

Molecular pathology in Norway

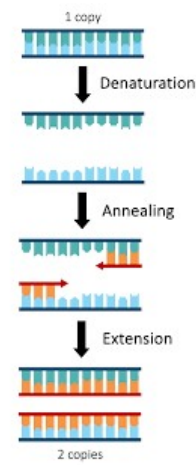
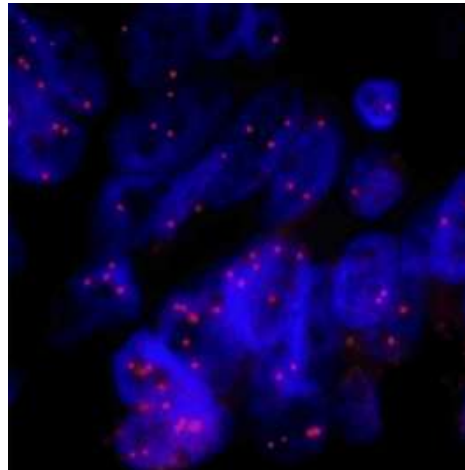
Marius Lund-Iversen MD, PhD

Consultant pathologist

Department of pathology

Oslo University hospital

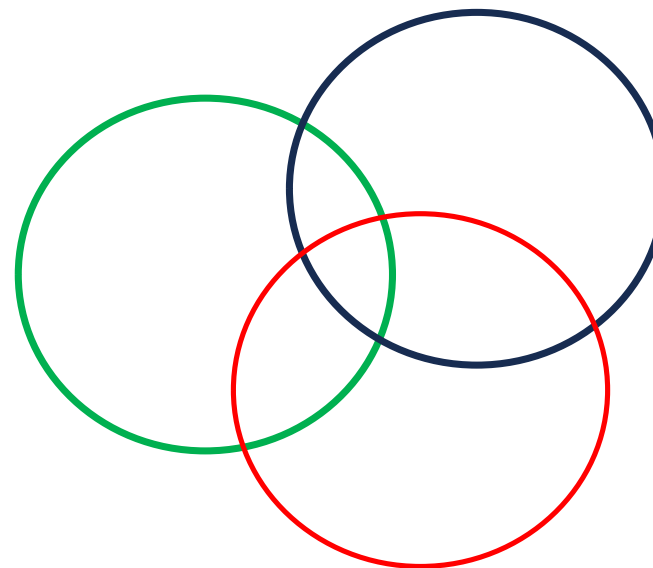
- G-banding to current HTS
- Use in Norway in clinical setting
- Availability
- Reports
- Financial status and reimbursement
- Availability via private institutions



