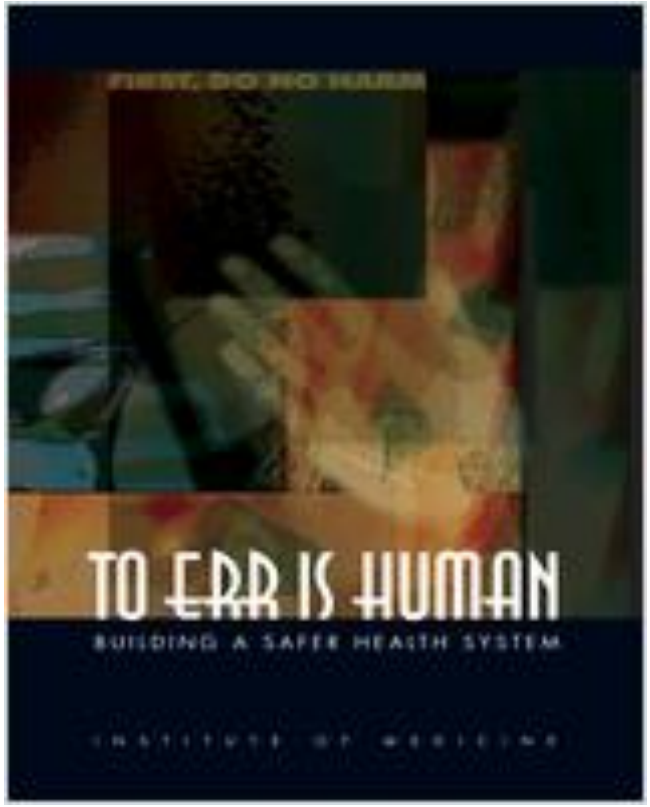
fortsatt

Å feile er menneskelig.

Eksempler fra patologi, et laboratoriefag med ett bein i klinikken.

G. Cecilie Alfsen, patolog
1.amanuensis, emeritus
Teknisk bedømmer, NA

As many as 98,000 people die each year from medical errors that occur in hospitals. That's more than die from motor vehicle accidents, breast cancer and AIDS--making medical errors the fifth leading cause of death in this country.



Linda T. Kohn,
Janet M. Corrigan,
Molla S. Donaldson
(red).

Washington (DC): National Academies Press (US); 2000.

- Risikoen for å bli skadet av den medisinske behandlingen i et vestlig sykehus, er på rundt 10%.

	Totalt	Menn	Kvinner
Antall personer som hadde minst en behandling ved somatiske sykehus, etter kjønn. 2013 [1]			
Pasienter totalt på somatisk sykehus	1 782 227	818 033	964 194
Pasienter døgnopphold	577 335	255 631	321 704
Pasienter dagbehandling	206 937	90 446	116 491
Pasienter, poliklinisk konsultasjon	1 581 705	721 405	860 300

[1] Samme person kan ha vært ved mer enn ett behandlingsnivå. Utenlandsbosatte og de med ugyldige kommunenr. er ekskludert.

Kilde: NPR.

[Pasienter på sykehus - årlig - Tabeller - SSB]

Perspectives in Health - The magazine of the Pan American Health Organization
Volume 10, Number 1, 2005

Patologi skiller seg fra andre laboratoriefag:

Hjernen er det viktigste diagnostiske instrumentet.
Alle diagnoser av sykelige forandringer i vev og celler stilles av leger.

Med andre ord:
Diagnostisk presisjon er avhengig av

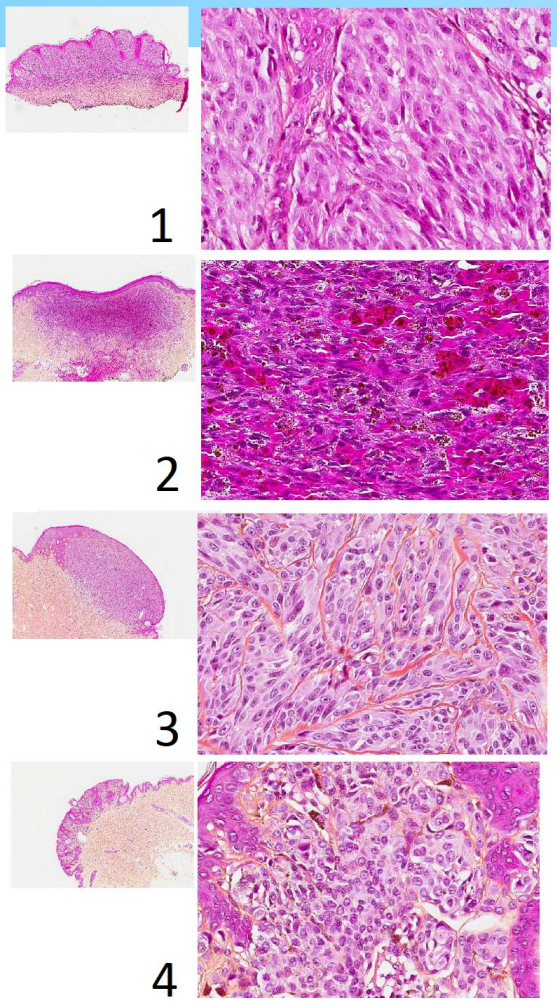
a) den enkelte patologs kunnskap og erfaring
b) graden av interkollegialt samarbeid
(inkludert klinikere)
c) evne til fokus

Patologi er vanskelig – her ser du hvorfor!

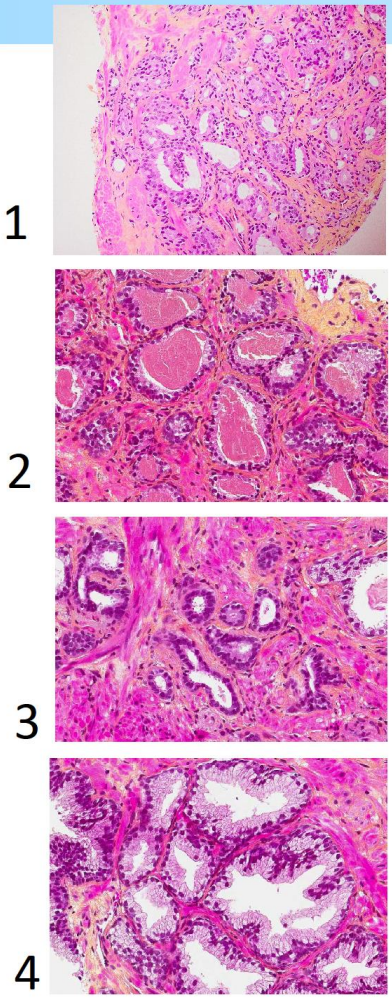
Et av bildene i hver serie er ondartet. Men hvilket?

Sett **Rød lapp** **ved bildene du mener er ondartet**

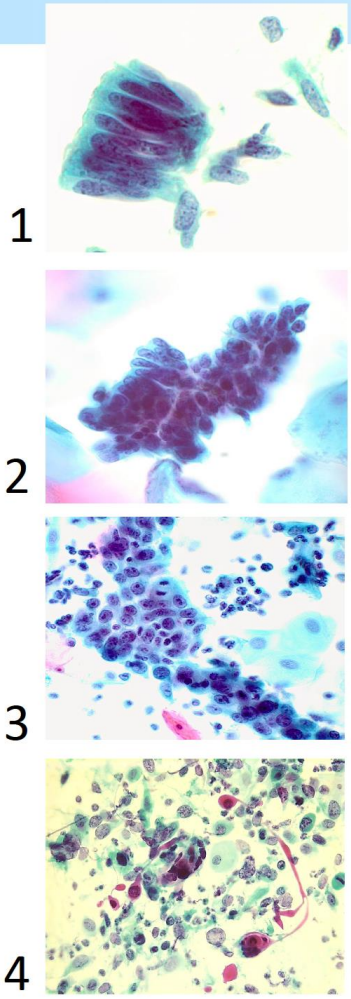
Hud



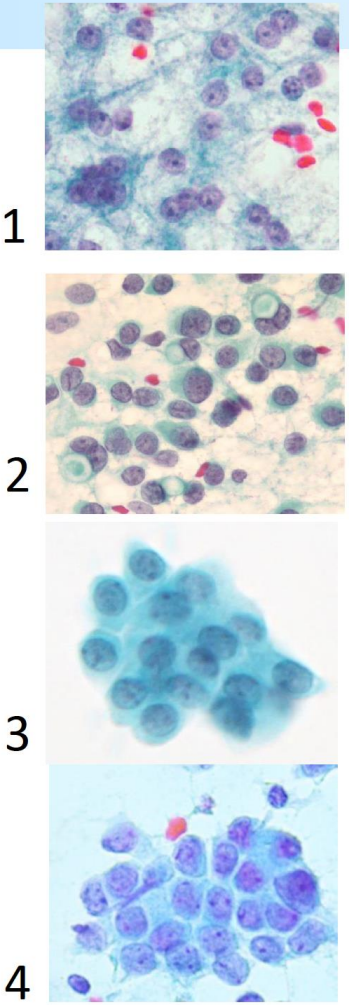
Prostata



Livmorhalsen



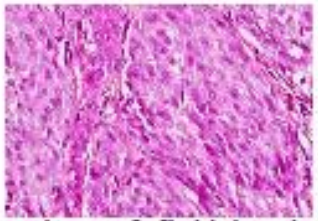
Bryst



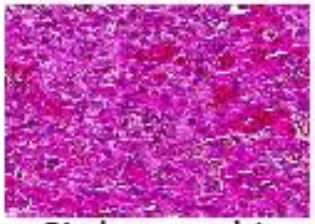
FASIT

Hud:

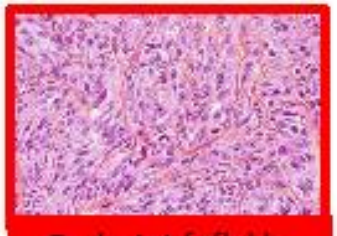
Vevsprøver skåret ut fra hud med kniv, med bedøvelse (biopsi)



Godartet føflekk hos barn



Bindevevssvulst «dermatofibrom»

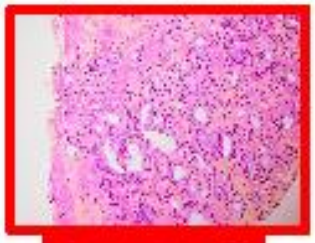


Ondartet føflekk, «malignt melanom»

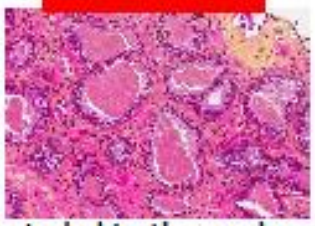
Godartet føflekk hos voksen, «nevus»

Prostata:

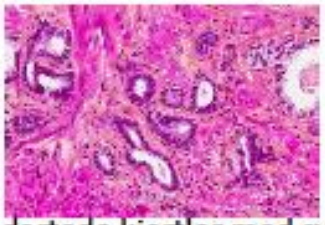
Vevsprøver tatt med nål (nålebiopsi)



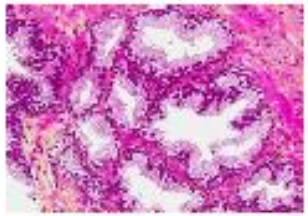
Prostatakreft



Godartede kjertler, «adenose»



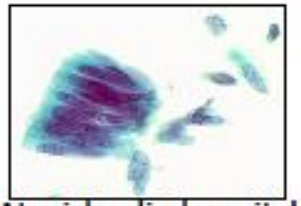
Godartede kjertler med svinn, «atrofi»



Godartet forstørrelse, «hyperplasi»

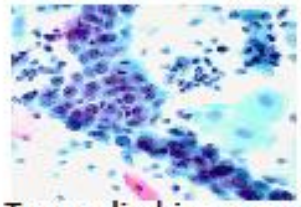
Livmorhals:

Celleprøver tatt med børste og overført til væske, væskebasert

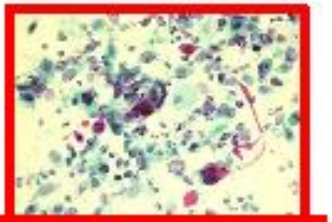


Atypisk sylinderepitel, forstadium til kreft

Forurensing fra livmor under menstruasjon



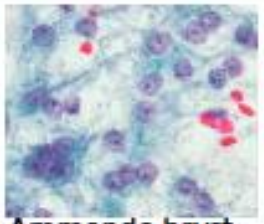
Tynne slimhinner med betennelse hos eldre kvinne



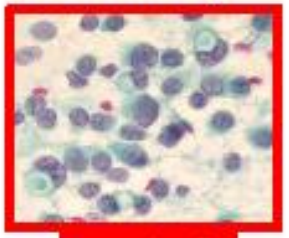
Kreft på livmorhalsen, plateepitelkarsinom

Bryst:

Celleprøver hentet ut med tynn nål (finnåls-aspirasjon, FNAC)

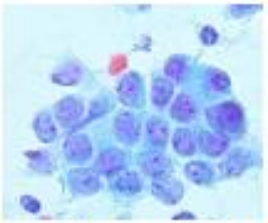


Ammende bryst



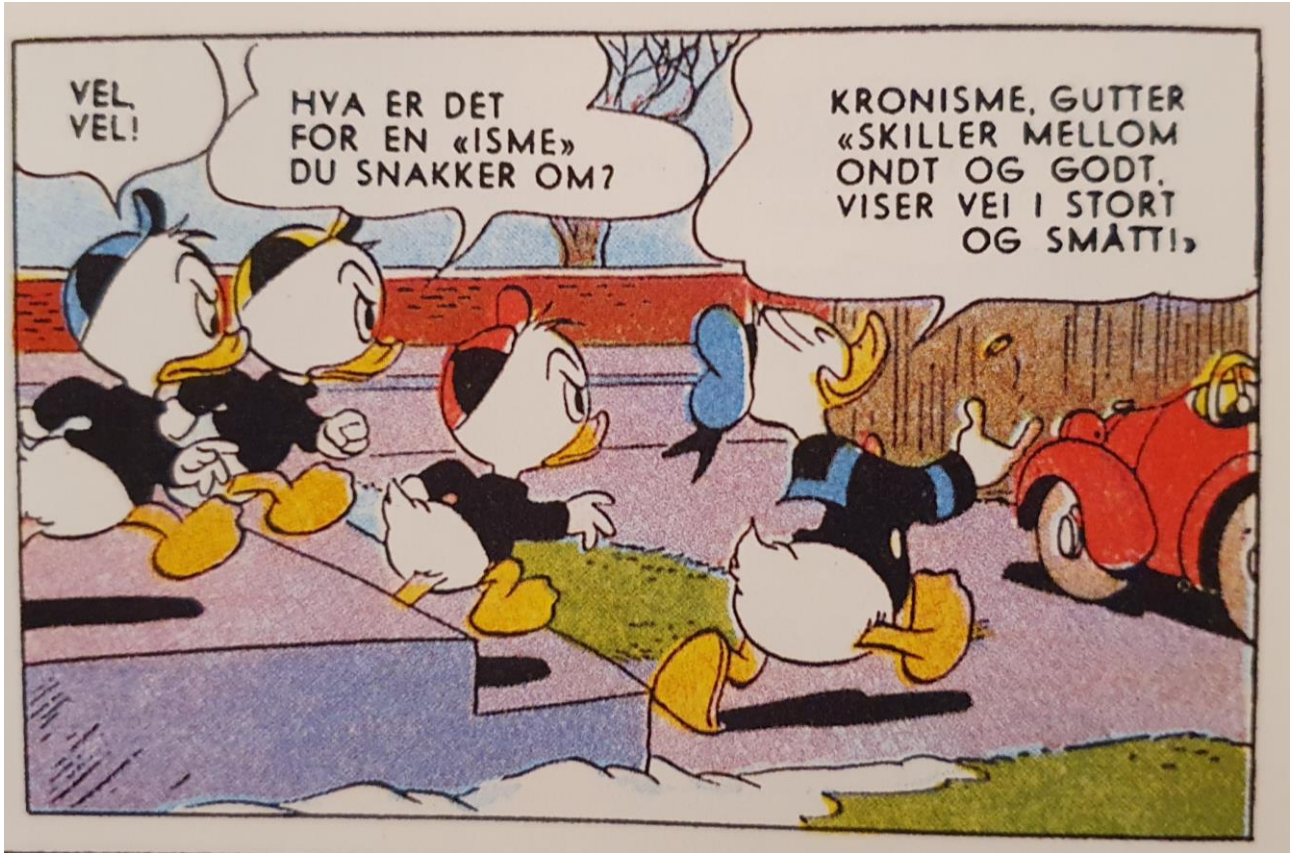
Brystkreft

Celler fra godartet knute, «fibroadenom»

