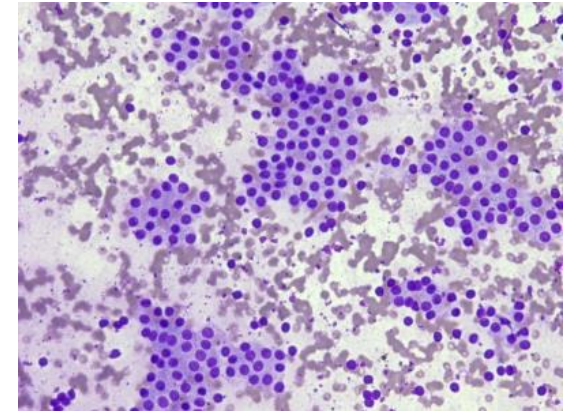
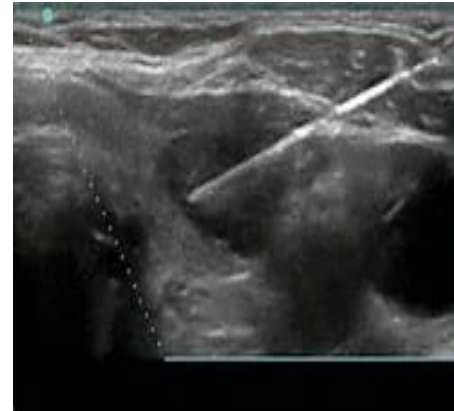
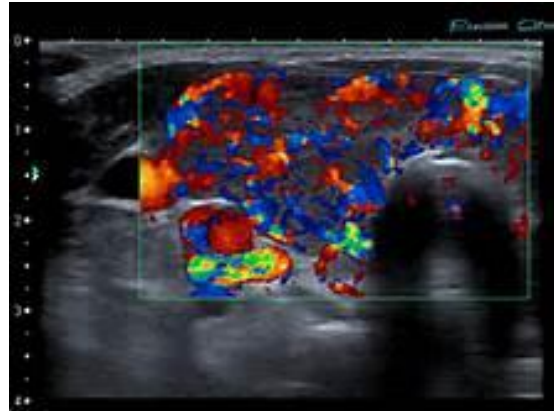


The Pathologist in the Clinic:

Pathologist-Performed Ultrasound Guide Thyroid Fine Needle Aspiration Cytology



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Pathologists role in fine needle aspiration cytology

‘The one who examines the patients , does the aspiration, makes the smears, interprets the cytology is the best one to do FNA ‘

Sixten Franzen



The AHUS model

- Both pathologists and endocrine surgeons are involved in ultrasound-guided fine need aspiration (UG-FNAC).
- Three separate models of working have developed:
 - **Pathologist-only**
 - **Endocrine surgeon-only**
 - **Endocrine surgeon with pathologist providing Rapid OnSite Evaluation of adequacy (ROSE).**

Aim:

- To perform a 2,5 year retrospective audit to compare the results of UG-FNAC performed by the three different work models
- Questions?
 - Differences in sample adequacy rates.
 - Differences in sensitivity, specificity, positive predictive values (PPV) and negative predictive values (NPV) for:
 - What are the consequences of any differences identified.