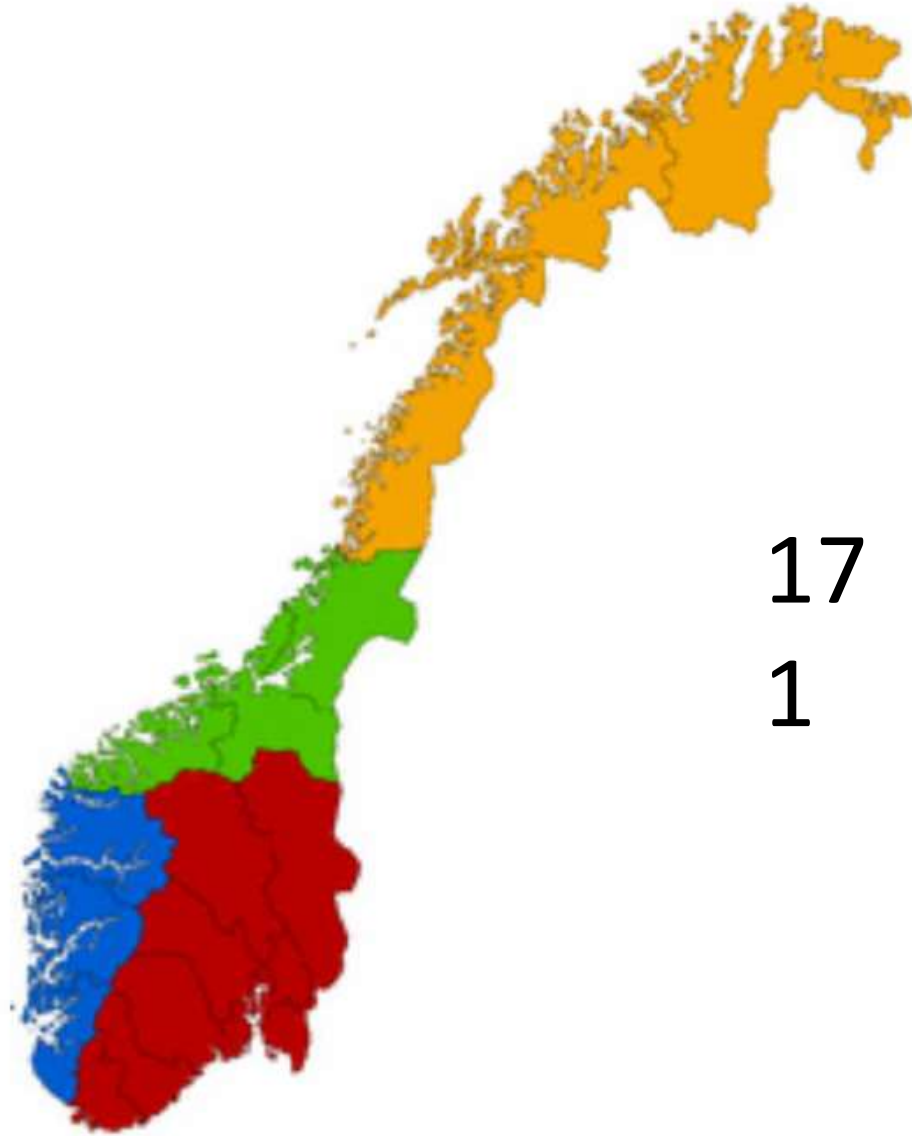


- HTS / NGS(different plattforms and panels)
- PCR supplemented with different sequenzng methods (eg Sanger or pyro)
 - Manuelle
 - Automatiske
- MLPA
- FISH
- Metyleringsanalyser (850K)
- Karyotyping
- Prosigna
- Myriad