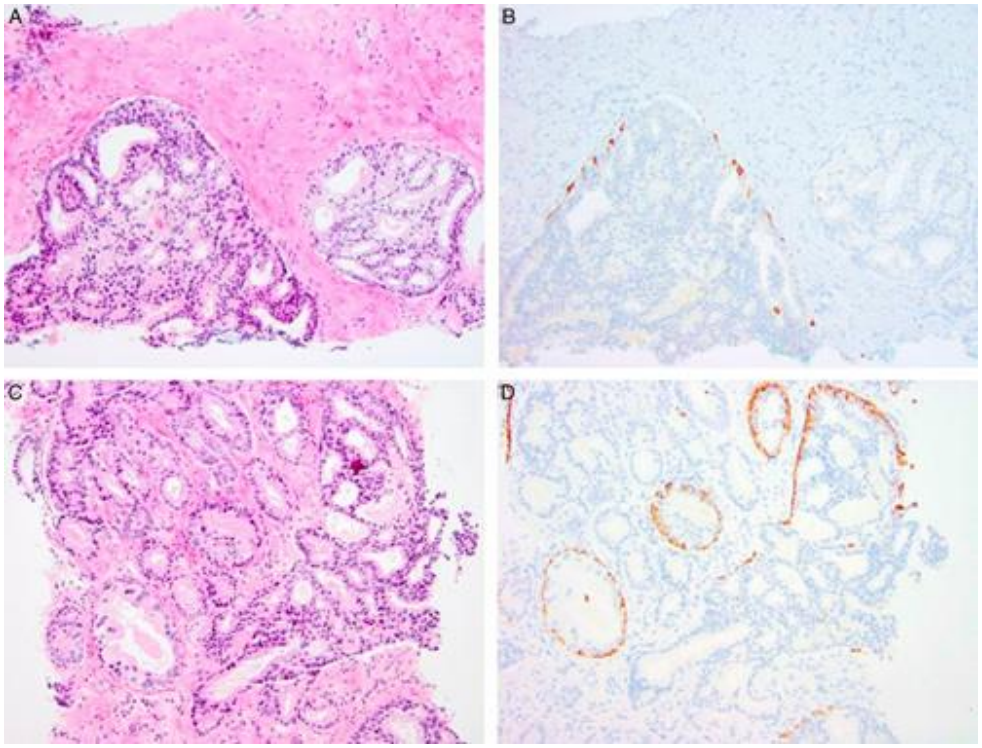


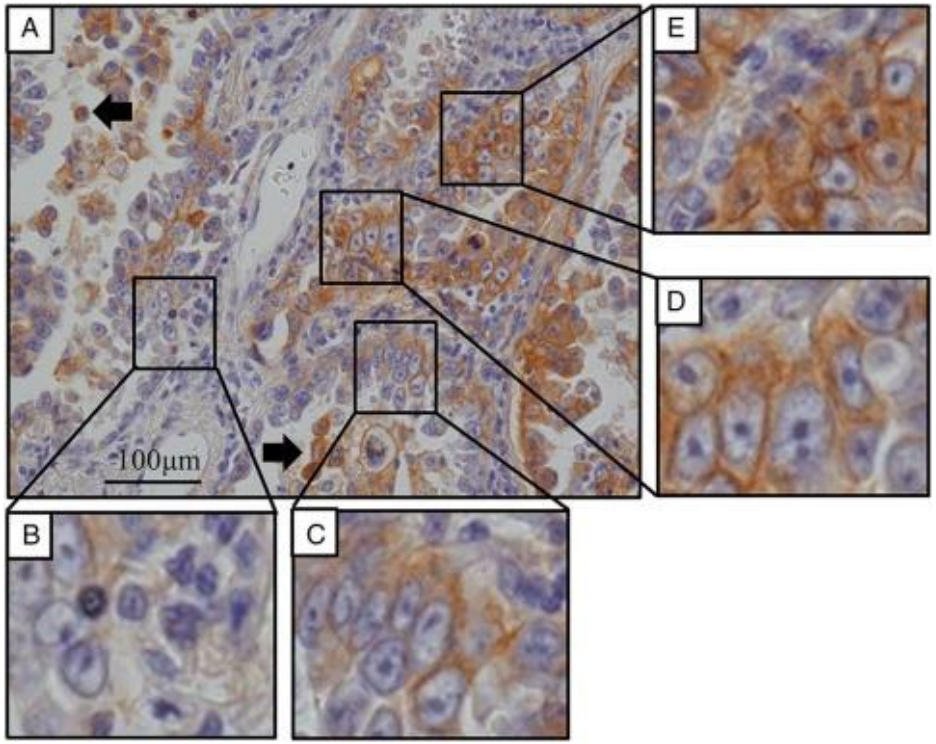
Normalt epitel i brystet

Donald Duck 6/1954



Donald Duck 6/1954





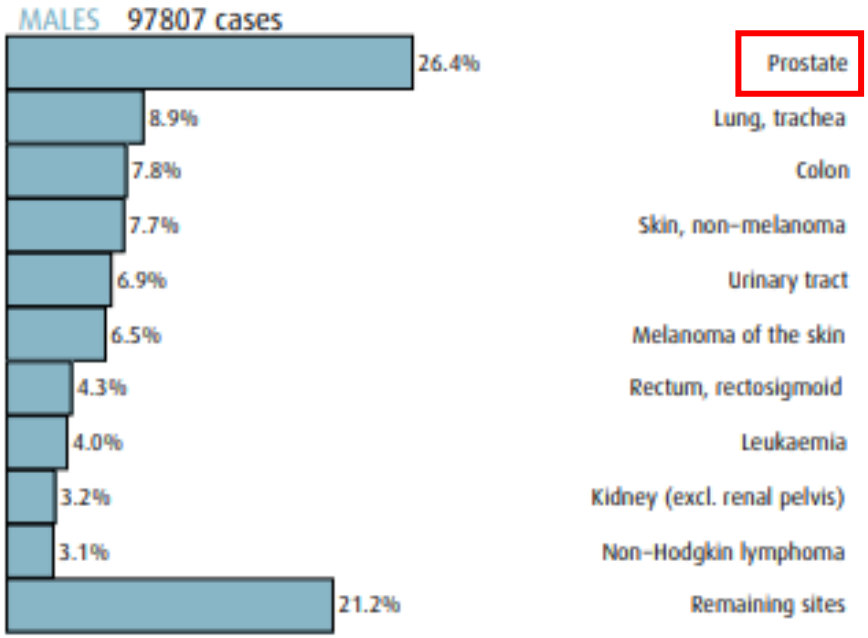
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7382533/

https://www.researchgate.net/publication/314232952_PD-L1_expression_and_its_relationship_with_oncogenic_drivers_in_non-small_cell_lung_cancer_NSCLC

Eksempler på feil i patologi-faget:

Figure 5.2: The most frequent types of cancer by age and sex, 2018–2022

Figure 5.2-A: All ages



Helsedirektoratet

Nasjonalt handlingsprogram med retningslinjer for diagnostikk, behandling og oppfølging av prostatakreft

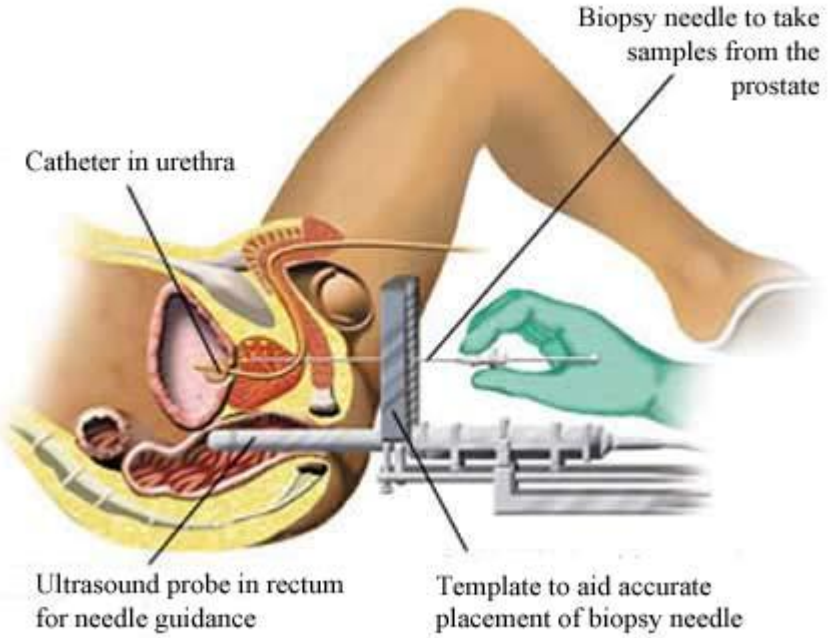
Tabell 3.1: Antall nydiagnostiserte prostatakreftpasienter (forekomst/insidens), antall døde av prostatakreft (mortalitet) og antall personer som lever med prostatakreft (prevalens), Norge, 2004–2021.

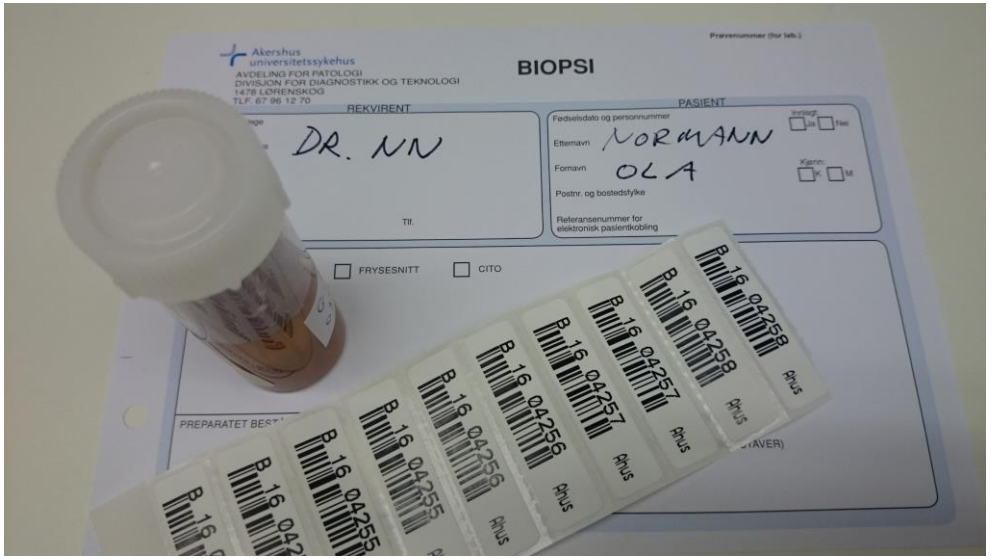
År	Forekomst	Mortalitet	Prevalens
2021	5228	*[1]	59 197
2020	5107	954	56 892
2019	5009	958	54 592
2018	4947	928	52 330
2017	5109	936	49 993
2016	5319	965	47 489
2015	5192	1047	44 763
2014	4967	1093	42 114
2013	4888	1012	39 675
2012	4927	1005	37 280
2011	5003	1050	34 681
2010	4264	1043	32 070
2009	4405	1044	30 180
2008	4446	1095	28 096
2007	4451	1090	25 973
2006	3910	1047	23 769
2005	3714	1042	21 976
2004	3860	1074	20 442

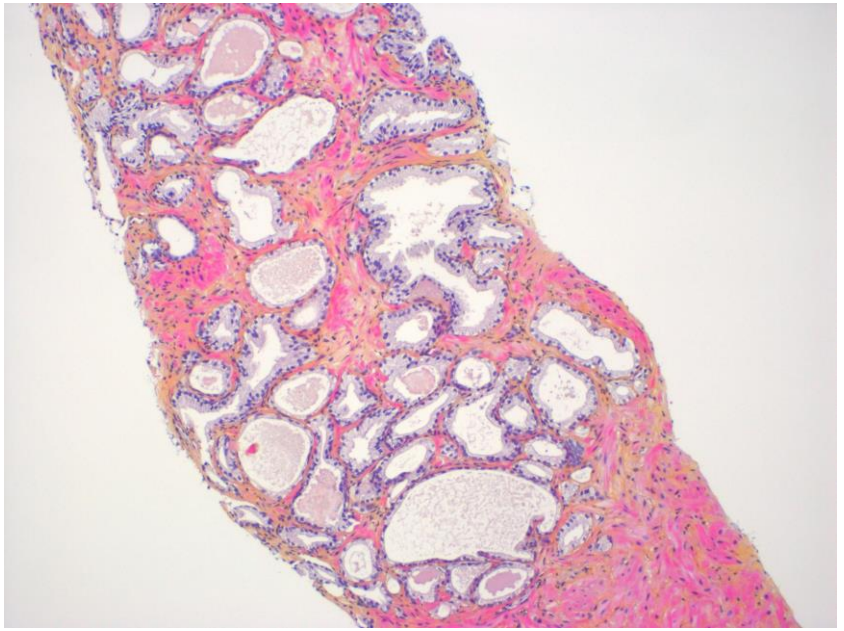
NB: Tallene kan avvike fra resultater presentert i Cancer in Norway på grunn av en dynamisk database, og at uttrekkene er gjort på forskjellige tidspunkter.

Nasjonalt kvalitetsregister for **PROSTATAKREFT**

Årsrapport **2021**


Biopsy needle to take samples from the prostate
Catheter in urethra
Ultrasound probe in rectum for needle guidance
Template to aid accurate placement of biopsy needle


Akershus universitetssykehus
AVDELING FOR PATOLOGI
DIVISJON FOR DIAGNOSTIKK OG TEKNOLOGI
1478 LØRENSKOG
TLF. 67 96 12 70
BIOPSI
REKVIRENT
DR. NN
PASIENT
Etternavn NORMANN
Fornavn OLA
FRYSESNITT
CITO



Rate of Occult Specimen Provenance Complications in Routine Clinical Practice

John D. Pfeifer, MD, PhD,[1] and Jingxia Liu, PhD[2]

Key Words: Switching errors; Specimen provenance; Specimen identification errors; Microsatellite analysis; Short tandem repeat analysis; Prostate biopsy; Patient safety

DOI: 10.1309/AJCP50WEZHWIFCIV

Abstract

Occult specimen provenance complications (SPCs), which occur when there is an absence of any direct or indirect indication that a specimen switch or contamination may have occurred, constitute a significant patient safety and medical-legal problem because they can lead to misdiagnosis. However, the rate at which occult SPCs occur is unknown because, by definition, this category of errors is not identified by standard laboratory practices. In this study, we evaluated a data set comprising almost 13,000 prostate biopsies that were prospectively tested for specimen provenance errors as part of routine clinical practice. The frequency of occult type 1 errors (a complete transposition between patients) and type 2 errors (contamination of the patient's tissue with 1 or more unrelated patients) was 0.26% and 0.67%, respectively; every urology practice setting and surgical pathology laboratory type with a representative sample size experienced at least 1 type 1 and 1 type 2 error during the study period. Overall, the mean frequency of SPCs across practice settings was 0.22% for type 1 errors and 1.69% for type 2 errors. The type 1 rate showed no correlation with a surgical pathology laboratory setting or urologic practice group setting; the type 2 rate correlated solely with a surgical pathology laboratory setting. The occult SPC rate in this limited data set provides an estimate of the scope of the problem of potential misdiagnosis as a result of occult specimen provenance errors in routine clinical practice.