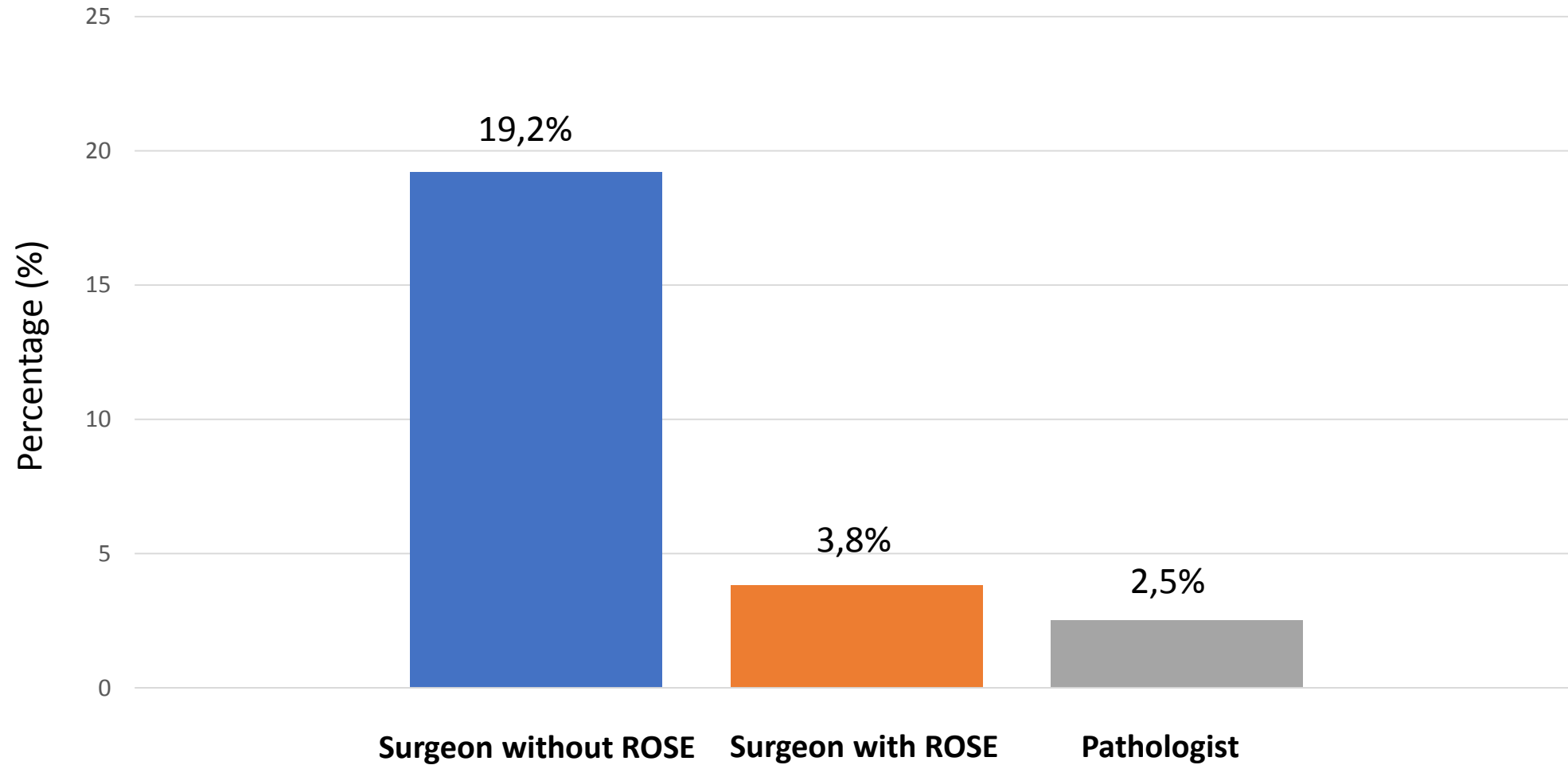
Materials and Methods

- Retrospective audit of consecutive patients who underwent UG-FNAC sampling.
- 2,5 year period (October 2014 – February 2017).
- A total of 197 patients.
- Selected all patients that had both:
 - UG-FNAC of at least one thyroid nodule.
 - Histologically-verified diagnosis of the thyroid nodule.

Results

- 134 patients qualified for inclusion of the 197 identified.
 - 163 thyroid nodules.
 - UG-FNAC was performed 184 times on these nodules:
 - 79 – Endocrine surgeon (without ROSE)
 - 29 – Endocrine surgeon with pathologist performing ROSE
 - 76 – Pathologist.
 - 19 nodule sampled twice
 - 1 nodule sampled three times.

Inadequacy rate:



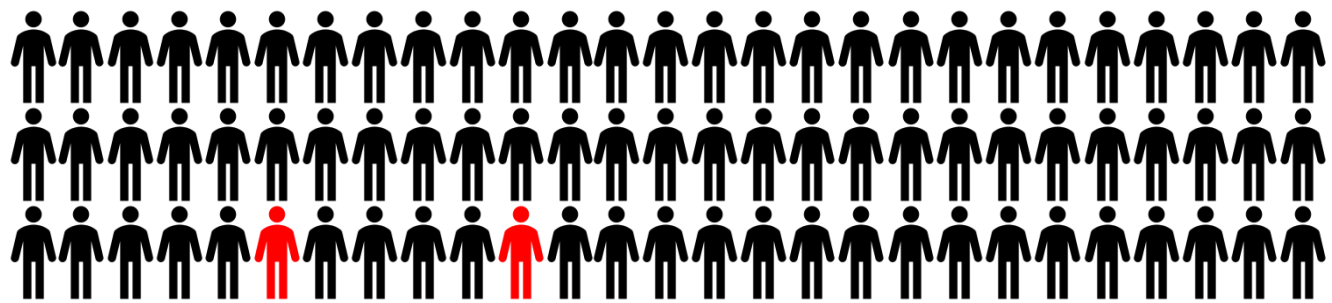
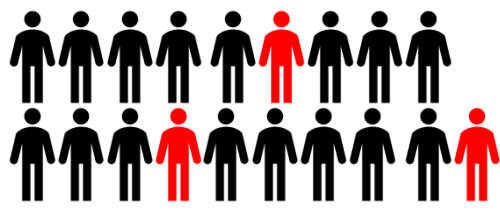
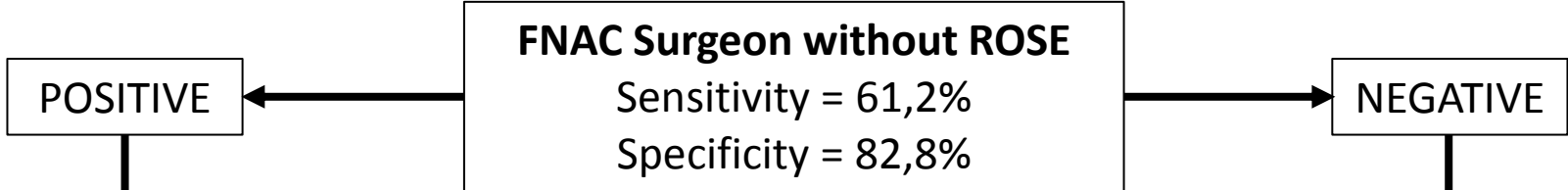
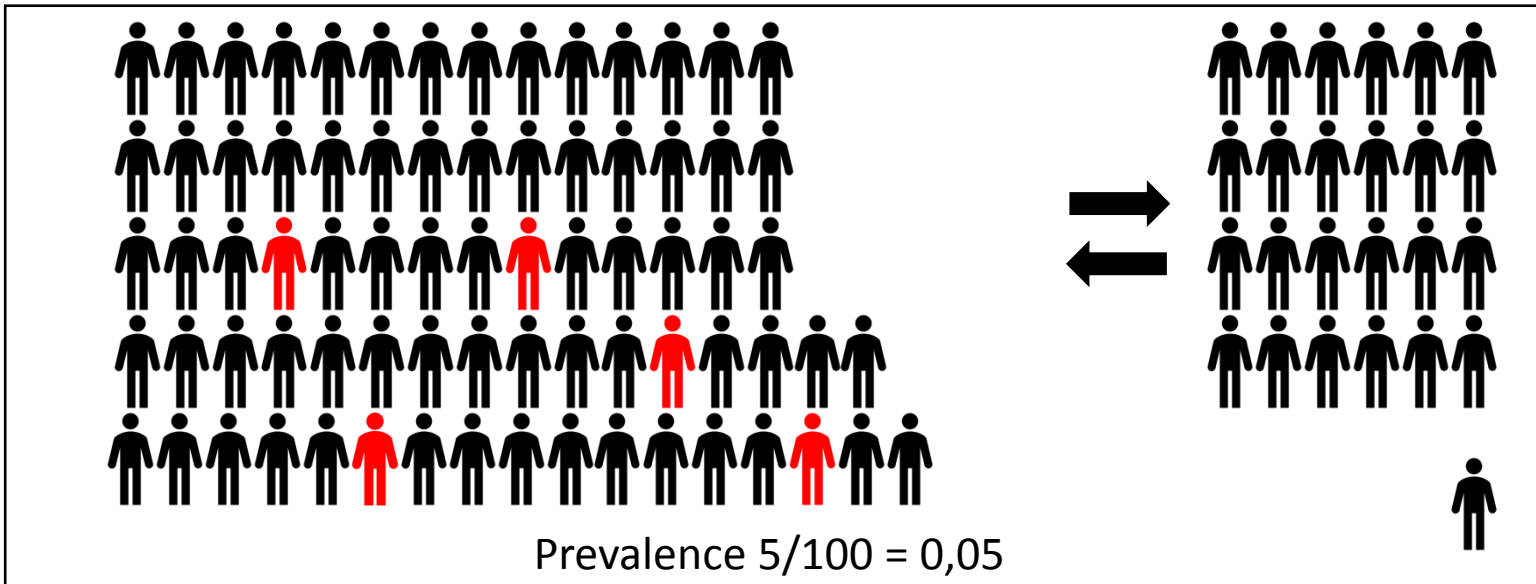
All neoplastic lesions:

	Surgeon without ROSE	Surgeon with ROSE	Pathologist
Sensitivity (%)	61,2	91,6	97,8
Specificity (%)	82,8	53,9	93,1
Positive Predictive Value (%)	65,5	64,7	95,8
Negative Predictive Value (%)	80,0	87,5	96,4

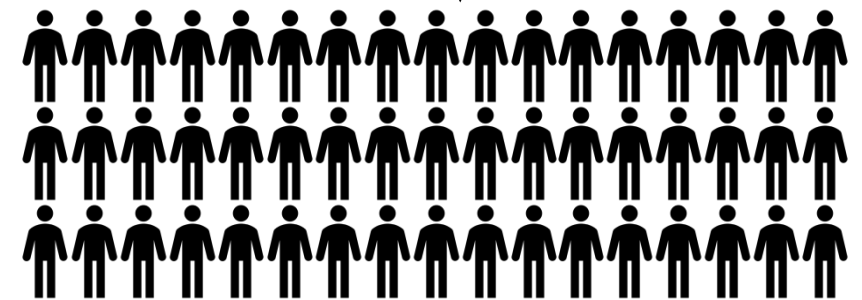
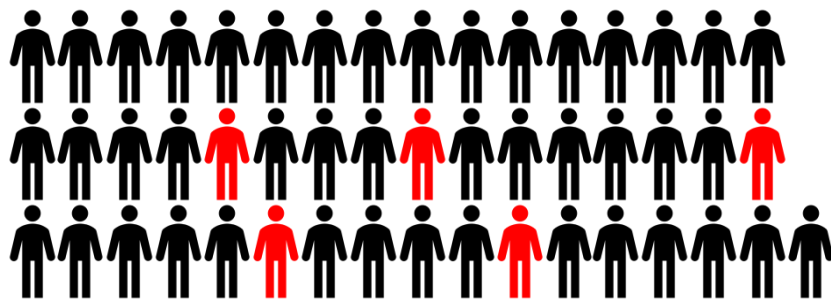
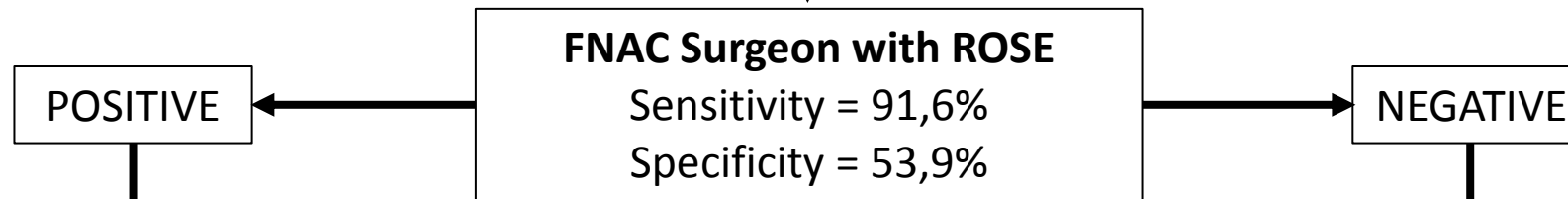
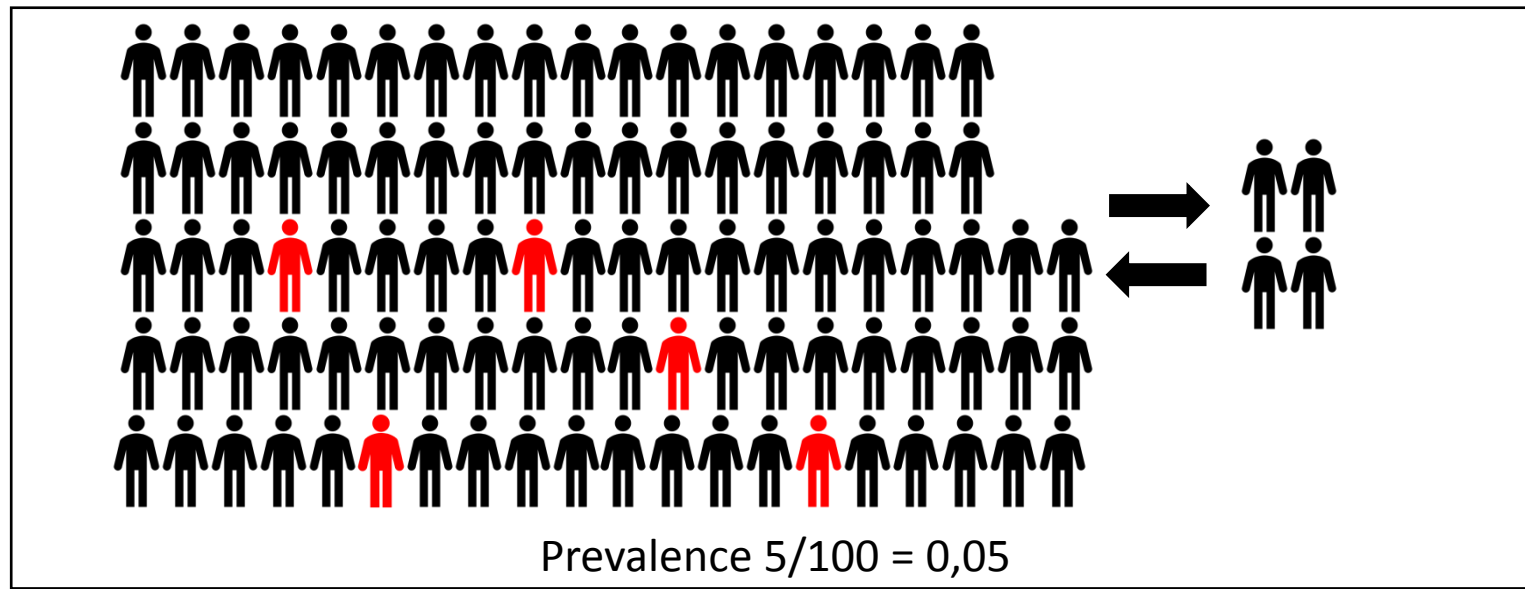
All malignant lesions:

	Surgeon without ROSE	Surgeon with ROSE	Pathologist
Sensitivity (%)	33,3	60,0	83,3
Specificity (%)	96,2	96,1	95,4
Positive Predictive Value (%)	60,0	66,2	69,9
Negative Predictive Value (%)	93,2	95,2	96,9

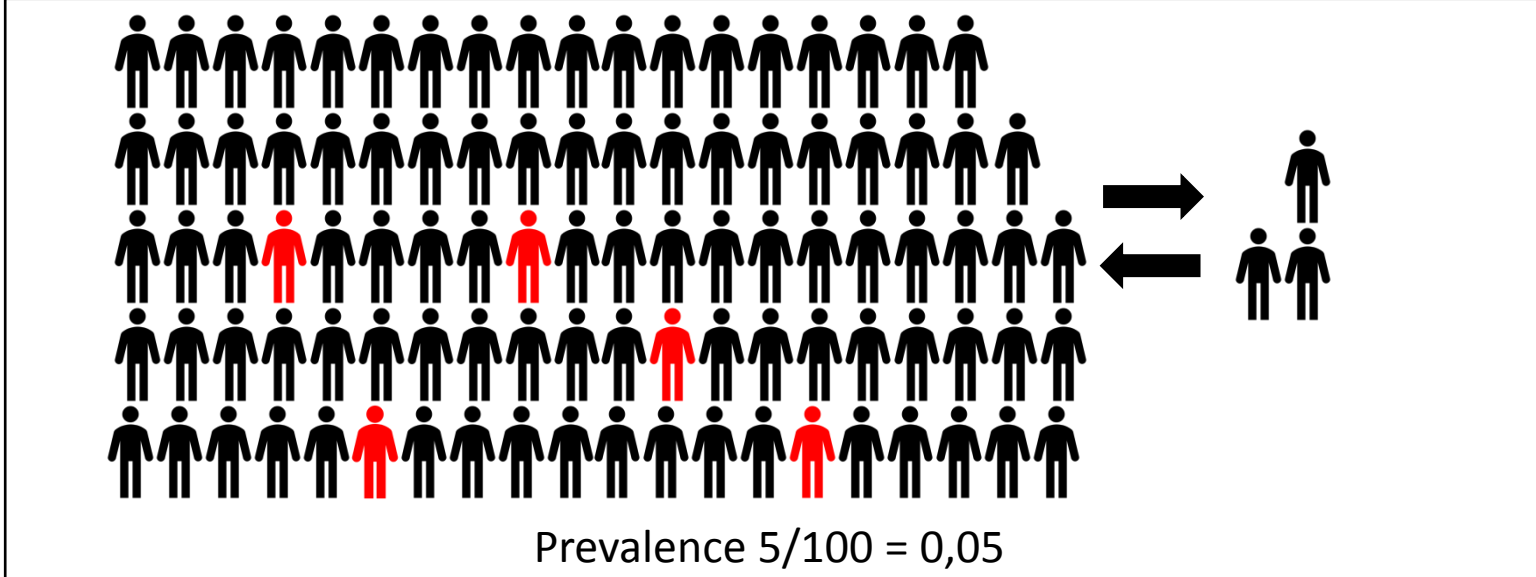
**Neoplastic lesions:
Surgeon
without ROSE**