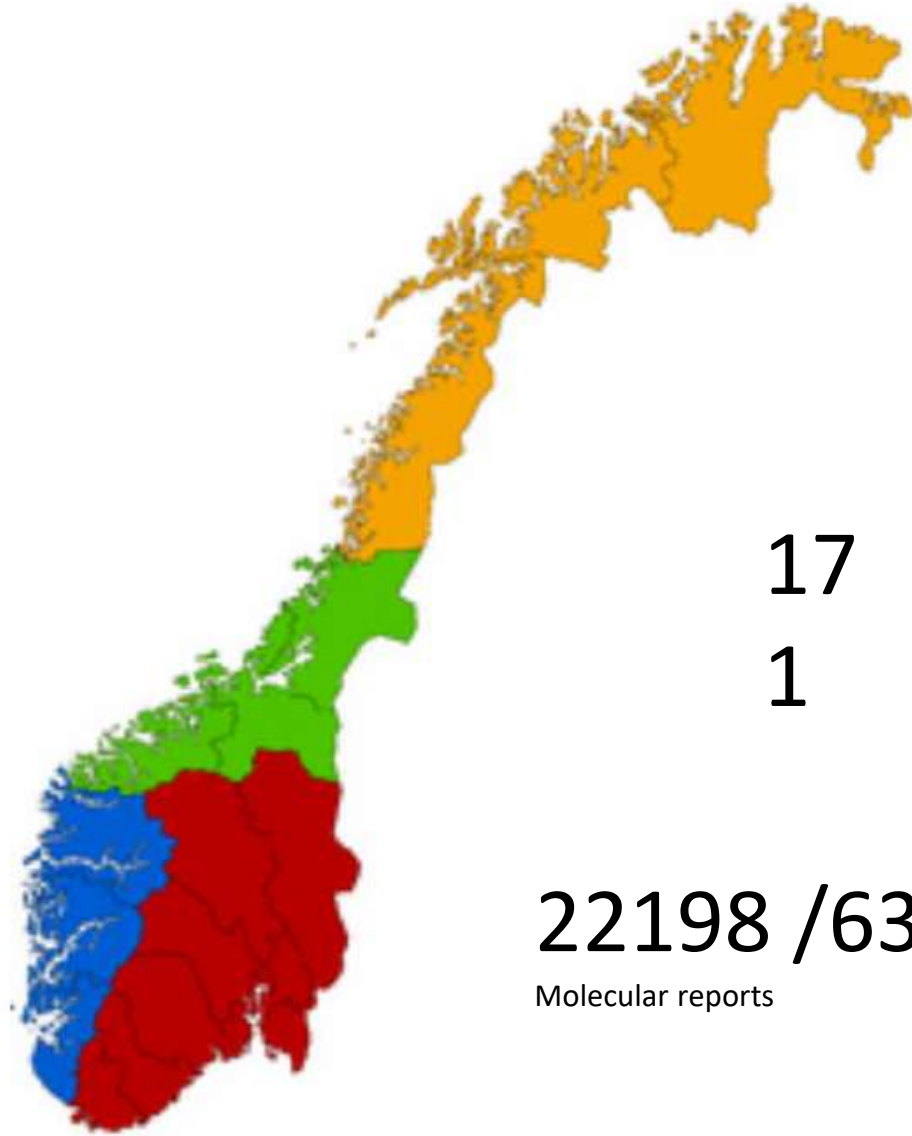
- HTS / NGS(different platforms and panels)
- PCR supplemented with different sequencing methods (eg Sanger or pyro)
 - Manuelle
 - Automatiske
- MLPA
- FISH
- Metyleringsanalyser (850K)
- Karyotyping
- Prosigna
- Myriad