Specimen identification issues are on ongoing problem in clinical laboratories. In the context of surgical pathology, specimen labeling problems occur in about 6% of accessioned cases, and extraneous tissue contaminants can be identified in up to 2.9% of slides[1,2]; it is noteworthy that, of the tissue contaminants encountered prospectively, approximately 30% are abnormal or neoplastic, and about 10% present some degree of diagnostic uncertainty.[1] Particularly troublesome is the fact that specimen identification errors (also known as specimen provenance complications [SPCs]) can arise at any phase of the surgical pathology test cycle, including the preanalytic phase of specimen collection, which is completely outside the control of the pathology laboratory.[3-9] Although recent reports have demonstrated that the application of new technologies can decrease preanalytic SPCs,[10-12] misdiagnosis due to specimen mix-ups remains a significant patient safety concern in all surgical pathology laboratories.[13-15] Despite more than a century of process improvements and technical innovation, the potential for specimen mix-ups, cross-contamination, floaters, or carryover artifacts has not been eliminated completely.

Over the past decade, short tandem repeat (STR) analysis has emerged as a DNA-based method with clinical applicability for specimen identity testing. The panel of STRs (also known as microsatellites) used in the testing is based on the Combined DNA Index System (CODIS) loci originally selected by the Federal Bureau of Investigation of the United States.[16] The CODIS loci feature high-level polyallelism and broad distribution of the different alleles across various population groups, characteristics that provide STR-based testing with a very high power of discrimination for assigning specimen provenance in clinical settings. The utility of STR

DNA fra nålebiopsier hos 13 000 pasienter med kreftdiagnose ble sammenlignet med DNA fra munnslimhinne, samlet ved prøvetaking.

Table 3
Descriptive Statistics for the Primary Outcome (Occult Error Rate) in the Study Sample

	No. of Laboratories	Type 1 Rate, Mean ± SD	Type 2 Rate, Mean ± SD
Surgical pathology lab setting			
Third party managed	1	0.21 ± NA	0.27 ± NA
Hospital	3	0.00 ± 0.00	0.00 ± 0.00
Physician-owned lab	25	0.13 ± 0.38	0.72 ± 2.21
Reference	23	0.37 ± 1.39	3.14 ± 10.48
TC/PC split	1	0.06 ± NA	0.40 ± NA
Unknown	1	0.00 ± 0.00	0.00 ± 0.00
Total or average	54	0.22 ± 0.94	1.69 ± 7.03
Urology practice group setting			
Multispecialty	30	0.29 ± 1.22	2.29 ± 9.23
Single specialty	23	0.15 ± 0.40	0.97 ± 2.39
Unknown	1	0.00 ± 0.00	0.00 ± 0.00
Total or average	54	0.22 ± 0.94	1.69 ± 7.03

NA, not applicable; TC/PC, technical component/professional component.

Table 4
Univariate Analysis of the Frequency of Type 1 and Type 2 Complications Using a Negative-Binomial Model

	Type 1 Rate, *P* Value	Type 2 Rate, *P* Value
Surgical pathology laboratory setting	.4802	.0108
Urology practice group setting	.8163	.4375

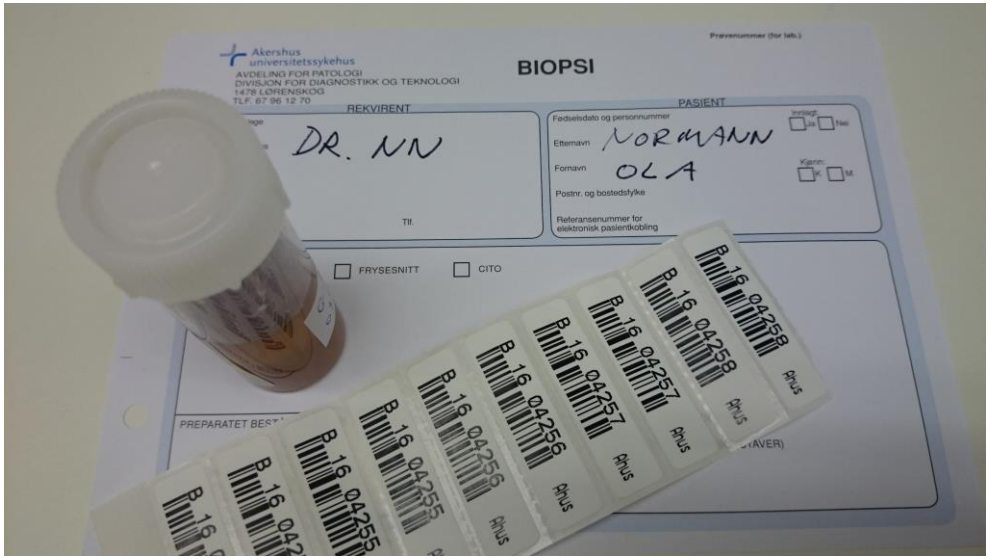
Forbytting: 0,22%
Forurensing: 1,69%

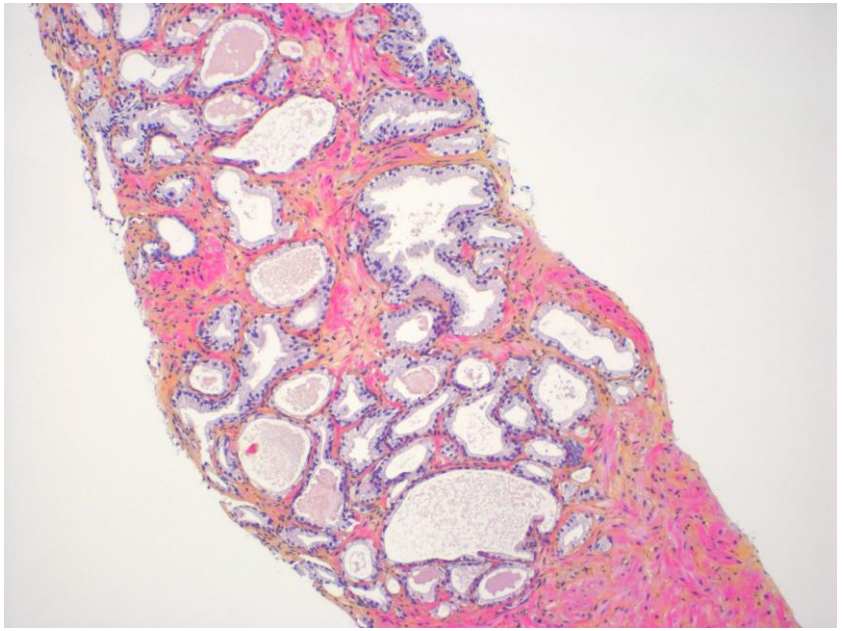
Forbytting: risiko lik for alle lab.typer