**Neoplastic lesions:
Surgeon
with ROSE**



**Neoplastic lesions:
Pathologist**



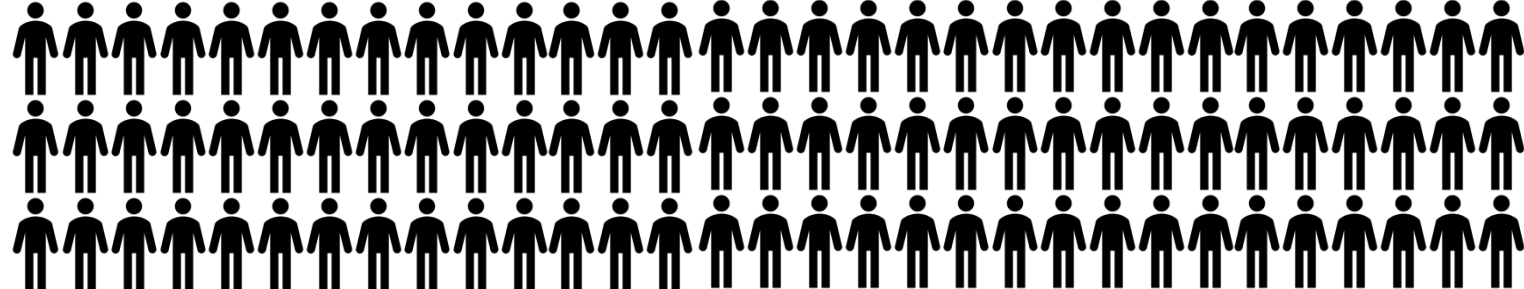
FNAC Pathologist
Sensitivity = 97,8%
Specificity = 93,1%