17
1

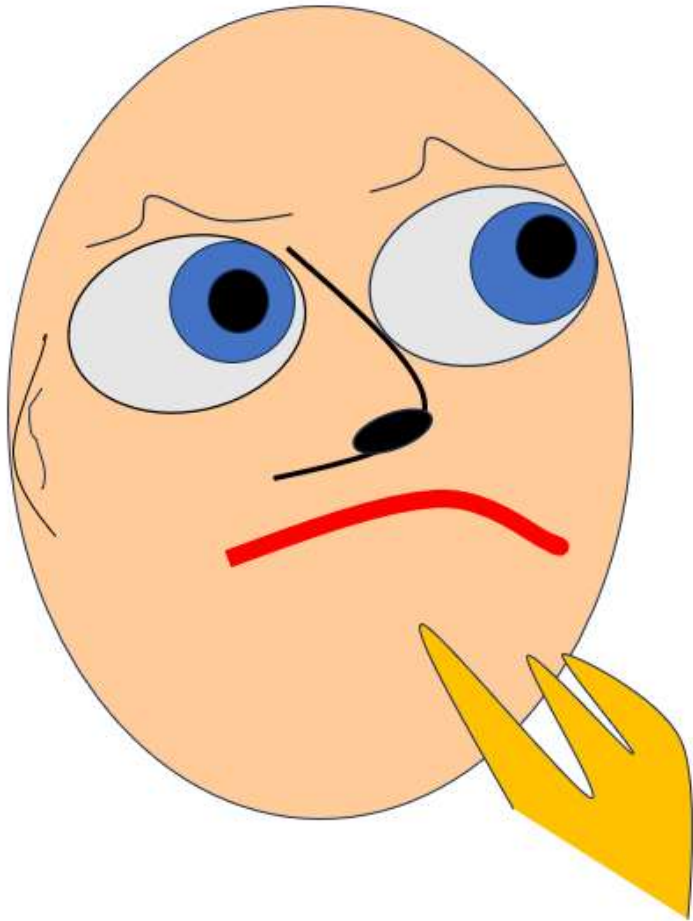


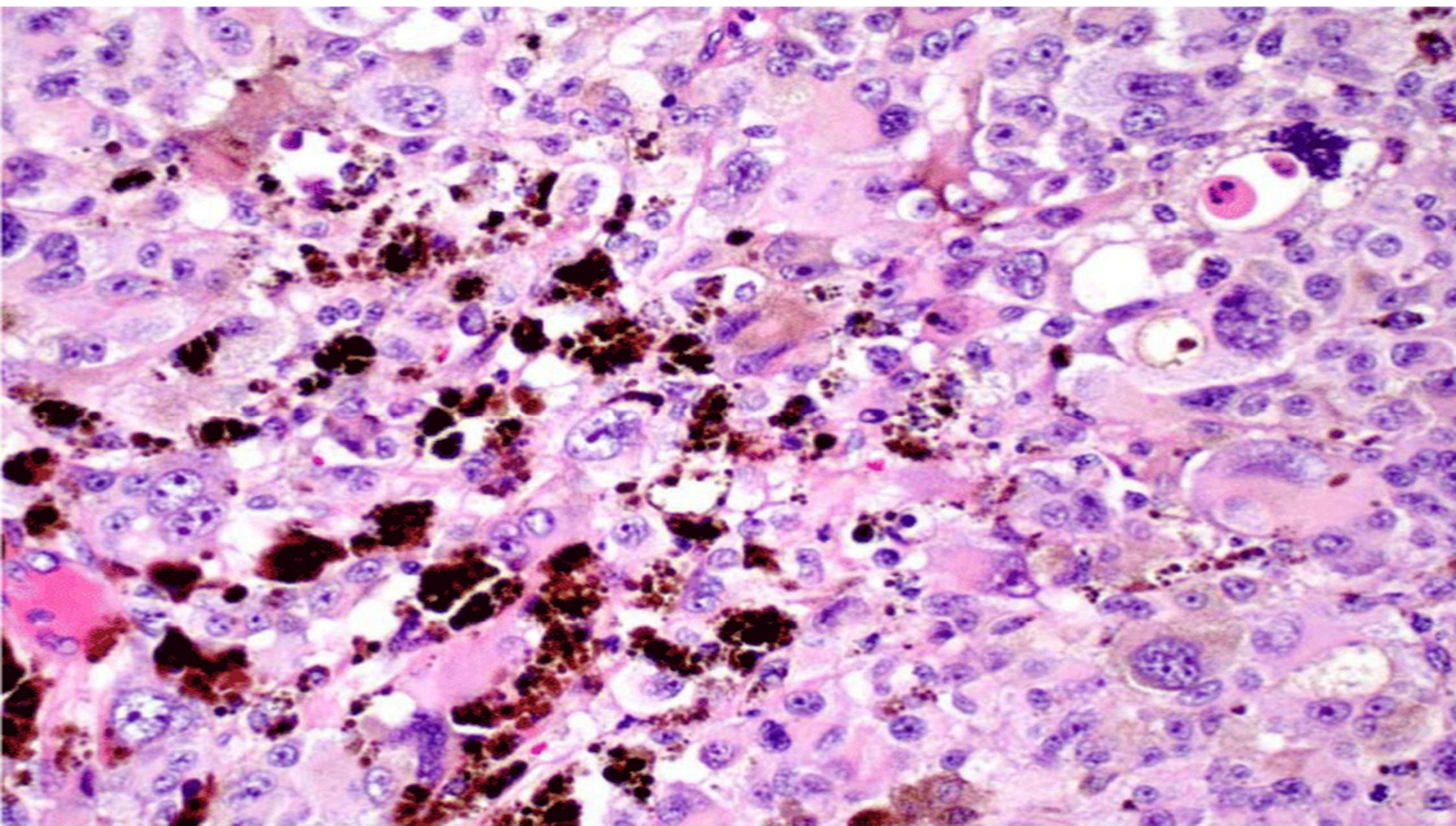