Forurensing: høyest risiko i «typiske» patologiavdelinger

John D. Pfeifer, MD, PhD,1 and Jingxia Liu, PhD Am J Clin Pathol 2013;139:93-100

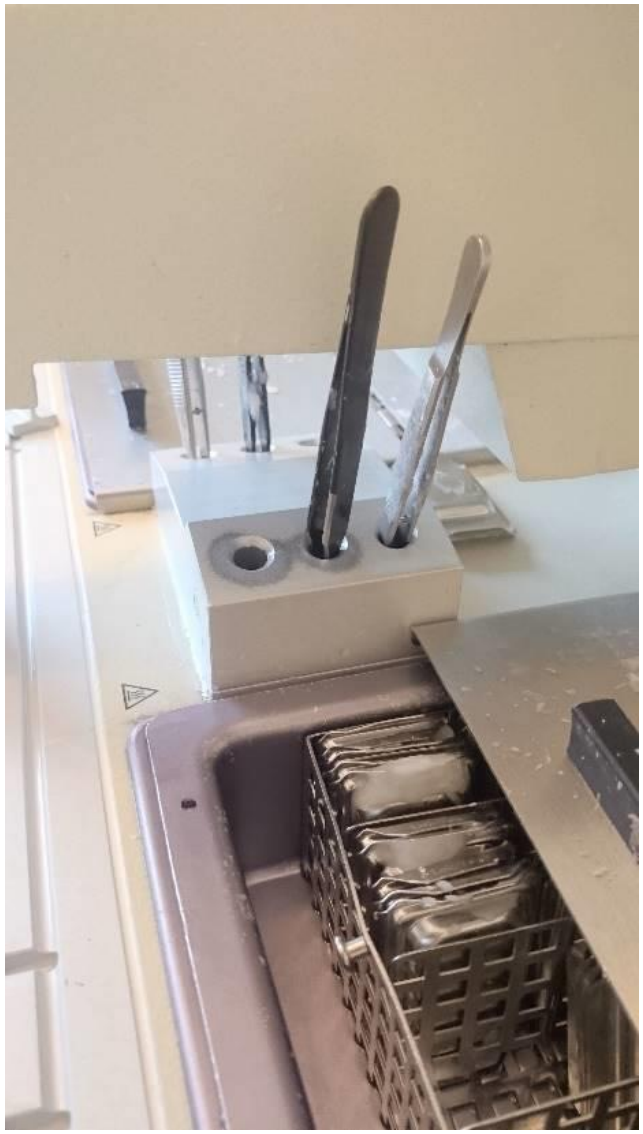
Forbyttingsmuligheter

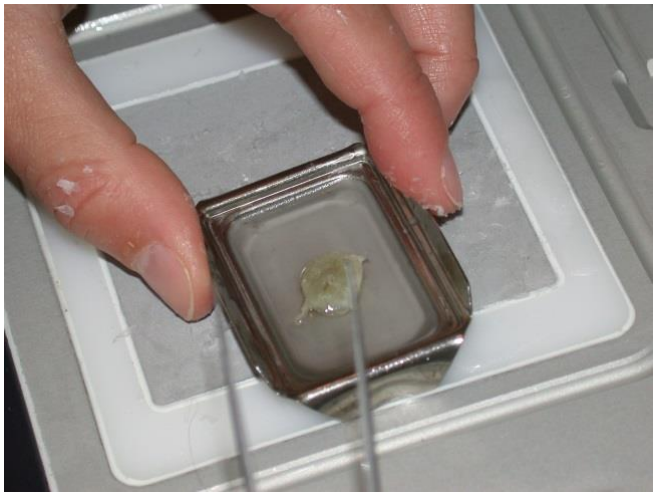




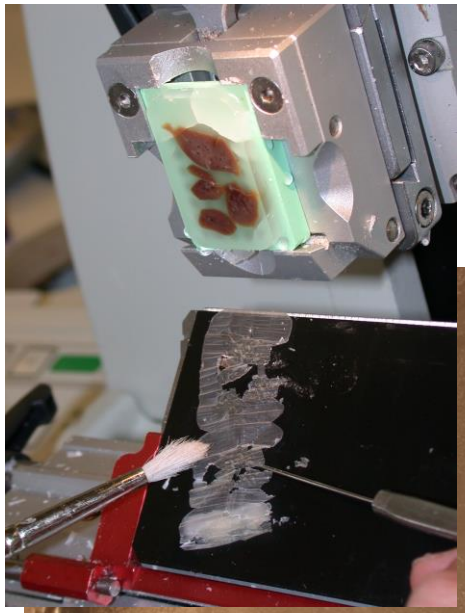
Forurensingskilder, til blokk

Forurensingskilder, til blokk

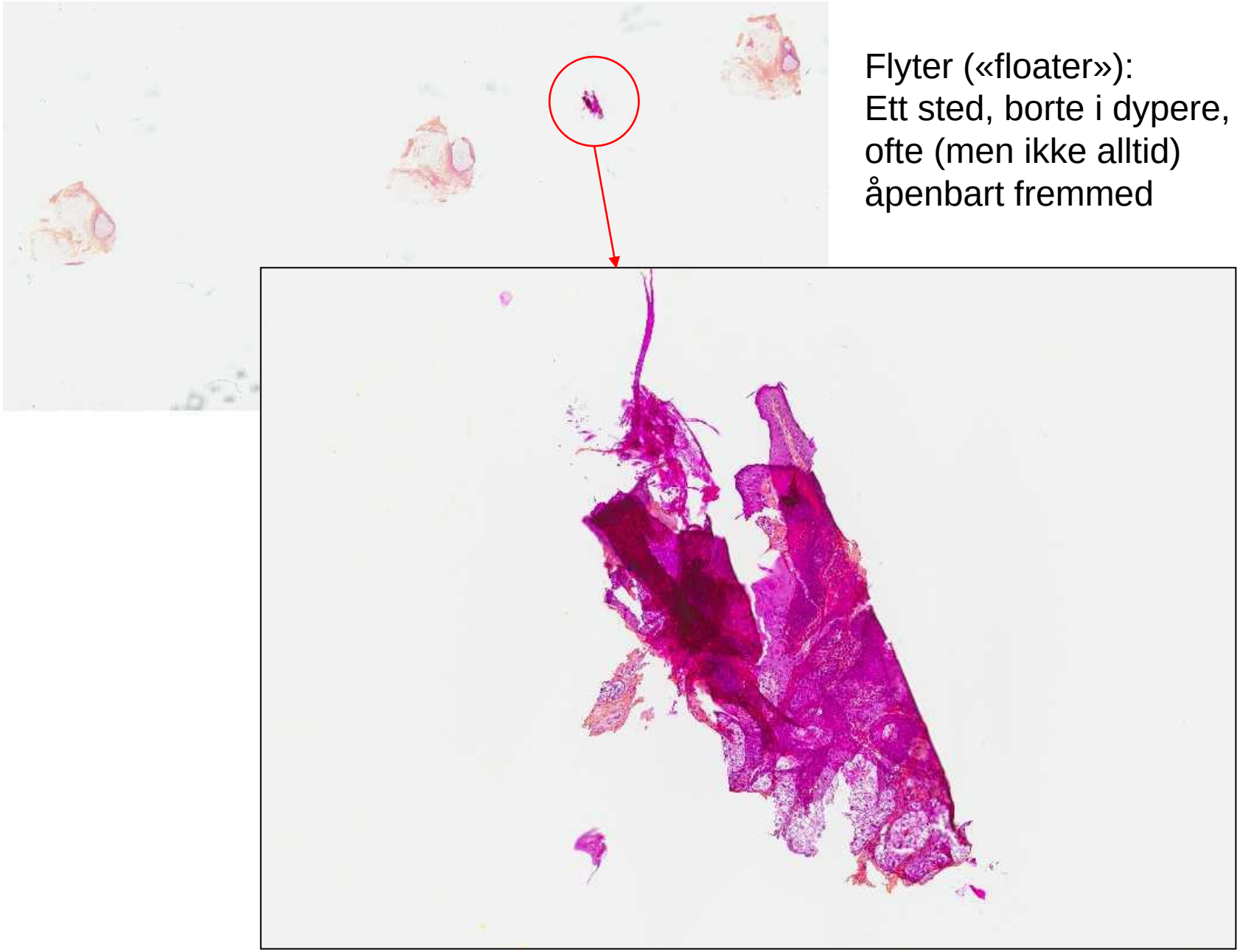




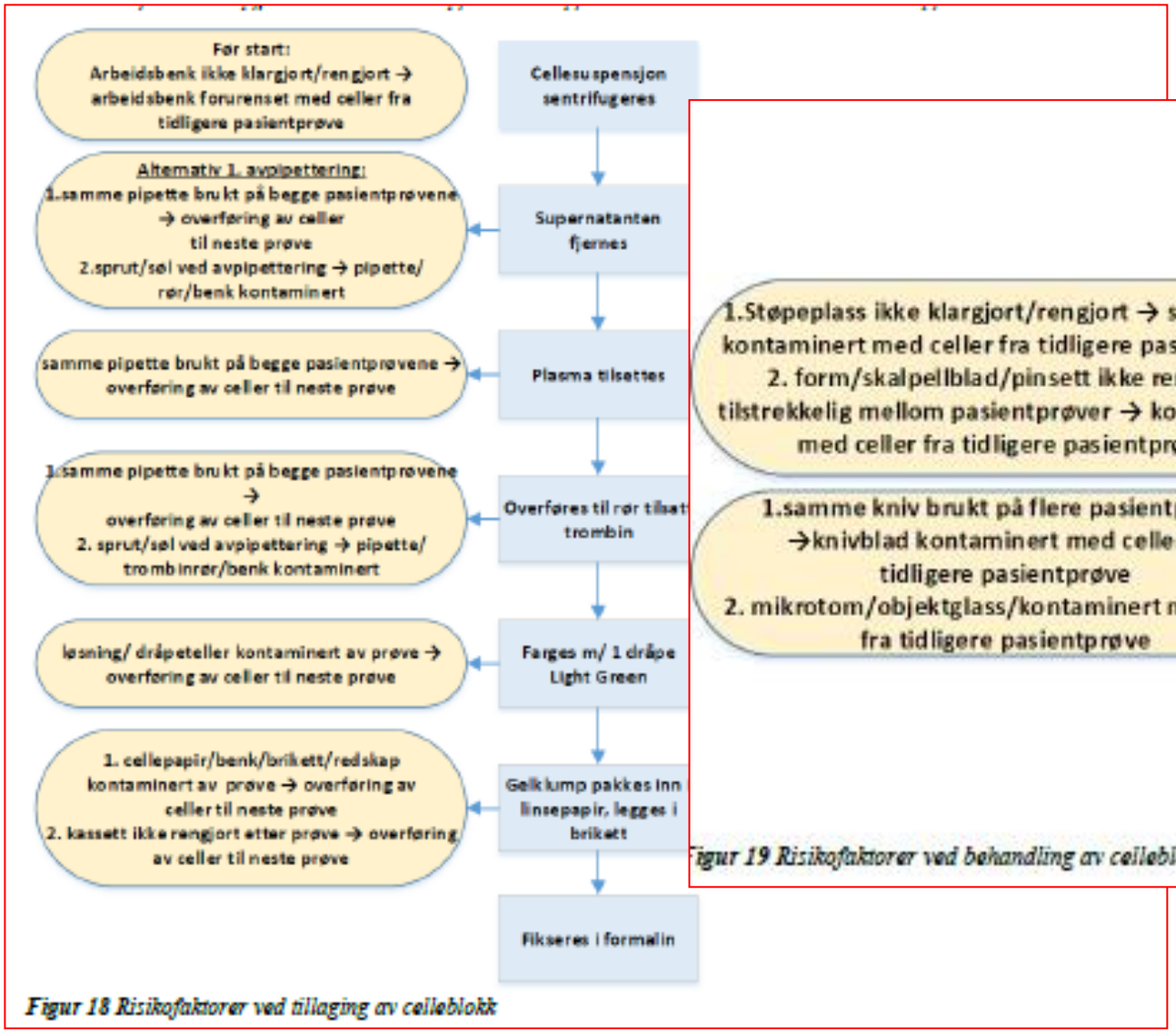
Forurensingskilder, til objektglass



Kvinne 35, biopsi fra peritoneum

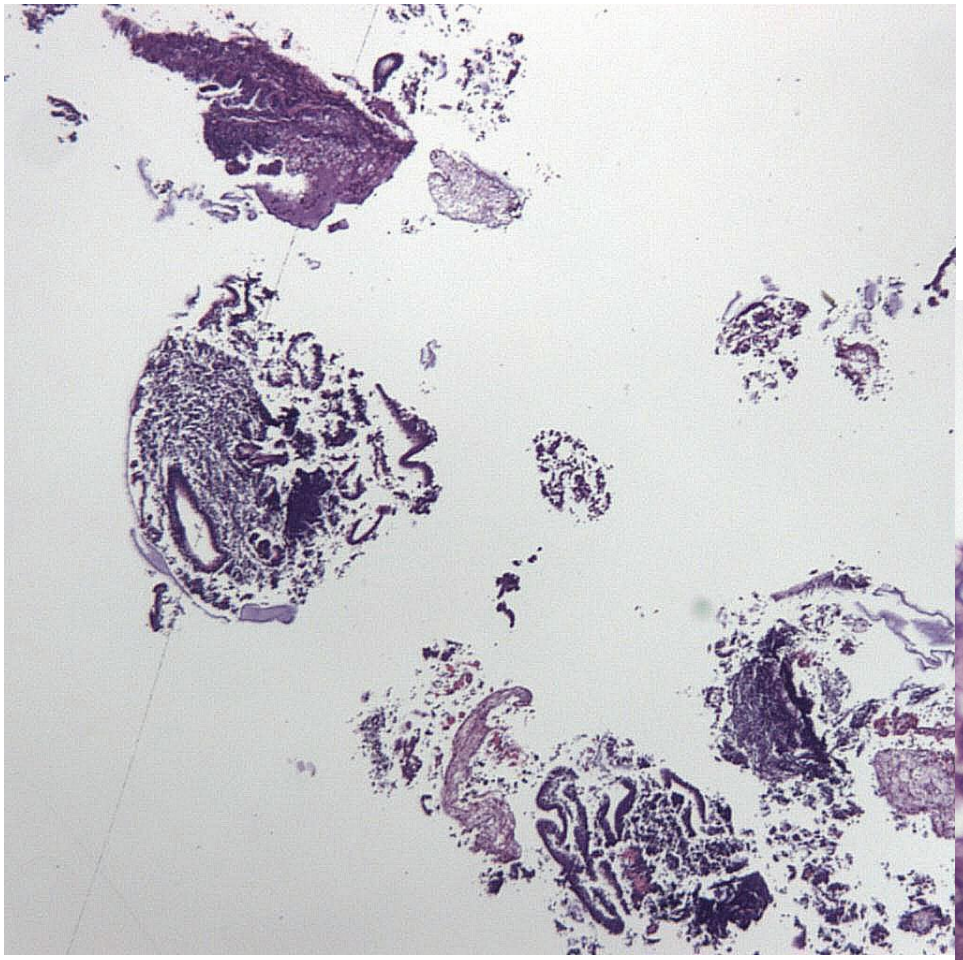


Flyter («floater»):
Ett sted, borte i dypere, ofte (men ikke alltid) åpenbart fremmed

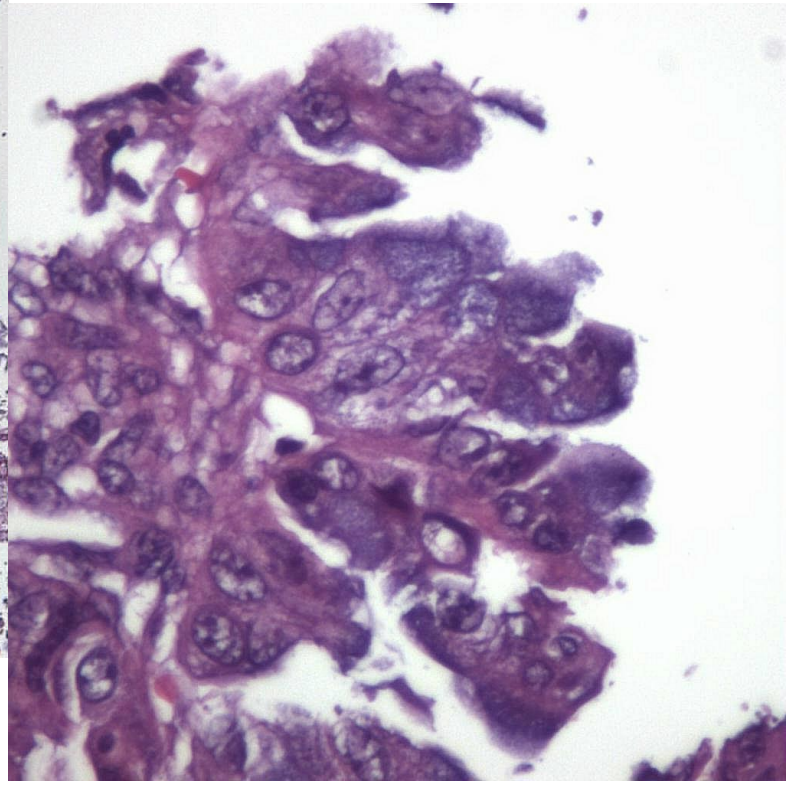

Før start:
Arbeidsbenk ikke klargjort/rengjort → arbeidsbenk forurenset med celler fra tidligere pasientprøve
Cellesuspensjon sentrifugeres
Alternativ 1. avpipettering:
1.samme pipette brukt på begge pasientprøvene → overføring av celler til neste prøve
2.sprut/søl ved avpipettering → pipette/ rør/benk kontaminert
Supernatanten fjernes
samme pipette brukt på begge pasientprøvene → overføring av celler til neste prøve
Plasma tilsettes
1.samme pipette brukt på begge pasientprøvene → overføring av celler til neste prøve
2. sprut/søl ved avpipettering → pipette/ trombinrør/benk kontaminert
Overføres til rør tilsatt trombin
løsning/ dråpeteller kontaminert av prøve → overføring av celler til neste prøve
Farges m/ 1 dråpe Light Green
1. cellepapir/benk/brikett/redskap kontaminert av prøve → overføring av celler til neste prøve
2. kassett ikke rengjort etter prøve → overføring av celler til neste prøve
Gelklump pakkes inn linsepapir, legges i brikett
Fikseres i formalin
Figur 18 Risikofaktorer ved tillaging av celleblokk
Celleblokk dehydrers/ parafinbehandles i fremføringsmaskinen
1.Støpeplass ikke klargjort/rengjort → støpeplass kontaminert med celler fra tidligere pasientprøve
2. form/skalpellblad/pinsett ikke rengjort tilstrekkelig mellom pasientprøver → kontaminert med celler fra tidligere pasientprøve
Klargjøres manuelt og støpes inn i parafin i støpemaskinen
1.samme kniv brukt på flere pasientprøver →knivblad kontaminert med celler fra tidligere pasientprøve
2. mikrotom/objektglass/kontaminert med celler fra tidligere pasientprøve
Snittes og legges på objektglass i mikrotom
Snitt farges maskinelt
Figur 19 Risikofaktorer ved behandling av celleblokk

Kvinne 51 år

Prøve fra livmorslimhinne, august 2006

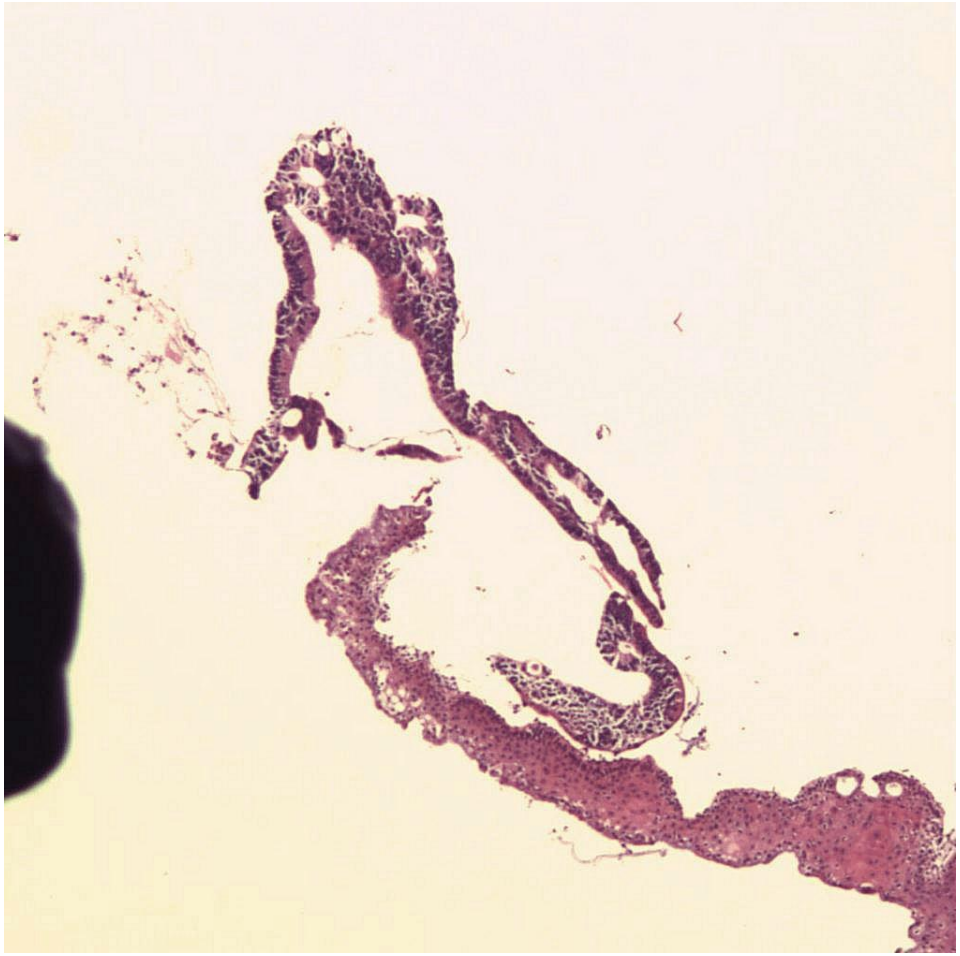


Forurensing?