POSITIVE

NEGATIVE



True positives = 5
False positives = 7

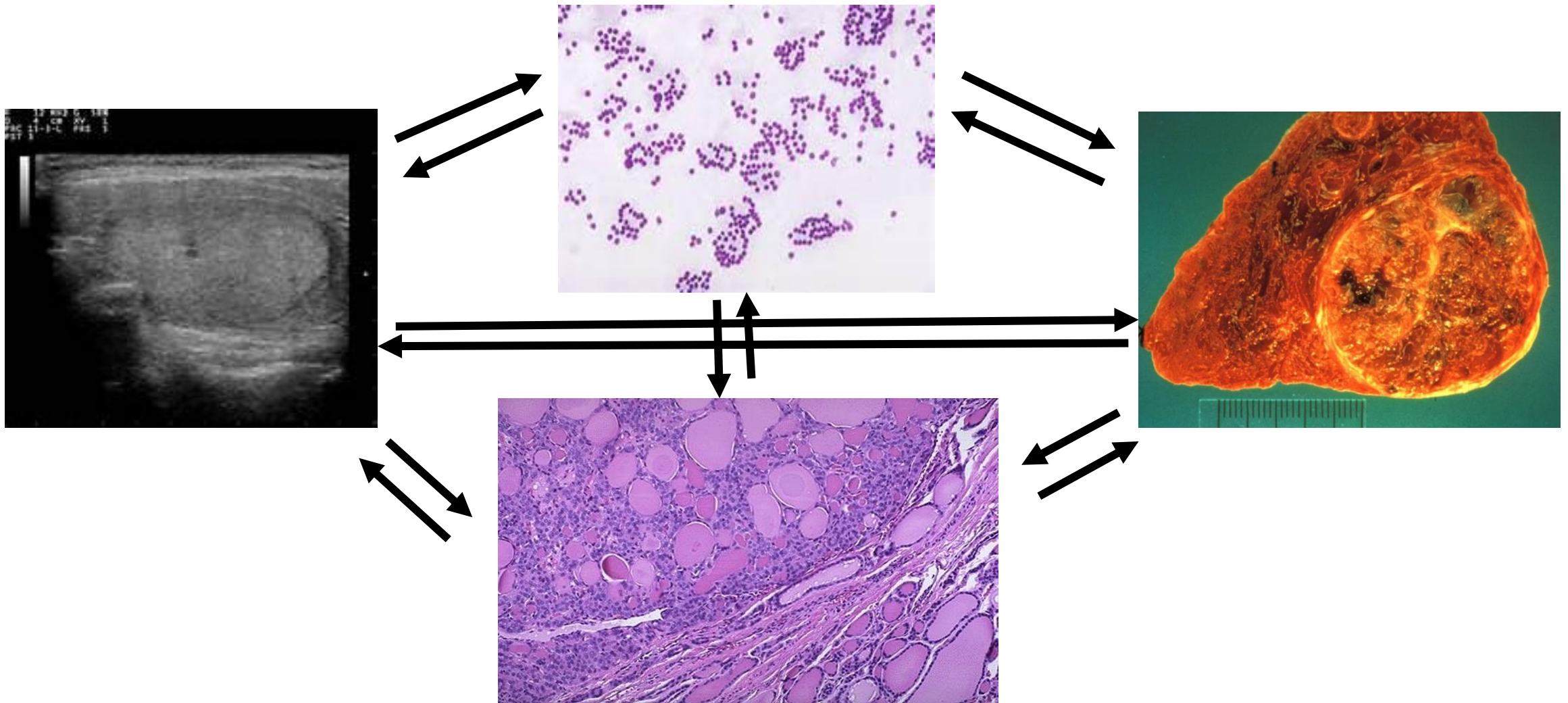


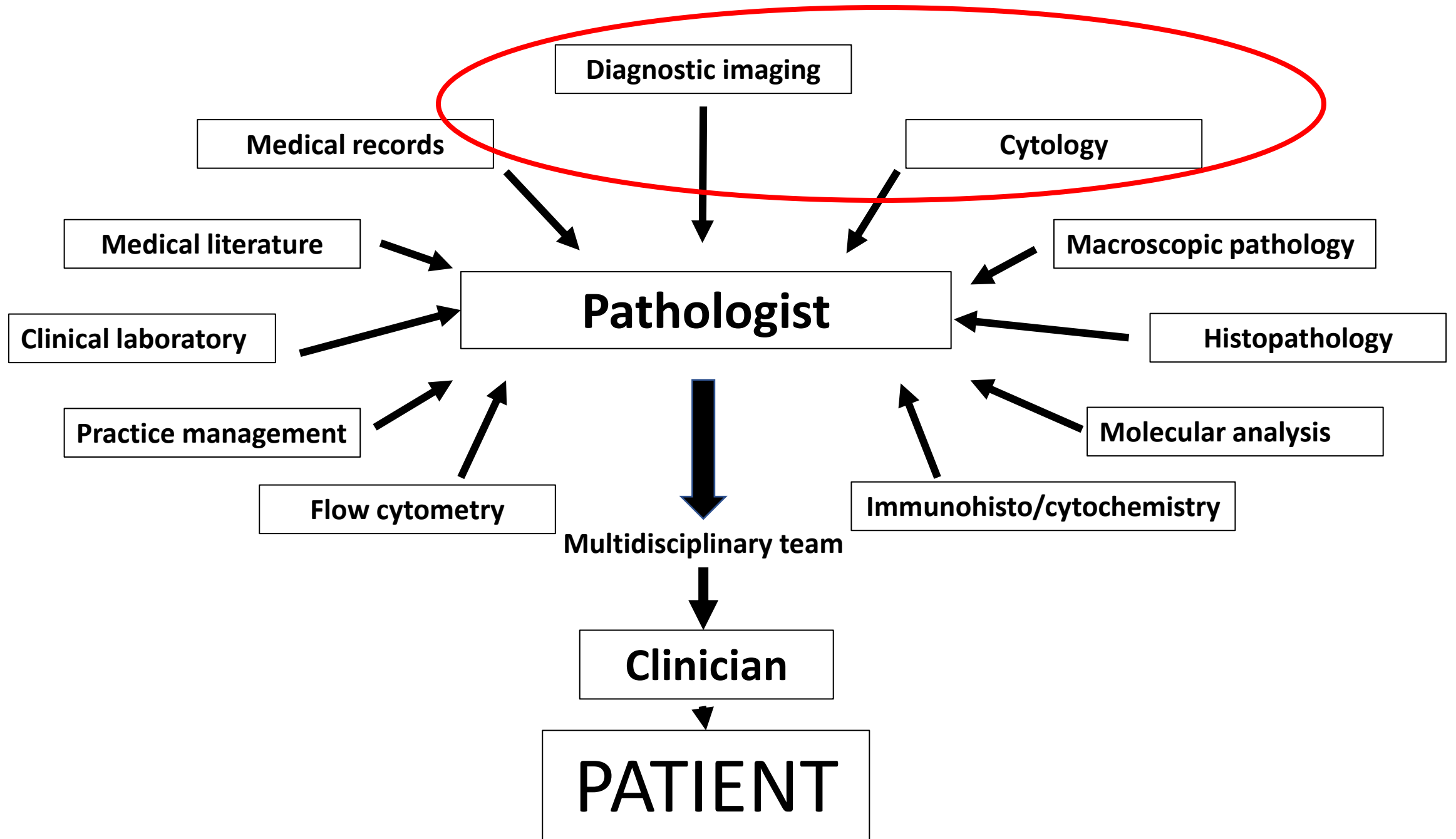
True negatives = 93
False negatives = 0

Conclusions:

- Pathologist UG-FNAC:
 - Reduces the inadequacy rate
 - For neoplastic thyroid lesions:
 - Improves sensitivity, specificity and positive predictive values
 - For malignant lesions:
 - Improves sensitivity.
- Other benefits:
 - Cost-savings
 - Reducing psychological burden of patient/stigma of a cancer diagnosis.