17
1

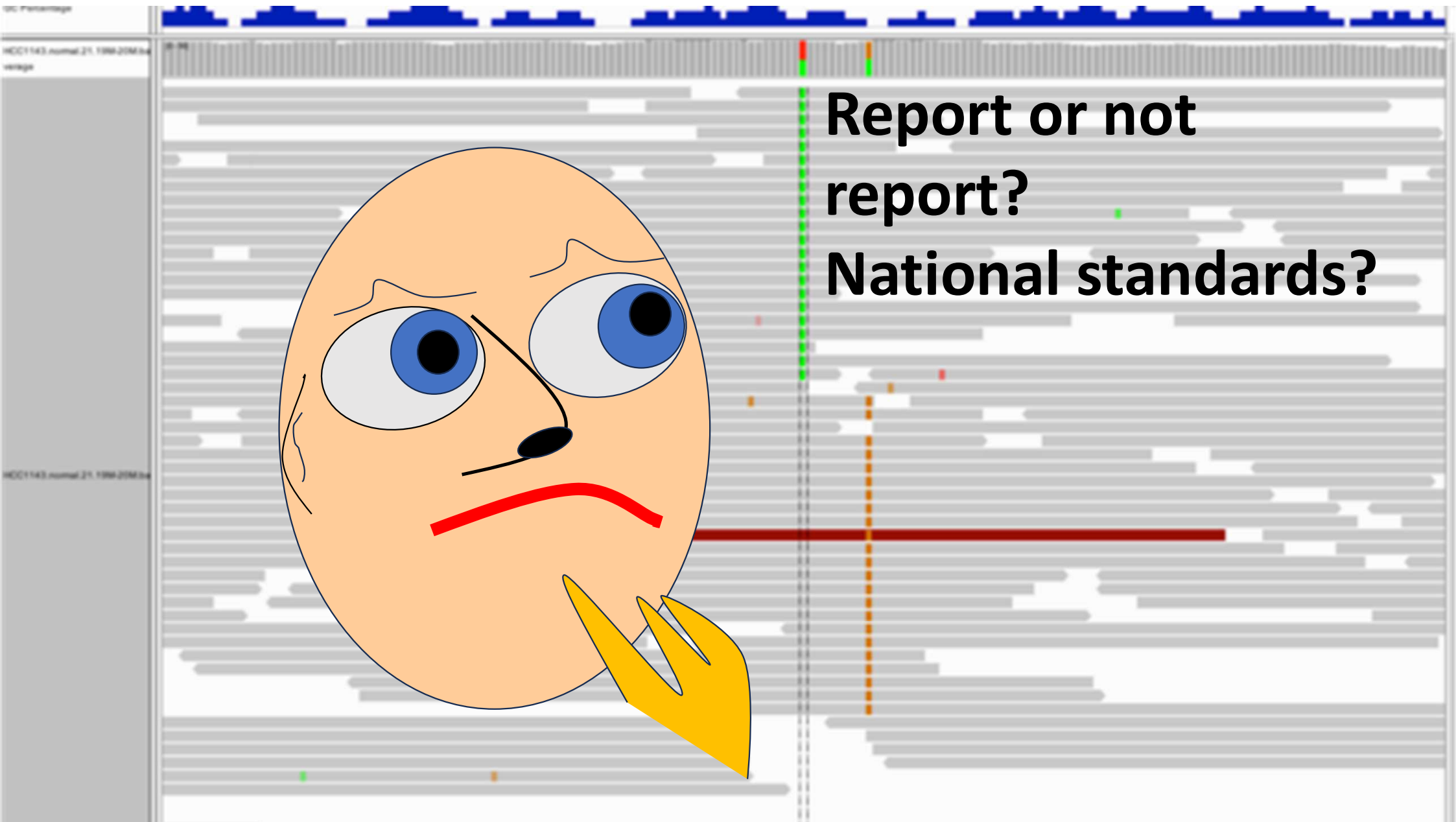
22198 /631110 (3.5%)