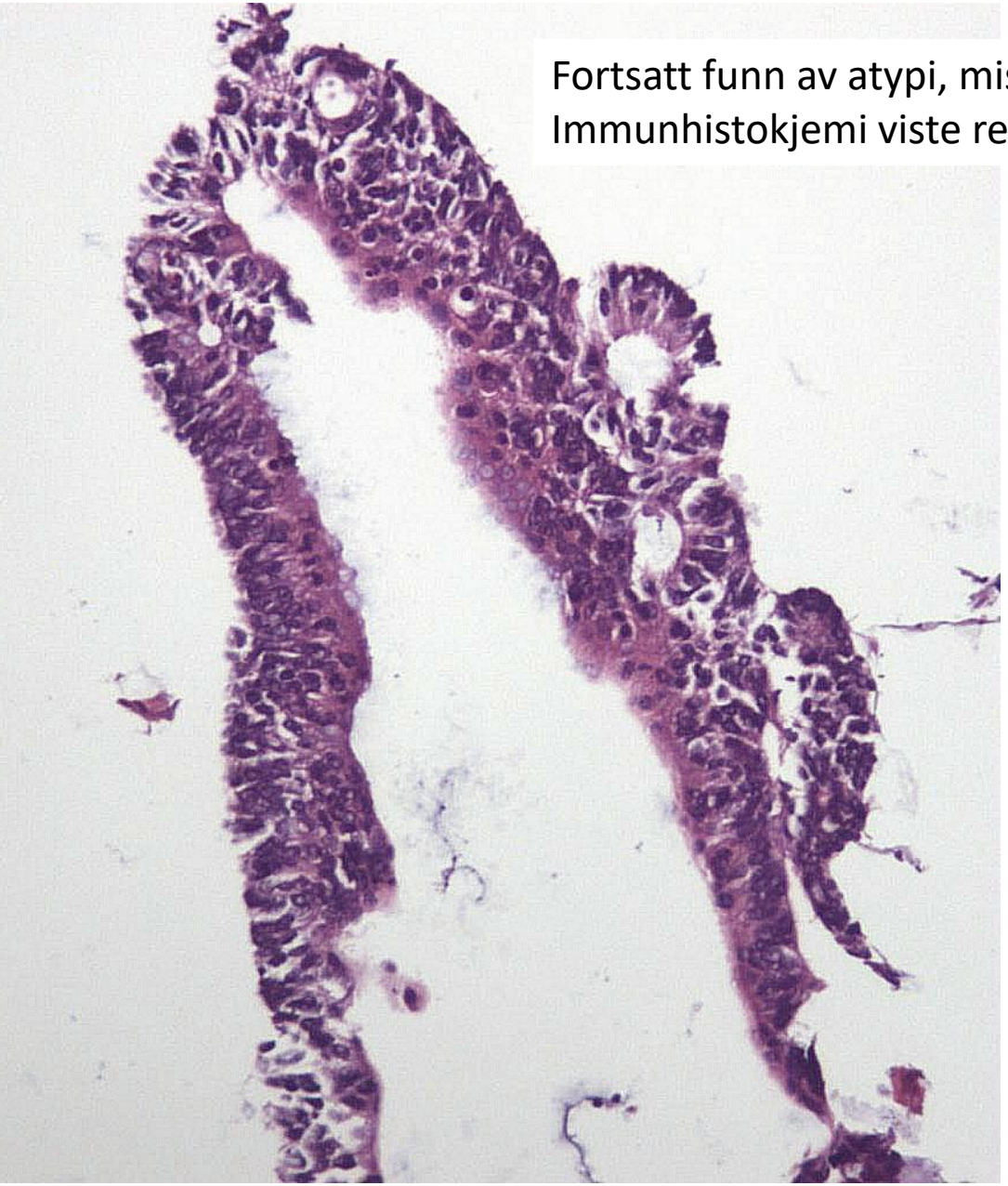


Kvinne 51 år

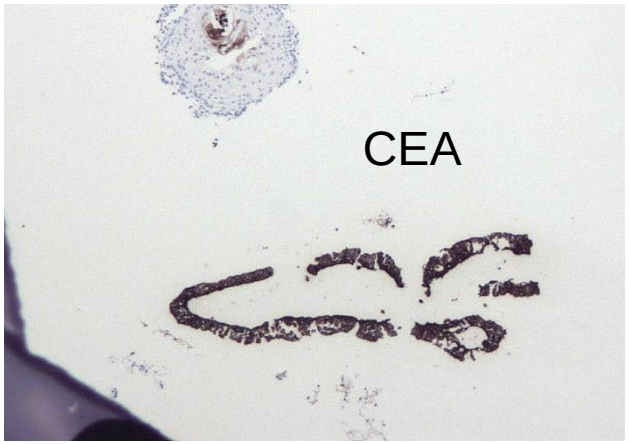
Ny prøve, september 2006

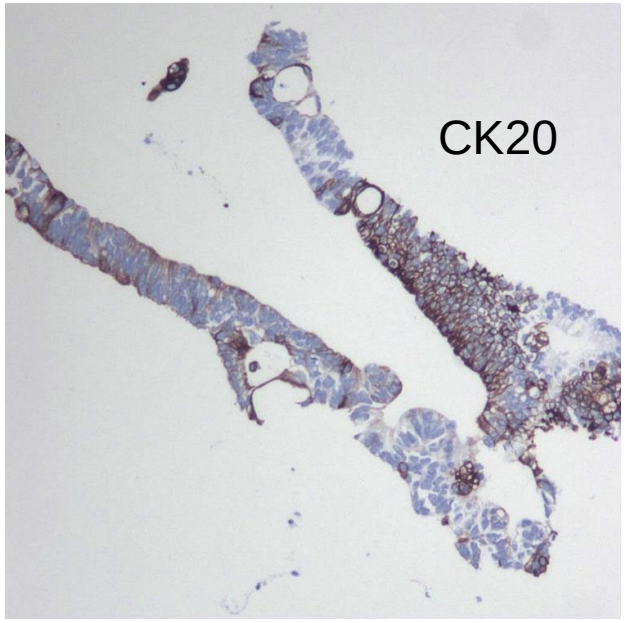


Kvinne 51 år

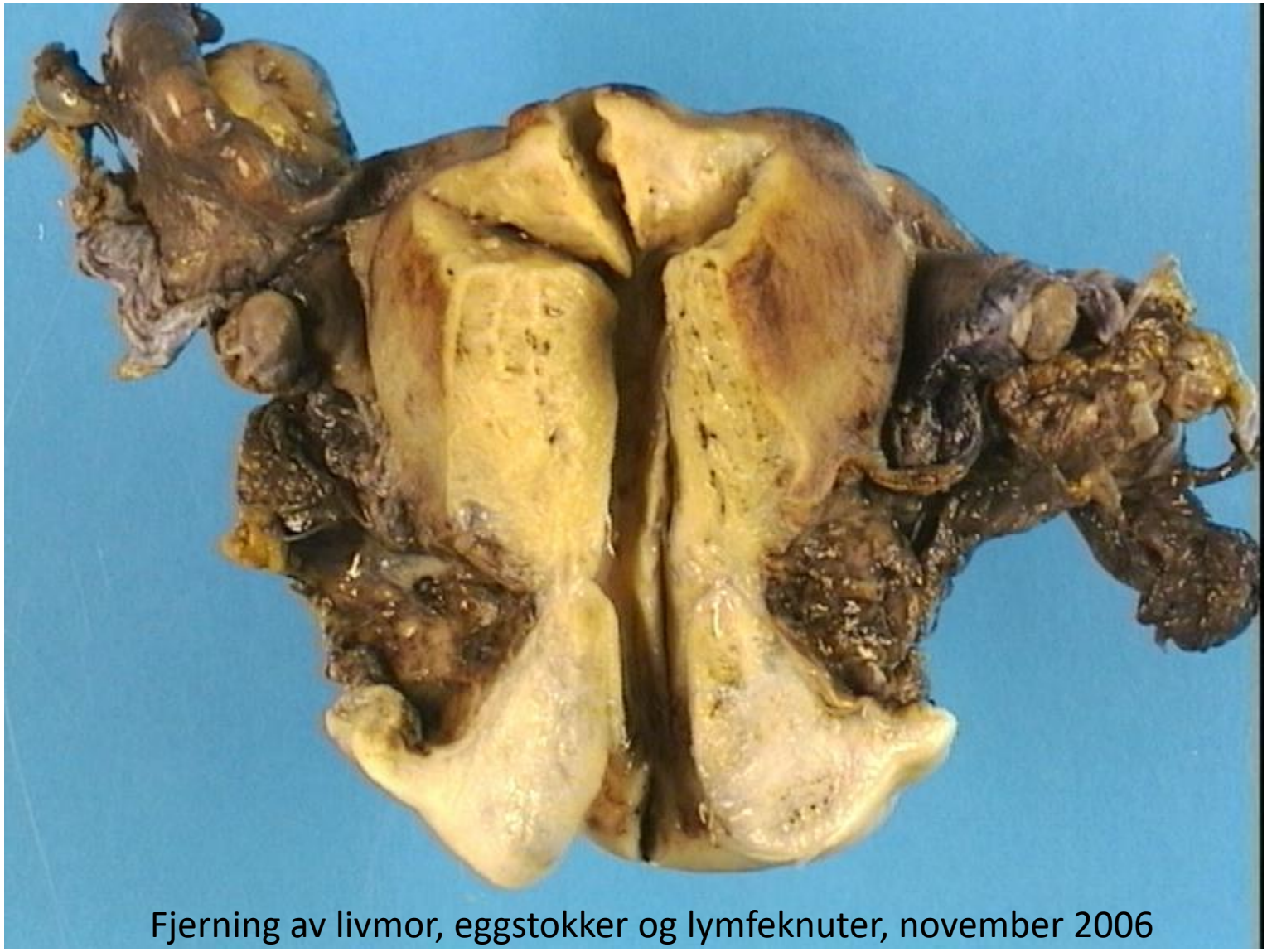


Fortsatt funn av atypi, mistanke om kreft.
Immunhistokjemi viste reaksjonsmønster typisk for tarm.





Kvinne 51 år



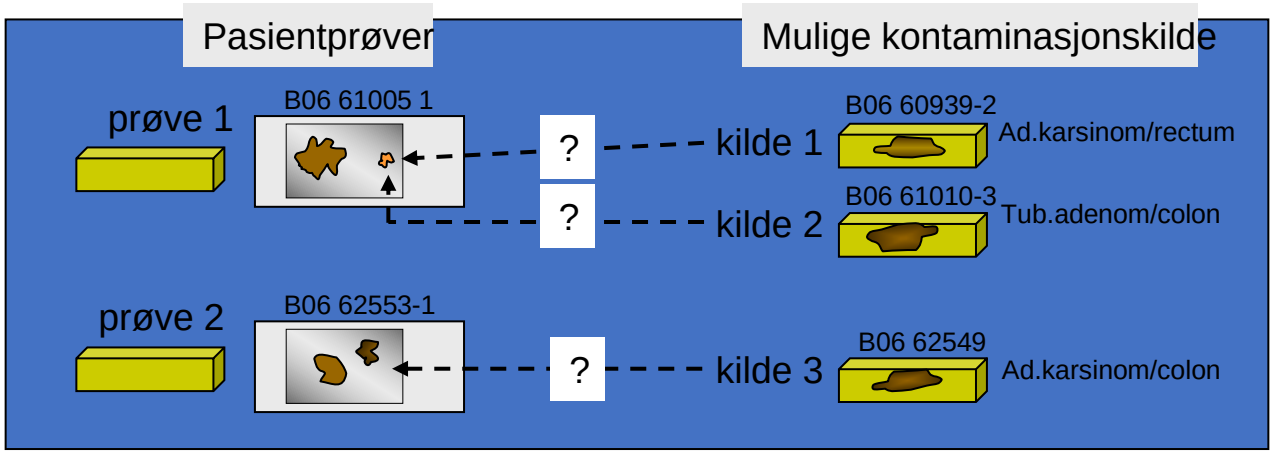
Fjerning av livmor, eggstokker og lymfeknuter, november 2006

Ingen kreft

Forurensing 2 ganger?

Forurensingskilder, til blokk

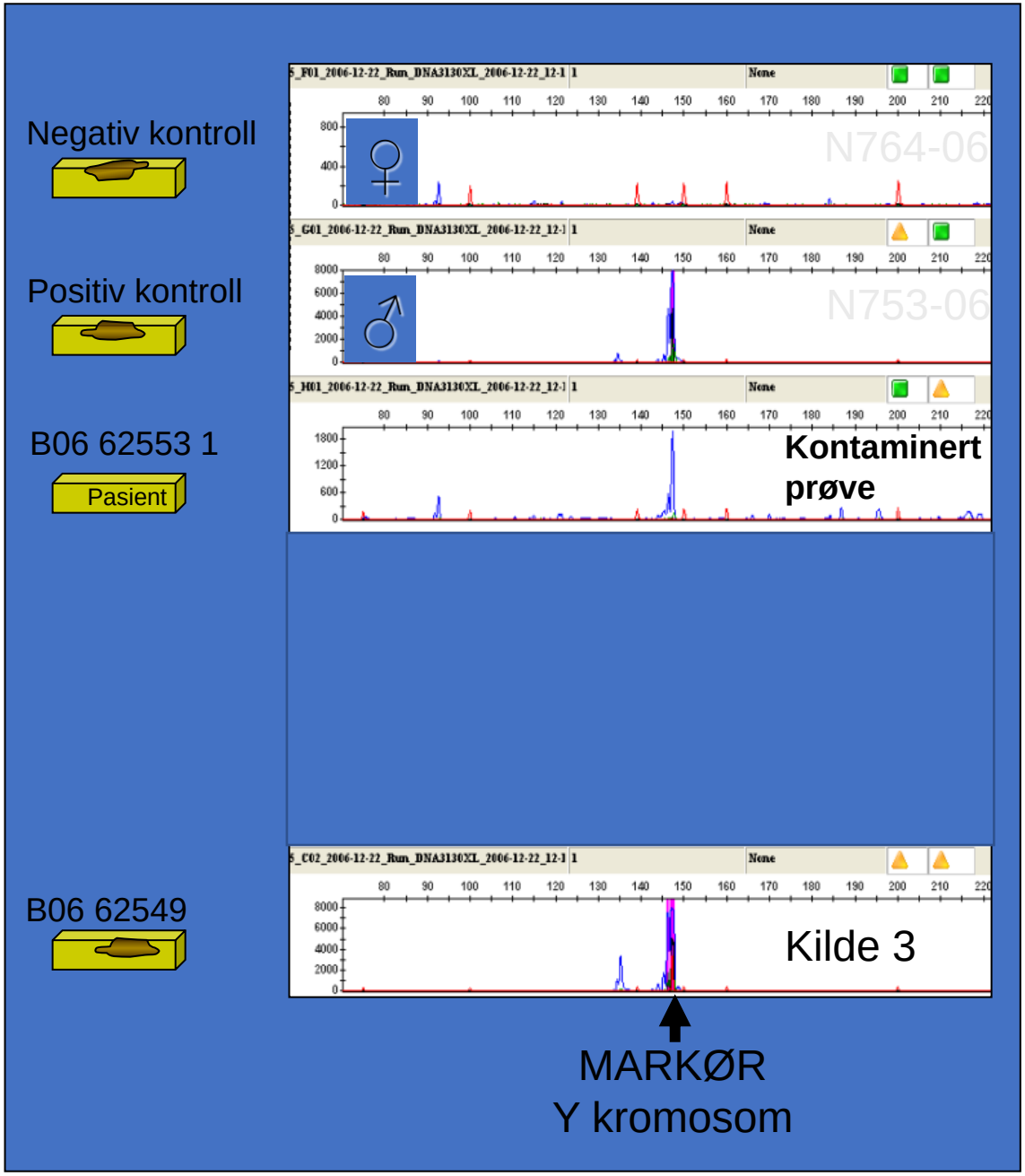
Gjennomgang av dikteringslogg og alle innkomne prøver i samme uke..



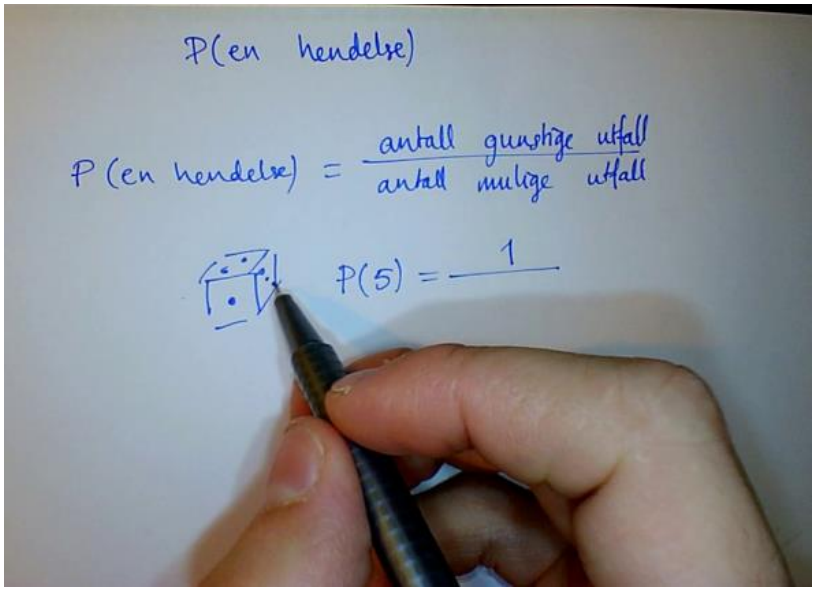
DNA-sammenligning fra snitt/blokker: ikke nok materiale

Flaks!

Mistenkte kilder var alle menn.


Negativ kontroll
Positiv kontroll
B06 62553 1
Pasient
B06 62549
N764-06
N753-06
Kontaminert prøve
Kilde 3
MARKØR
Y kromosom

Donald Duck 6/1954



Så lenge det eksisterer mulighet for forurensing er risikoen for kontaminasjon like stor hver gang!

(og blir ikke mindre av at pasienten har flere prøver etter hverandre)

Det vi patologer ikke får vite..

Oppfølging av kvinne, 51 år, 2005:

- Menopause
- Snart 20 år med gjentatte tarmslyng-episoder, flere sykehusinnleggelser og innskrenkning av reiser, ferier, typer mat osv
- Urinveisinfeksjoner
- Operert for tarmslyng høsten 2020.
- Etter siste anfall i 2023 anbefalt fiberfattig og moset mat resten av livet….

Og det vi ikke tenker på:

The Clinical and Economic Implications of Specimen Provenance Complications in Diagnostic Prostate Biopsies

Kirk Wojno,* John Hornberger,†,‡ Paul Schellhammer,§ Minghan Dai‖ and Travis Morgan‡

From the Comprehensive Medical Center (KW), Royal Oak, Michigan, Stanford University School of Medicine, Stanford and Cedar Associates LLC (MD), Menlo Park, California (JH), Urology of Virginia (PS), Nassawadox, Virginia, and Strand Diagnostics (PS, TM), Indianapolis, Indiana

Abbreviations and Acronyms

CMS = Centers for Medicare and Medicaid Services

MLC = medicolegal cost

QALY = quality adjusted life-year

SPC = specimen provenance complication

Accepted for publication November 3, 2014.

Supported by Strand Diagnostics, LLC.