 - Contact with clinicians and patients

Why do pathologists perform better at ultrasound-guided FNAC?



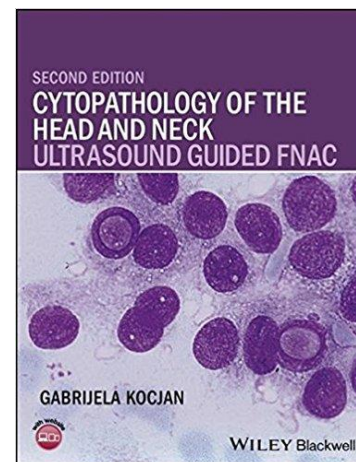
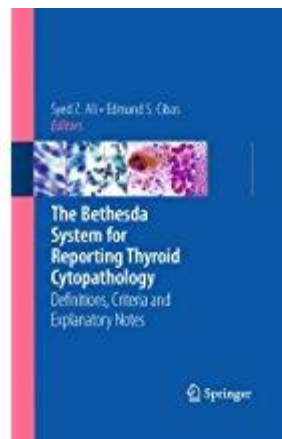


Summary

- **The one who examines the patients, does the aspiration, makes the smears, interprets the cytology is the best one to do FNA....**

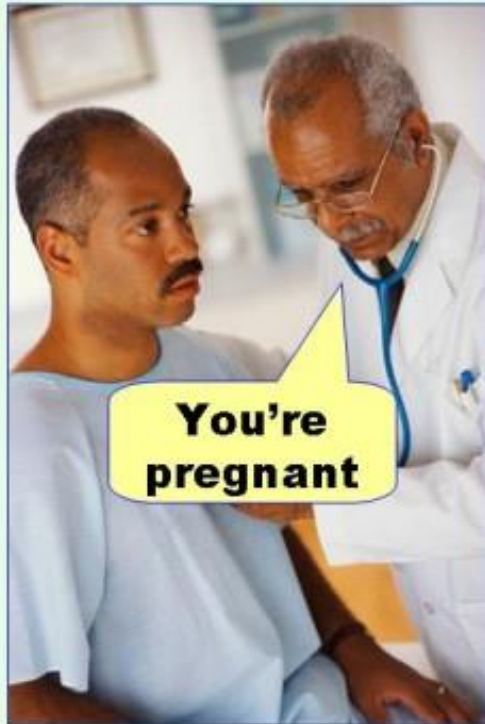
and the ultrasound!!

Løp og kjøp!!!!



Questions....?

Type I error
(false positive)



Type II error
(false negative)