Molecular reports

Reporting results





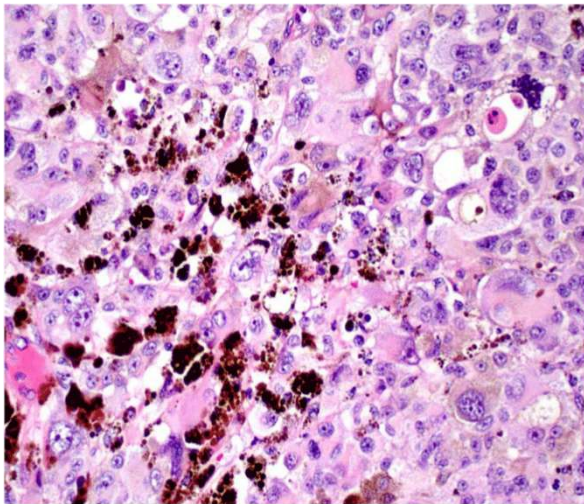


**Report or not
report?
National standards?**

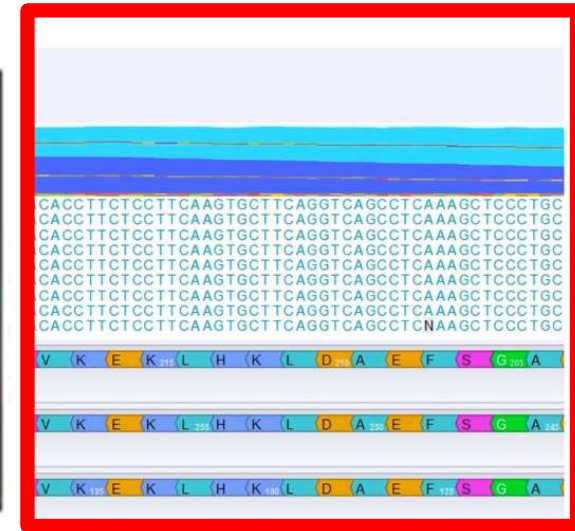
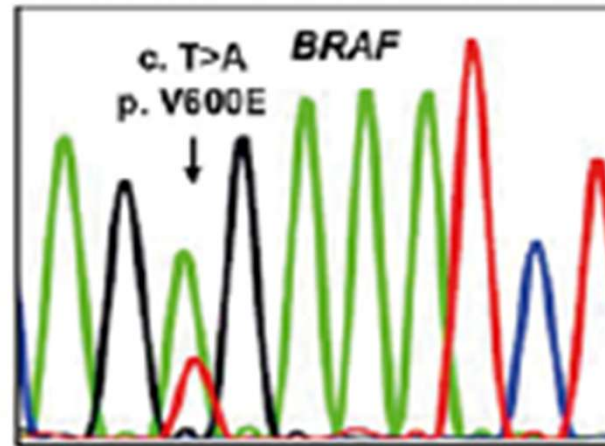
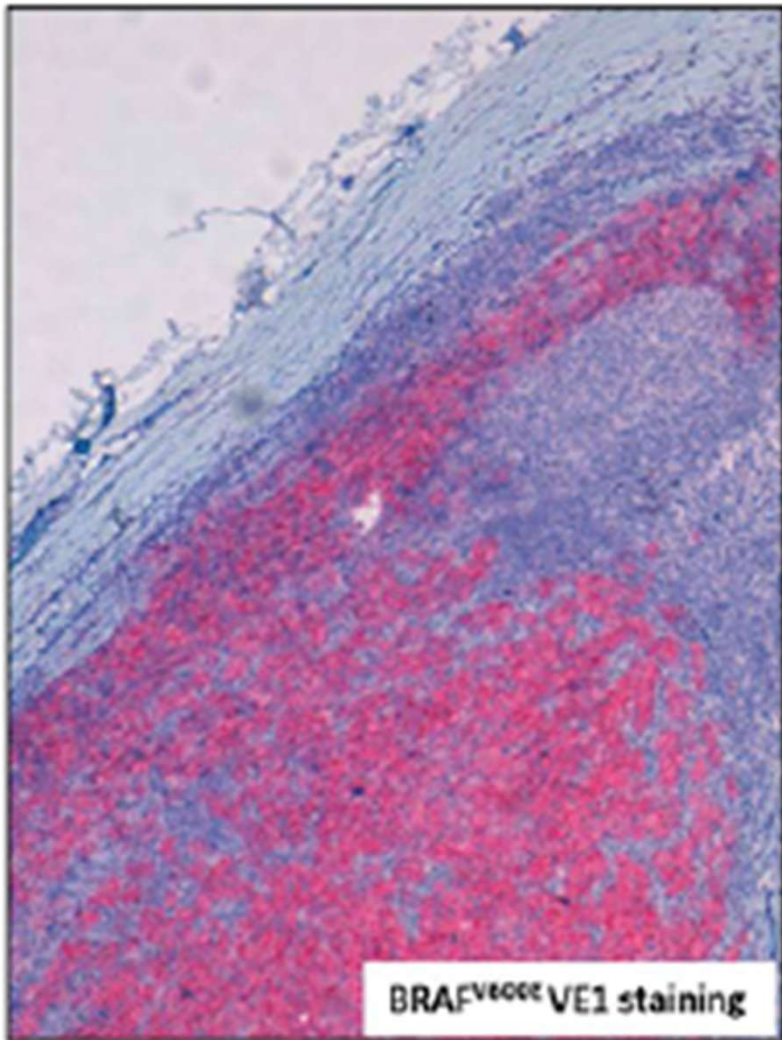
Financing