* Financial interest and/or other relationship with Strand Diagnostics/KnowError.

† Correspondence: 3715 Haven Ave., Suite 100, Menlo Park, California 94025 (telephone: 650-257-3315; FAX: 650.257.3328; e-mail: ujch@stanford.edu).

‡ Financial interest and/or other relationship with Strand Diagnostics.

§ Financial interest and/or other relationship with KnowError.

‖ Financial interest and/or other relationship with Cedar Associates.

Purpose: Inaccurate diagnoses of prostate cancer can result from transposition or contamination of patient biopsy specimens, which are known as specimen provenance complications. We assessed the clinical and economic burden of specimen provenance complications in prostate biopsies in the United States.

Materials and Methods: We performed a comprehensive, systematic review of the literature to approximate the effect of specimen provenance complications on direct medical costs, patient QALYs and medicolegal costs. Data were extracted from published studies on specimen provenance complications rates, prostate cancer treatment efficacy, treatment cost, litigation/settlement costs after false diagnoses of prostate biopsies and patient quality of life. Sensitivity analysis was done to identify factors that most influenced the outcomes and assess the robustness of the findings.

Results: Of the estimated 806,251 primary and secondary prostate biopsies performed annually in the United States 20,322 specimen provenance complications were projected to result in 4,570 clinically meaningful false diagnoses and an expected loss of 634 QALYs. The total burden of specimen provenance complications was projected to exceed $879.9 million or $3,776 per positive cancer diagnosis. This estimate was most sensitive to the indemnity cost per false-positive case and the rate of transpositions at independent reference laboratories.

Conclusions: The societal burden of specimen provenance complications in patients who undergo prostate biopsy exceeds $880 million annually in the United States. This analysis framework may be useful as policy makers, health organizations and researchers seek to decrease false diagnoses of prostate cancer and the consequent effects of delayed or unnecessary treatment. Further study is warranted to quantify the economic burden among additional diseases.

Key Words: prostate, biopsy, specimen handling, diagnostic errors, costs and cost analysis

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http://dx.doi.org/10.1016/j.juro.2014.11.019
Vol. 193, 1170-1177, April 2015
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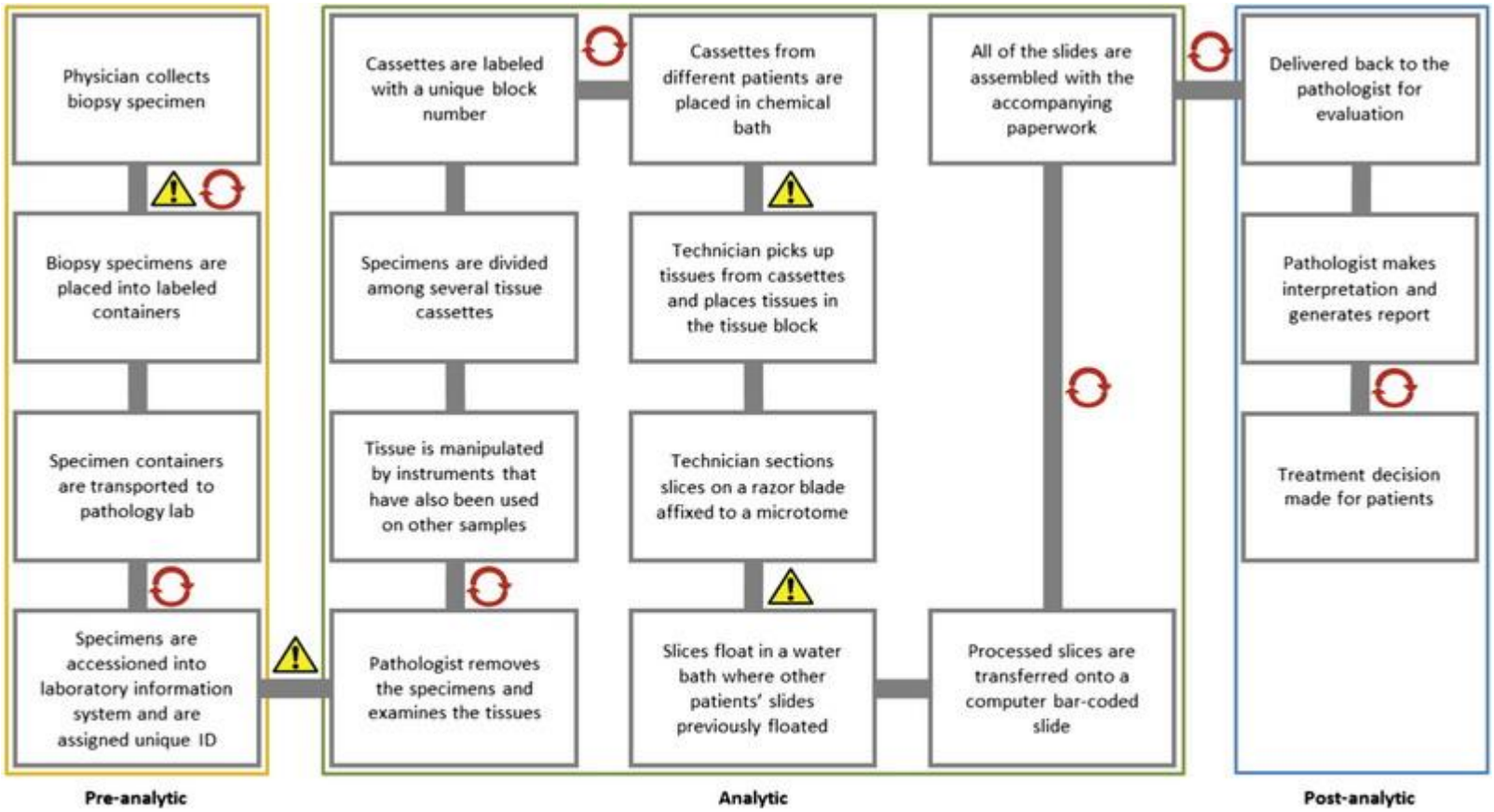

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Vol. 193, 1170-1177, April 2015
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Table 1. *Inputs*

Estimate	Base Case	Range	
		Low	High
No. prostate Ca diagnoses/yr[6]	233,000	174,750	291,250
% Pos finding probability/biopsy, no prior diagnosis[7,8,*]	32.0	24.0	40.0
% Primary biopsy, not repeat	90.3	67.7	100.0
Av age at diagnosis[6]	66	50	83
% SPC probability (laboratory):			
Type I[2] physician owned	0.27	0.15	0.43
Type I independent reference	0.37	0.10	0.66
Type II[2] physician owned	0.69	0.50	0.92
Type II independent reference	0.93	0.66	1.28
% Physician owned laboratory[9,10]	23	17	28
Yrs to correct diagnosis[12]	1.0	0.5	3.0
% 12-yr Metastasis risk (treatment):			
Immediate[13]	3.9	2.3	6.4
No or delayed[13]	9.5	6.9	13.0
% Treatment complication probability:[25,26]			
Impotence	46	34	57
Urinary incontinence	32	24	40
Bowel	2.5	1.8	3.1
% Ca specific mortality/yr[6]	22.3	16.8	27.9
Cost ($):			
Repeat biopsy[20]	720	540	901
Repeat biopsy,[20] initial treatment upon diagnosis[15–18]	41,190	30,893	51,488
Repeat biopsy,[20] false diagnosis delayed treatment[15,16]	58,954	44,215	73,692
Metastasis, up-front[19]	19,459	14,594	24,323
Metastasis, annual[19]	2,572	1,929	3,215
Metastasis, end of life[19]	60,787	45,590	75,984
Medicolegal:			
% False-pos diagnosis discovery[17]	52	39	65
% Malpractice suit[27]	50	38	63
% Dropped claim[14]	1.8	1.3	2.2
Unnecessary treatment MLC ($)[28]	870,495	250,907	2,304,251
Settled case defense cost ($)[29]	44,637	33,477	55,796
Dropped case defense cost ($)[29]	1,591	1,193	1,989
Quality of life adjustment:			
Utility, no treatment or metastasis[23]	0.83	0.36	1.00
Disutility, treatment[23]	−0.03	−0.56	0.00
Disutility, treatment related impotence[23]	−0.09	−0.66	0.00
Disutility, treatment related urinary incontinence[23]	−0.13	−0.72	0.00
Disutility, treatment related bowel complication[24]	−0.13	−0.64	0.00
Disutility, bone metastasis[25]	−0.71	−0.83	−0.36
% Time preference discount[5]	3	1	5
Pay willingness/QALY ($)[4]	62,000	50,000	100,000

*Loeb S, Carter HB, Berndt SI et al: Complications after prostate biopsy: data from SEER-Medicare. J Urol 2011; **186:** 1830.

The Clinical and Economic Implications of Specimen Provenance Complications in Diagnostic Prostate Biopsies

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Table 2. *Base case results in 806,251 prostate biopsies in 2014 and results by laboratory setting*

	Base Case SPC			Laboratory[2]	
Outcome	Type I	Type II	Totals	Physician Owned*	Independent Reference†
No. SPCs/No. clinically meaningful	8,990/3,726	11,332/844	20,322/4,570	15,921/3,562	21,617/4,867
Cost ($):					
Direct medical	111,100,508	34,774,945	145,875,453	113,787,481	115,313,092
MLC	497,580,054	197,175,321	694,775,375	542,268,073	739,604,581
QALY $ loss (No. lost)	33,224,969 (536)	6,068,554 (98)	39,923,523 (634)	30,614,982 (494)	41,846,035 (675)
Total net health loss ($)	641,905,531	238,018,820	879,924,351	686,670,536	936,763,708
Loss/pos biopsy ($)	—	—	3,776	2,947	4,020

* Types I and II SPC rate 0.27% and 0.69%, respectively.[2]
† Types I and II SPC rate 0.37% and 0.93%, respectively.[2]

Selv uten medico-legal costs (MLC): ca 190 milllioner dollar i kostnader årlig i USA, bare for feil ved prostatabiopsier….

Tall for Norge, tankeeksperiment med forbehold om feil

Årlige nye prostatacancertilfeller ca 5000
Antall menn som blir biopsiert: 3-4 ganger så mange?

Anslag: 15000 prøver årlig
Forbyttingssjanse 0,22% = 33 kasus
Forurensing 1,69% = 255 kasus

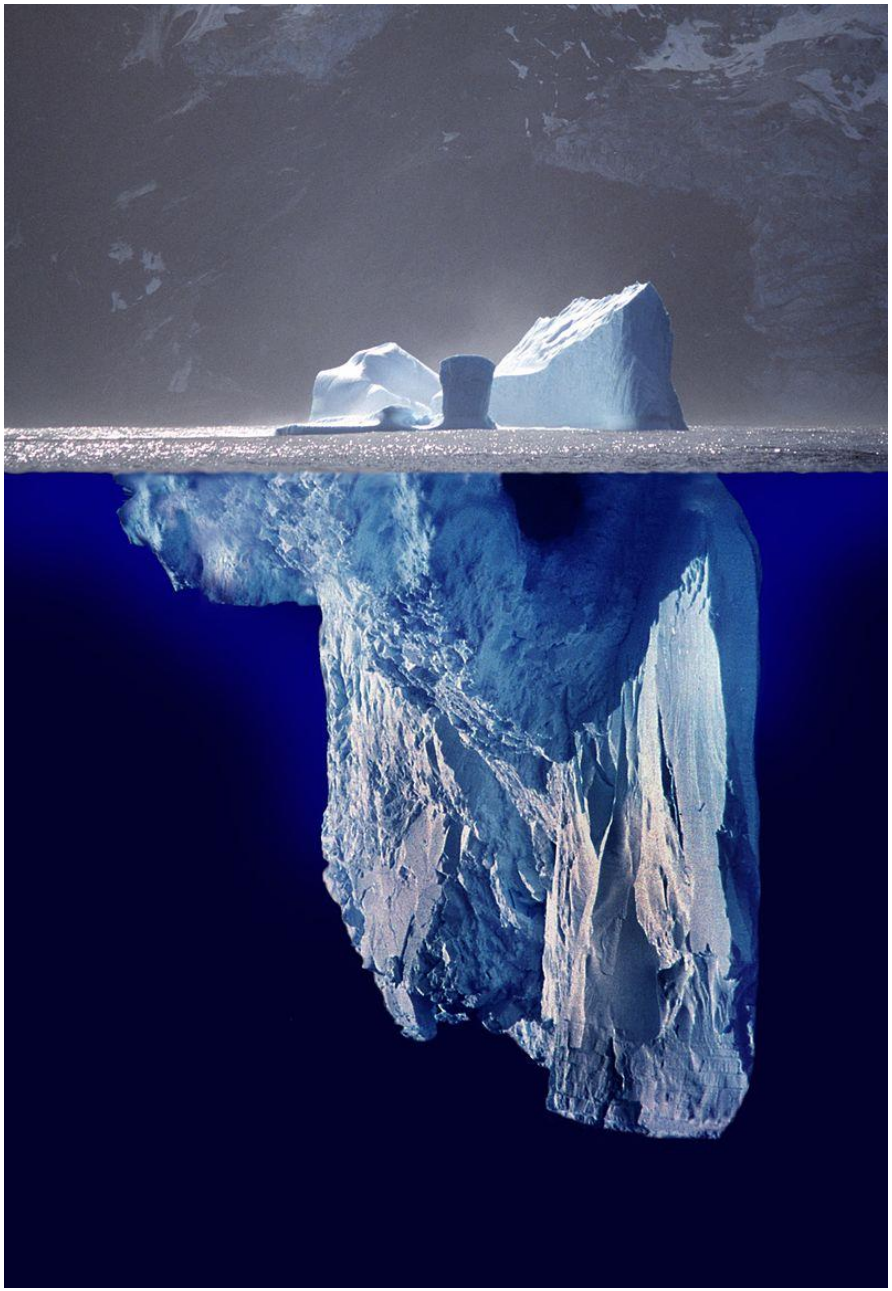
Ikke alle får følger:
Forvekslinger neg-neg eller pos-pos (hvis samme grad)
Forurensing av tydelig annen type vev

Klinisk betydning:

Forbytting (46%): 15 prøver
Forurensing (10%): 25 prøver

40 menn årlig?
(gjelder kun for prostata)

Kostnader?



