blood in stool

- FOBT: fecal occult blood test – colorimetric reaction of guaiacol with hemoglobin
dietary restriction
- FIT: antibody against hemoglobin.
not sensitive to upper gastrointestinal bleeding
detects human Hb alone

More specific POCT tests

- Breath tests
- Cystic fibrosis test
- Continuous glucose monitoring system (CGMS)
- Blood glucose monitor

Criteria for utilization of POCT tests for clinical decision making

Criterion
Professional use of POCT device
Appropriate functionin of POCT device
Measurements are documented

POCT in a hospital

Use of an integrated hospital system

- Information link between departments and the lab
- Devices can be / are connected to the system.
- Lab is able to monitor / validate the results remotely
- Documentation.

POCT in hospital: integrated informatic system

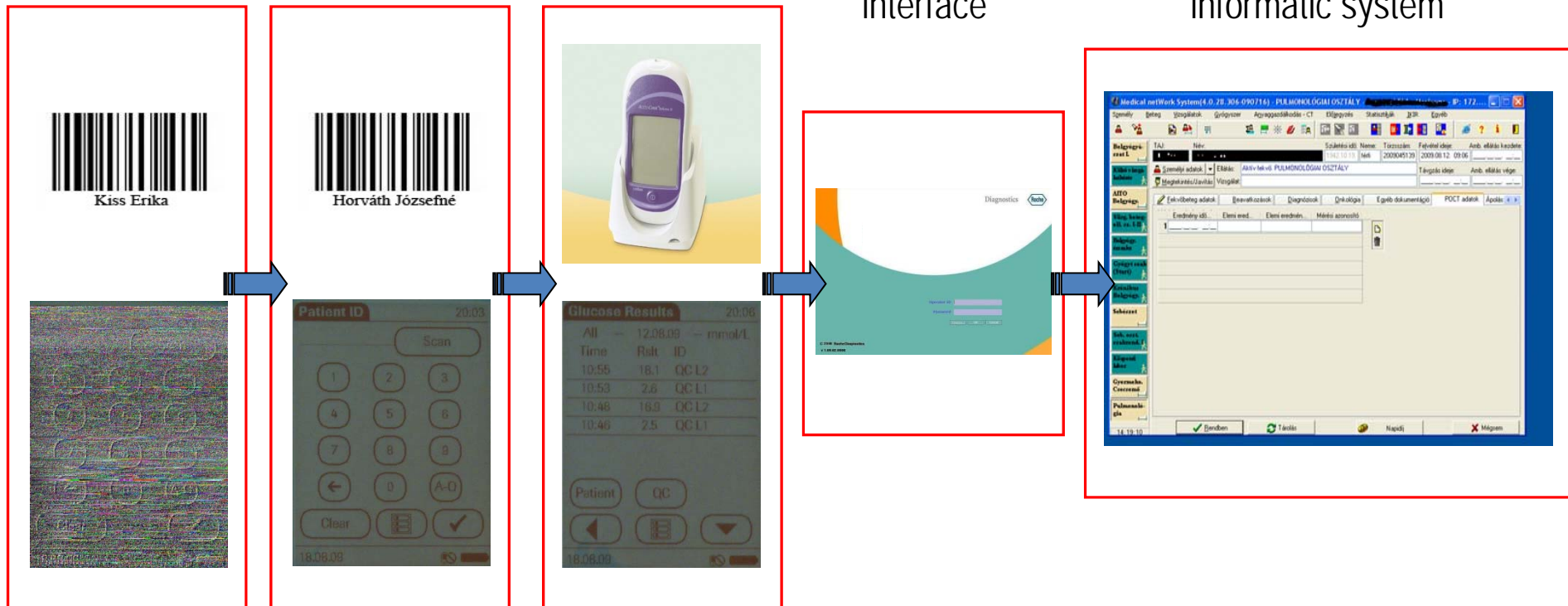
1. Operator ID

2. Patient ID

3. Testing

4. Transmission
of result into POCT
interface

5. Transfer of test result
into medical
informatic system



POCT

Benefits

- Support immediate clinical decision making
- Quick
- Comfortable for the patient / the doctor

Risks:

- Expensive
- Not sufficient training
- QC / maintenance is often not solved
- Absence of documentation
(unidentified sample, unrecorded data)