- Pathology departements are financed by fixed amount and reimbursement from Norwegian Health Economics Administration (Helfo)
- Not ideal system. Potential overuse of tariffs with economic “benefits”.

Example



Metastatic
malignant
melanom
BRAF status?



[Dette bildet](#) av Ukjent forfatter er lisensiert under [CC BY-SA](#)

Reflextesting

- Lung
 - Selected colorectal
 - Pancreatic
 - Brain
 - Lymphoid and myeloid malignancies
-
- Wider use of reflextesting against actual genes relevant for first line treatment could be beneficial.

Inheritance/germ line testing on tumor tissue

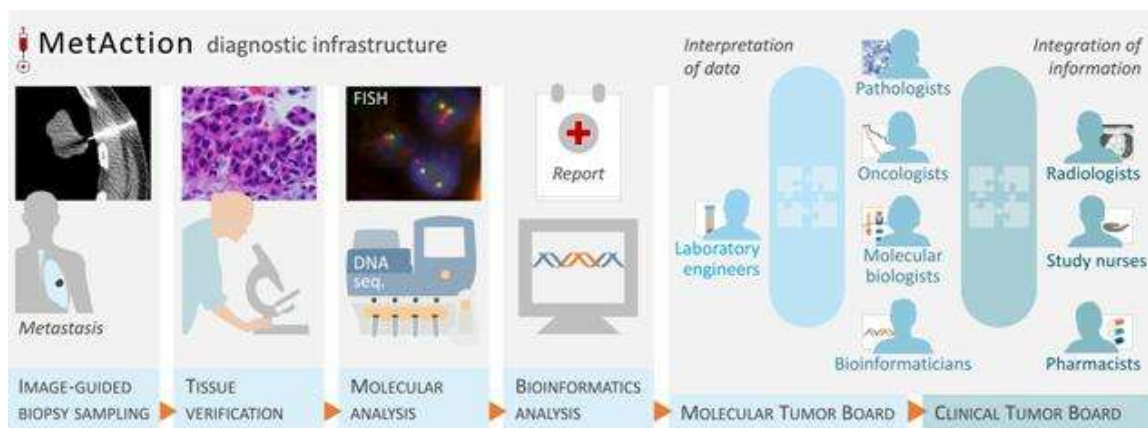
- MLH1 promotor methylation (Lynch syndrome?)
- CTNNB1 vs APC in desmoid fibromatose.
- BRCA1/2

Not standardized treatment (in Norway)

- Drugs approved for other tumortypes
- Drugs available in Norway but not financed by via the tax system
- Combination of drugs