Tidsskriftet
DEN NORSKE LEGEFORENING

Patologirelaterte saker i pasientskadeordningen i perioden 2010–15

ORIGINALARTIKKEL | PATOLOGI

G. Cecilie Alfsen, Ying Chen, Hanne Kähler, Ida Rashida Khan Bukholm *Om forfatterne*

BAKGRUNN

Norsk pasientskadeerstatning (NPE) behandler erstatningskrav fra pasienter som klager over feil behandling i helsetjenesten. Feil patologidiagnose kan føre til alvorlig pasientskade, men forekomsten av erstatningssaker er ukjent fordi patologi ikke er et spesifisert område i Norsk pasientskadeerstatnings statistikk. Kunnskap om feil er nødvendig for å kunne vurdere kvalitetsforbedrende tiltak. Vi har derfor søkt i Norsk pasientskadeerstatnings arkiver for å identifisere saker som har sin

Publisert: 19. desember 2016
Utgave 23, 20. desember 2016

Tidsskr Nor Legeforen 2016
136:1984-7
DOI: 10.4045/tidsskr.16.0435

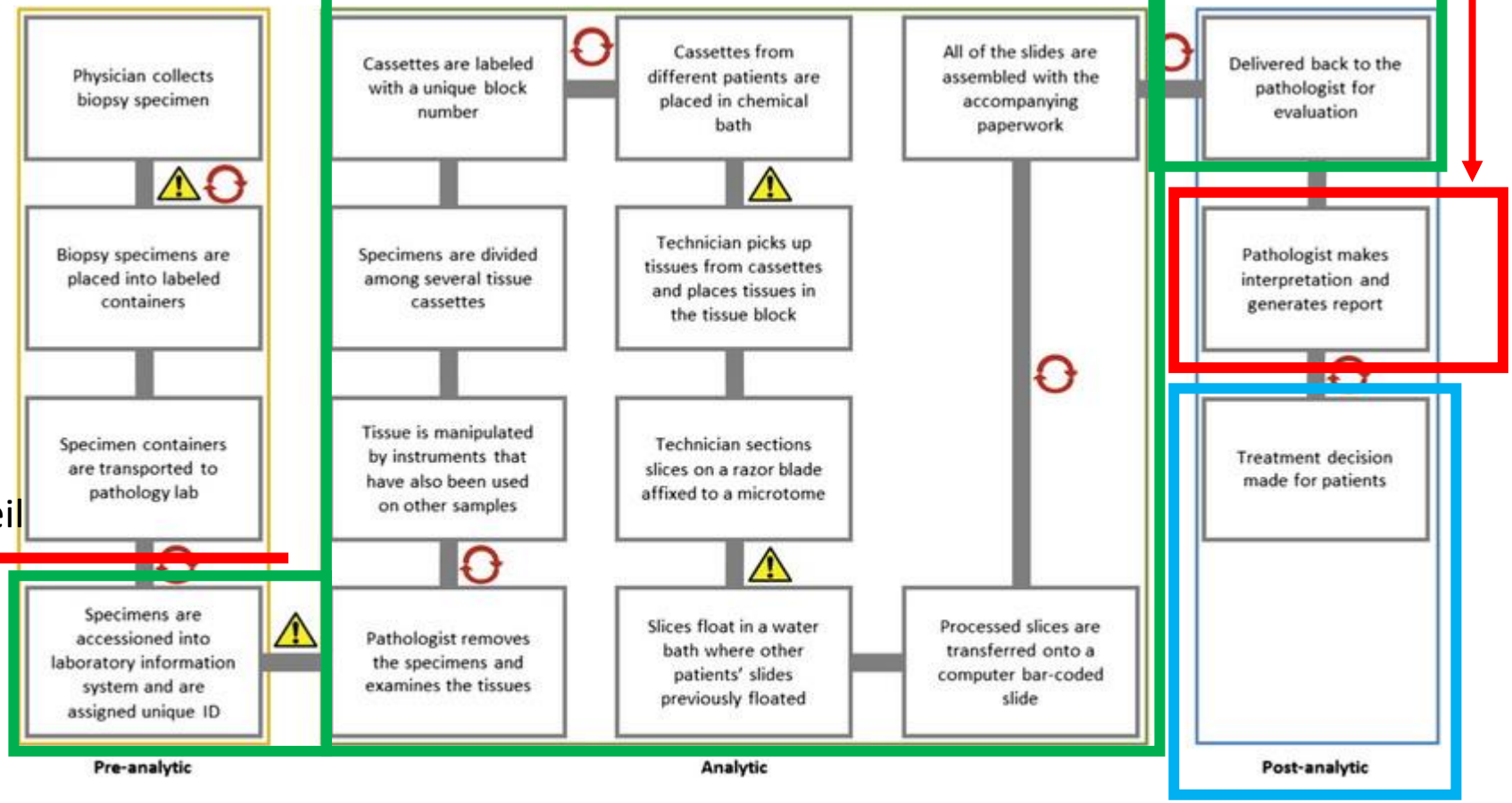
Mottatt 10.5. 2016, første revisjon innsendt 22.8. 2016, godkjent 10.5. 2016. Redaktør: Geir W. Jacobsen.

Tabell 1 Type feil ved patologidiagnostikk i erstatningssaker i Norsk pasientskadeerstatning i perioden 2010–15. Forkortelser: FNAC: Finnålsaspirasjonscytologi, hist.: histologisk undersøkelse, cyt.: cytologisk undersøkelse

Type feil	Medhold		Avslag	
	Antall	Spesifisering	Antall	Spesifisering
Falskt negativ diagnose	43	Melanom: 17 Cervix: 14 (13 cyt., 1 hist.) Mamma: 3 (1 FNAC, 2 hist.) Andre: 9 (galleblære, prostata, sarkom, thyreoidea (FNAC), ventrikkel)	20	Melanom: 6 Cervix: 2 (cyt.) Lymfom: 3 Andre: 9 (sarkom, mamma (FNAC), thyreoidea, parathyreoidea, lunge, hud, prostata, colon)
Falskt positiv diagnose	6	Mamma: 3 (1 FNAC, 2 hist.) Cervix: 1 (hist.) Melanom: 1	2	Ovarium, cervix (cyt.)
Diverse diagnostikk	3	Feil krefttype: 2, feil stadium melanom	3	Feil krefttype
Forsinket svar	2	9 uker, 12 måneder	2	2 uker, 9 måneder
Forurensning	4	Pipellemateriale: 1, nålebiopsi: 2, FNAC: 1	0	–
Forbytting	8	Forløp usikkert: 6, prøve i feil kassett, svar diktert på feil remisse	0	–
Samlet	**66**		**27**	

Preanalytisk

Analytisk



Pre-lab-feil

Lab-feil

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Preanalytical phase[1,2] : 53.3 [22] **to 88%** [21]

Deliver and registration of material
Incomplete/error in order
Order does not correspond to specimen
Sample quantity does not correspond to order
Specimen without previous marking/incorrect orientation
Incorrect anatomical site
Incomplete/inaccurate clinical information
No material in sample sent
Inappropriate packaging/fixing conditions
Specimen loss in laboratory
Integrity not preserved
Malfunction of equipment
Freezing error
Register error

Analytical phase: 4 [21] **to 42.1%** [22]

Quality of the slides
Repetition of coloration
Foreign tissue in the specimen
Incorrect block identification
Interpretation errors
Delayed results
Work environment (e.g., refrigeration failure and other equipment failures)

Postanalytical phase: 5.6 [21] **to 8%** [22]

Correlation errors of freezing biopsy with conventional histology
Specimen discarded during routine examination
Patients exchange
Transcription errors
Delayed results
Malfunction of laboratory information systems

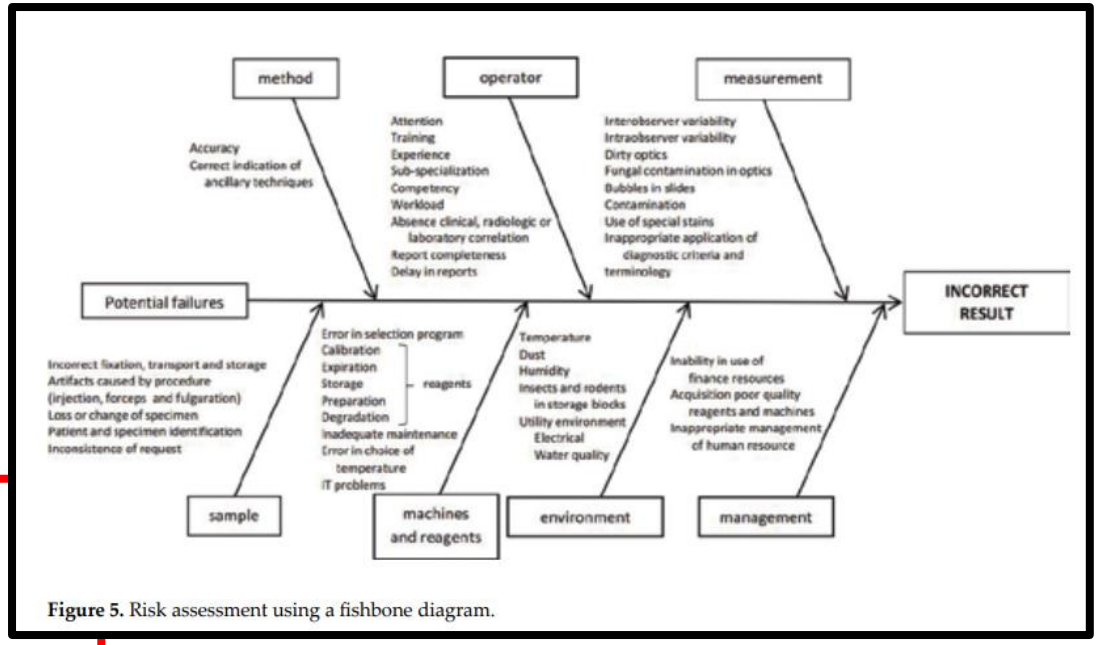


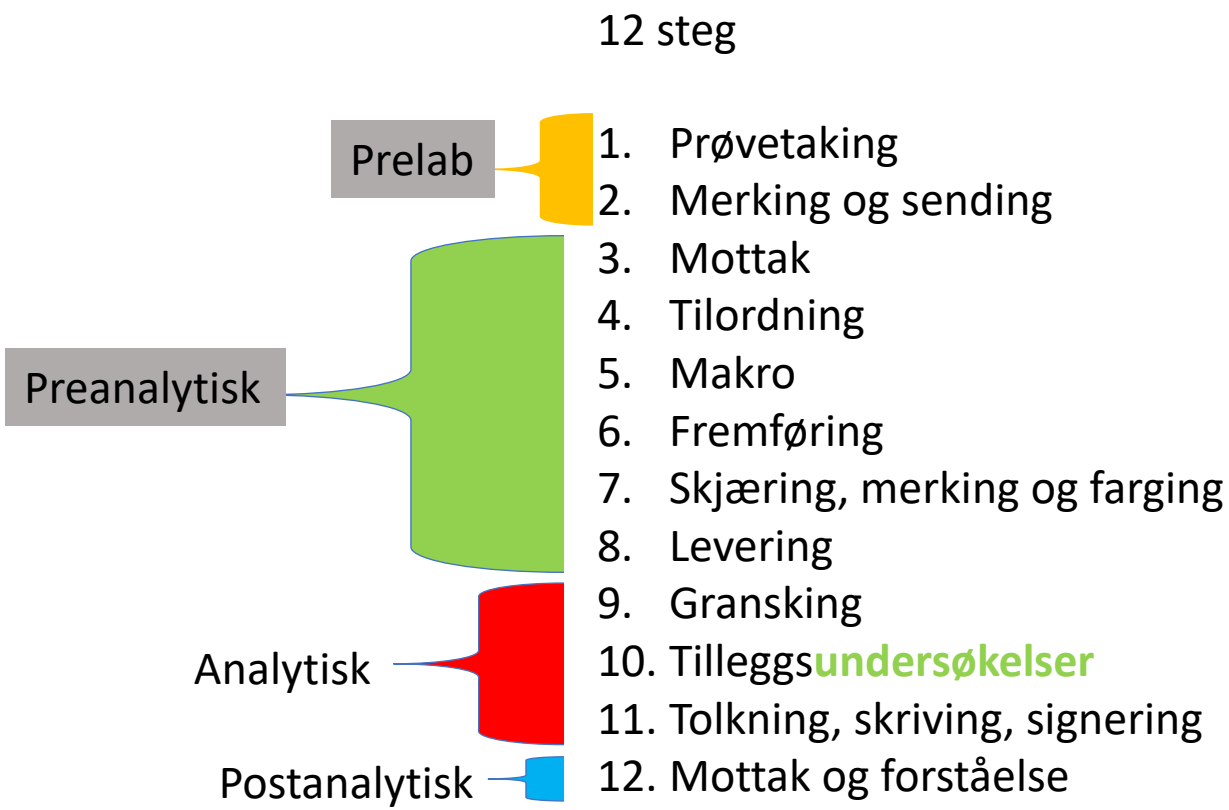
Figure 5. Risk assessment using a fishbone diagram.

[1]Preanalytical phase include accessioning, gross dissecting, processing, embedding, tissue cutting, mounting, coloring, labeling and releasing slides. Some errors outside of laboratory were included in this category for didactics effects, such as identification mislabeling, loss of specimen etc., because these errors may occur in or out of laboratory. Besides that, some errors (e.g., contamination or loss of specimen) can happen in several steps inside the laboratory, since gross dissecting, embedding or tissue cutting until slide mounting.

[2]Another preanalytical errors describe for Morelli et al. [20] include specimen wrongly accessioned, incorrect numbering of the blocks or slides, decalcification not performed or insufficient, error in procedure temperature, specimen badly positioned, number was reported incorrectly in block or slide, error in thickness selection and loss or exhaustion of specimen in cutting, wrong coloring (manually) or error in the choice of the program (in automatic coloring).

Santana, Ferreira: Errors in surgical pathology laboratory. Kapittel 7 i «Quality control in Laboratory», 2018. http://dx.doi.org/10.5772/intechopen.72919

Patologi-diagnostikk er (fortsatt) betydelig mer kompleks enn annen laboratorievirksomhet



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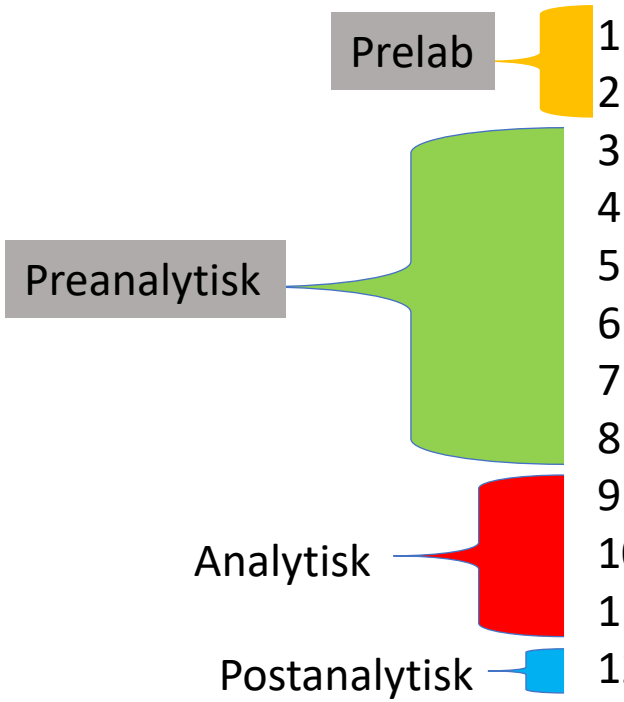


12 steg

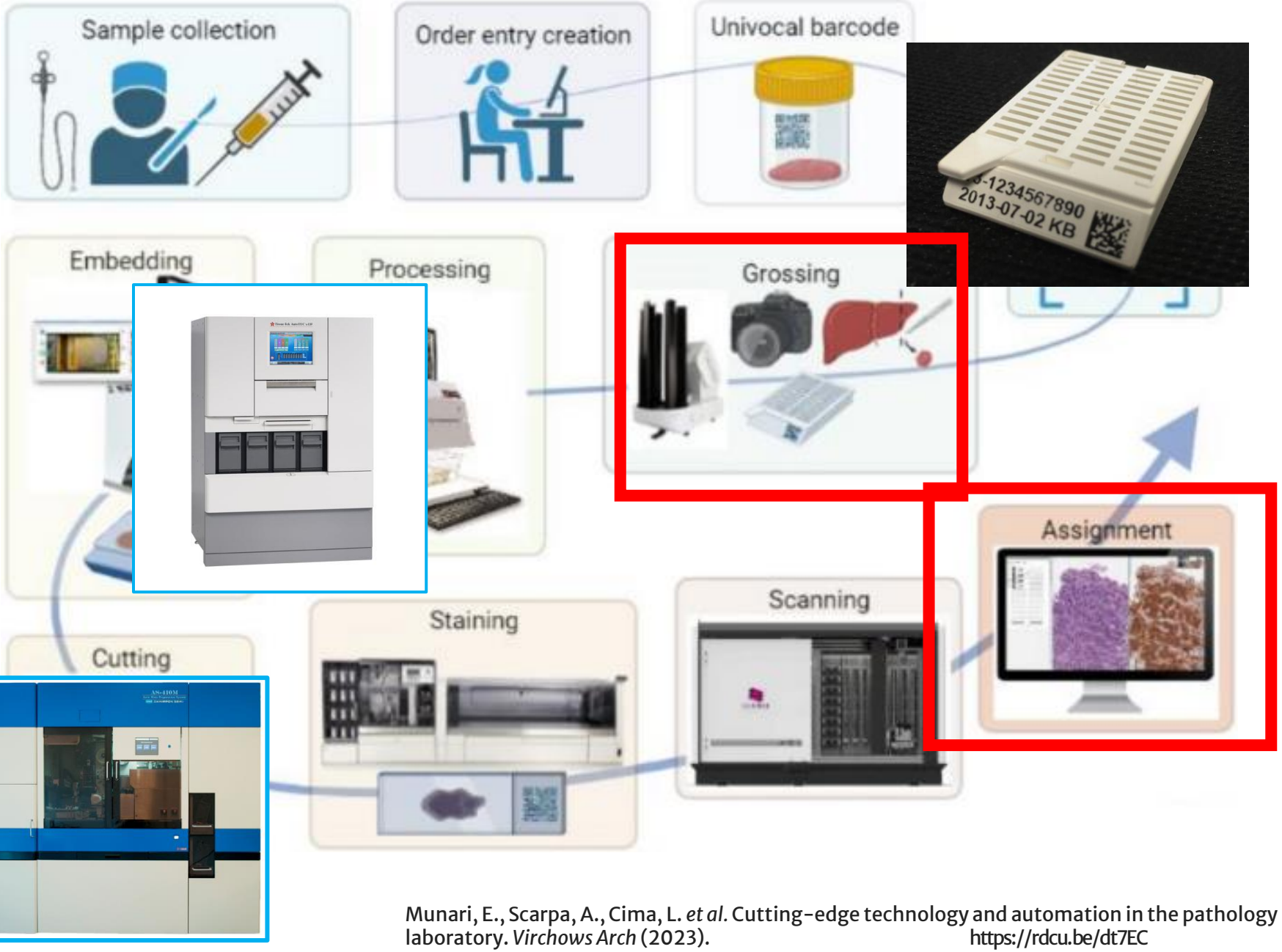
1. Prøvetaking
2. Merking og sending
3. Mottak
4. Tilordning
5. Makro
6. Fremføring
7. Skjæring, merking og farging
8. Levering
9. Gransking
10. Tilleggsundersøkelse
11. Tolkning, skriving, sig
12. Mottak og forståelse