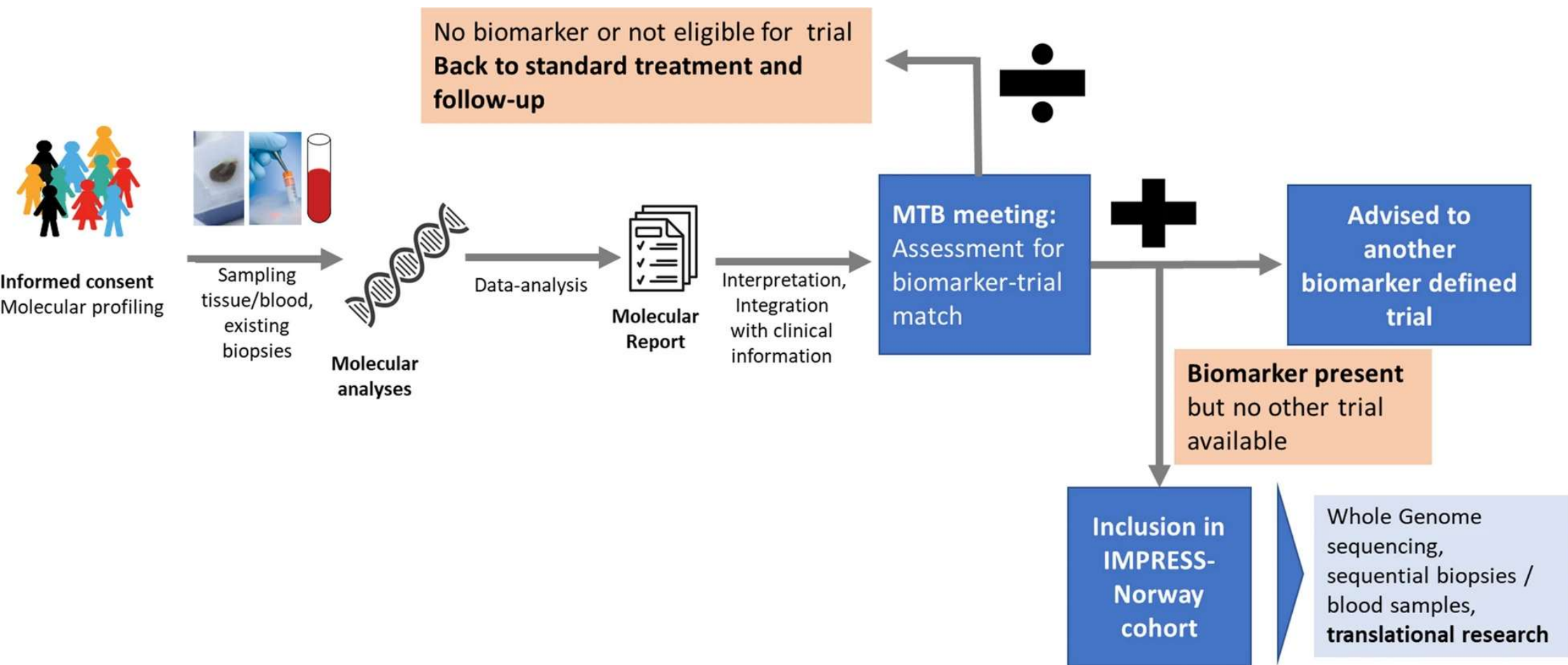
Not standardized treatment (in Norway)

- MetAction (Actionable targets in cancer metastasis), 2012-2018.
- 50 patients.
- Ion Oncomine™ Comprehensive Panel.
- The first clinical trial in Norway where treatment decisions were based on targeted NGS data.



IMPRESS (Improving public cancer care by implementing precision medicine in Norway)

- Eligible patients are first offered a gene panel (TSO500)
- Performed by Infrastructure for Precision Diagnostics (InPreD).
- Results (if potential relevant) are presented to the IMPRESS-team and the treating oncologist in a national molecular tumor board meeting. Specialists from various disciplines such as bioinformatics, molecular biology, oncology and pathology participate in the national molecular tumor board to discuss treatment options.
- The IMPRESS-Norway study design is based on the DRUP trial (Drug Rediscovery Protocol), Netherlands.
- Similar studies in Denmark, Finland and Sweden.





- Private oncologists
- Private genotyping
 - Usually on biopsies obtained at hospital
 - Analyses usually performed abroad.
- Insurance or private paid
- Collaboration between private and hospital.

Future perspectives

Varia

- Patients in Norway receive overall comprehensive molecular diagnostics.
- University hospitals have in general larger panels, especially in diagnostic tests and panels covering CNS tumors and hematological malignancies.
- Demands for new tests are continuous and, at least at some labs, it is challenging to establish new tests.
- Examples of patients excluded from studies
 - Lack of gene
 - Lab is not accredited or test used is not CE/IVDR approved.