4 feilgrupper

1. Identifisering (ID, organ, side)
2. Vev (skade, tap, representativitet, floater, manglende us)
3. Interpretering (klassifisering, falske -/+,)
4. Rapportering (feil/manglende info, skrivefeil)

Gruppering ut fra alvorlighetsgrad:

1. Medført pasientskade, alvorlig eller mindre alvorlig
2. Ikke pasientskade: Potensiell, oppdaget før signering
   Teknisk



Munari, E., Scarpa, A., Cima, L. *et al.* Cutting-edge technology and automation in the pathology laboratory. *Virchows Arch* (2023). https://rdcu.be/dt7EC

Feildiagnoser

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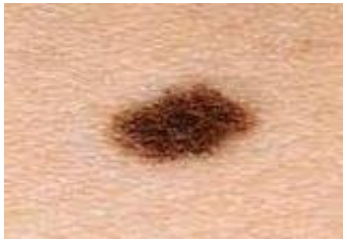
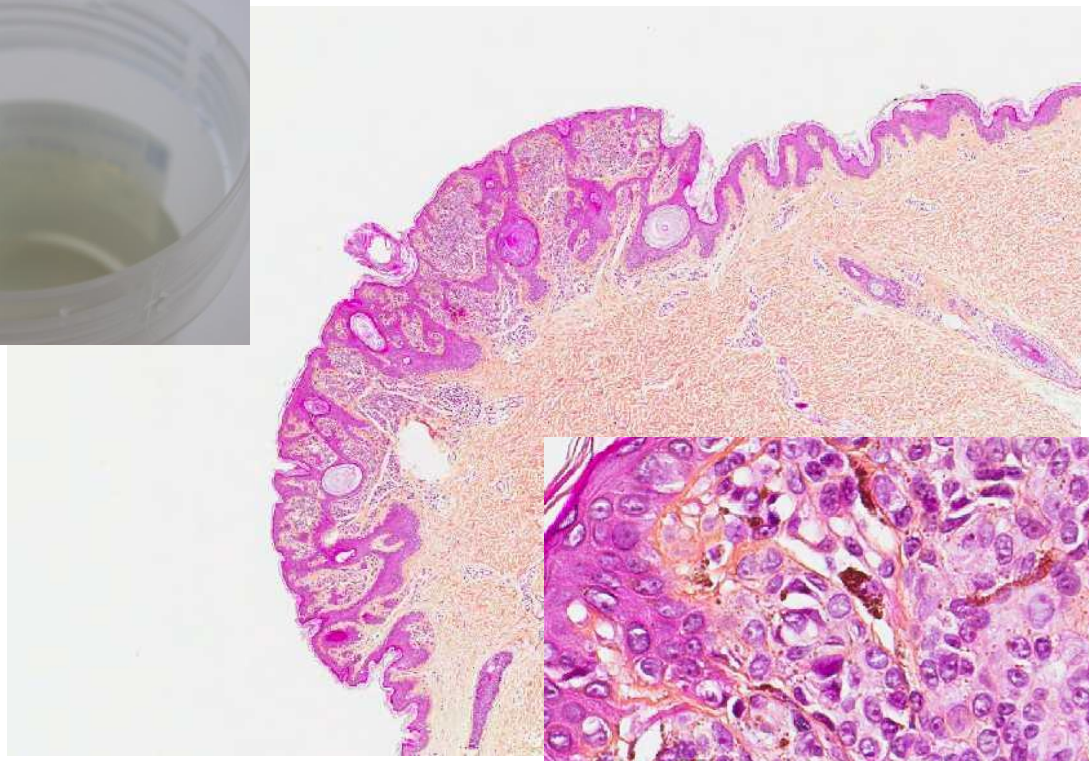
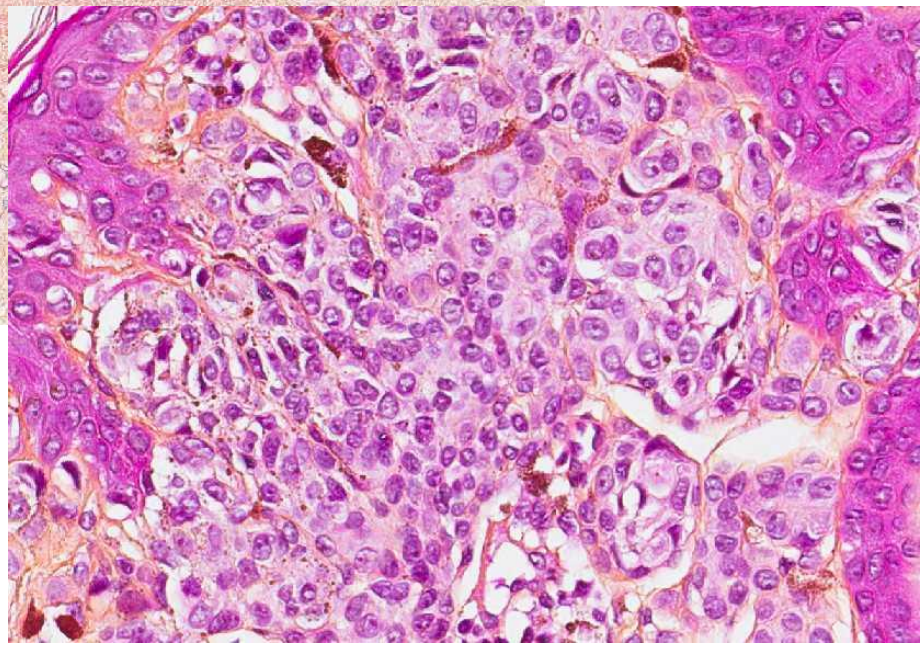
Forbytting	8	Forløp usikkert: 6, prøve i feil kassett, svar diktert på feil remisse	0	–
Samlet	**66**		**27**	



Føflekker: hyppigst og potensielt vanskeligst



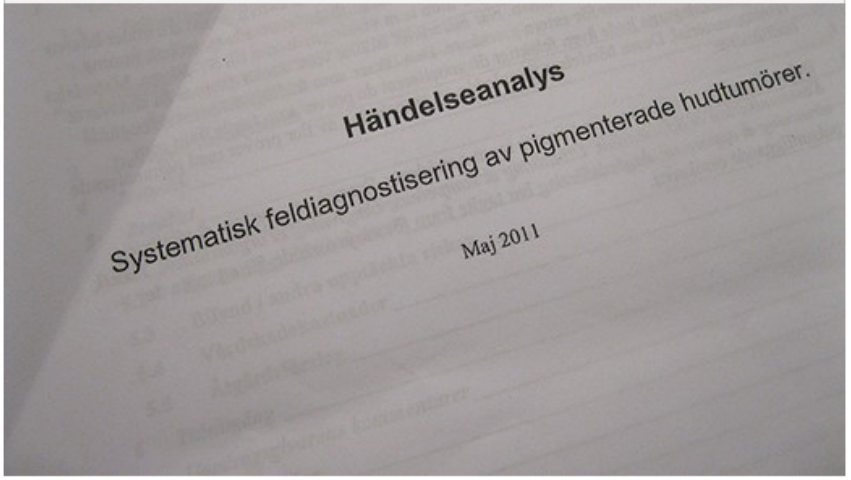


Prenumerera

Största haveriet i svensk sjukvård på mycket länge

Publicerat: tisdag 27 december 2011 kl 10:15 , Studio Ett | 7 kommentarer | 25 gillar

Starta bildspel 1/4



Sahlgrenska universitetssjukhus gjorde en händelseanalys efter upptäckten av felaktiga provsvar i våras. Den visade på flera brister. Foto: Annika H Eriksson/Sveriges Radio

Hudcancerskandalen på Sahlgrenska universitetssjukhuset i Göteborg har gjort att över 150 patienter har fått felaktiga provsvar. Det visade sig att de hade förstadier till eller utvecklad malingt melanom. Trots att de först fick besked om att de intr hade det. För en del patienter har det gått flera år mellan felaktigt provsvar och riktigt provsvar. En patient har hunnit dö. Hur kunde det bli så här? Och hade det kunnat stoppas tidigare? Reportage av **Annika H Eriksson**. Samtal med **Marie Beckman Suurkula**, regeringens utredare för en översyn av svensk patologi. *16-timmen*

- Patologskandalen
- Samtal Marie Beckman Suurkula

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Helena Groll och Jörgen Huitfeldt

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Dela

08.04.2002

DER SPIEGEL 15/2002

Heft lesen

MEDIZIN

Katastrophe für die Frauen

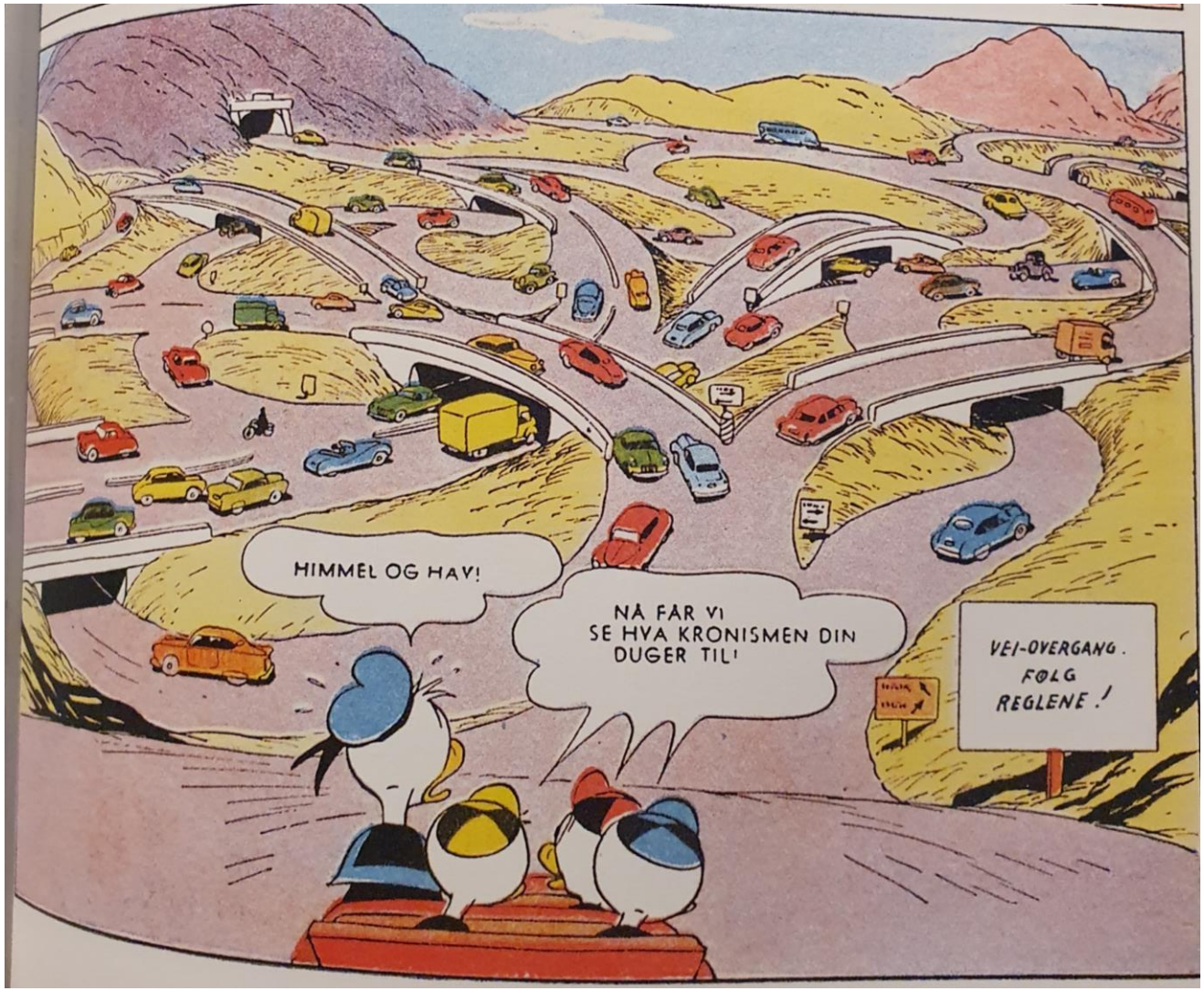
Von Stockinger, Günther

4000 Patientinnen in Deutschland sterben alljährlich an Brustkrebs, obwohl sie gerettet werden könnten. Die Überlebensraten stagnieren, jedes dritte Tumoropfer erhält keine optimale Versorgung - die deutsche Brustkrebsmedizin hat international den Anschluss verloren.

Er sprach mit einschmeichelndem ungarischen Akzent und legte Wert auf gute Manieren, wenngleich in manchen seiner Äußerungen über Mitmenschen und Kollegen eine Spur von Hybris und Härte mitschwang.

Der Essener Pathologe Josef Kemnitz hatte das Zeug zum Frauenschwarm - doch durch die Alpträume Hunderter Frauen geistert der Mediziner mit der dezenten Gesichtsbräune als Satan in Menschengestalt, der sie um das Symbol ihrer Weiblichkeit gebracht hat.

Schätzungsweise 300 Patientinnen wurden Mitte der neunziger Jahre an Essener Kliniken die Brüste amputiert, obwohl sie nicht unter Brustkrebs litten. Gynäkologen und Radiologen hatten bei den Opfern verdächtige Knoten entdeckt, Chirurgen hatten an den suspekten Stellen Gewebeproben entnommen und sie zur Untersuchung an Kemnitz geschickt. Der hatte reihenweise, fast stereotyp, bösartige Veränderungen diagnostiziert.



Donald Duck 6/1954

Påstand:

Største hemsko for standardisering i patologien er legene

- Alle patologer har opplevd og opplever feil.
- Det går stort sett bra.
- Feil er så vanlig at melding anses urealistisk pga arbeidsbelastningen.
- Tradisjonell motstand mot standardisering, «avkryssingsregime», «samlebånd».
- Skepsis til sammenligning av egne diagnoser med andres.

Standardisering

8.5. Tiltak

8.5.1. **Identifisere** → Observere, Påpeke, Bevisstgjøre, Risikovurdere

… skal identifisere risikoer og muligheter for forbedring…

8.5.2. **Handle** → Overvåke, Reagere, Intervenere

… skal prioritere og handle ut fra identifiserte risikoer…

8.6. **Forbedre**

… utvikle, dokumentere og iverksette alle nødvendige tiltak.. → Endre, Forebygge

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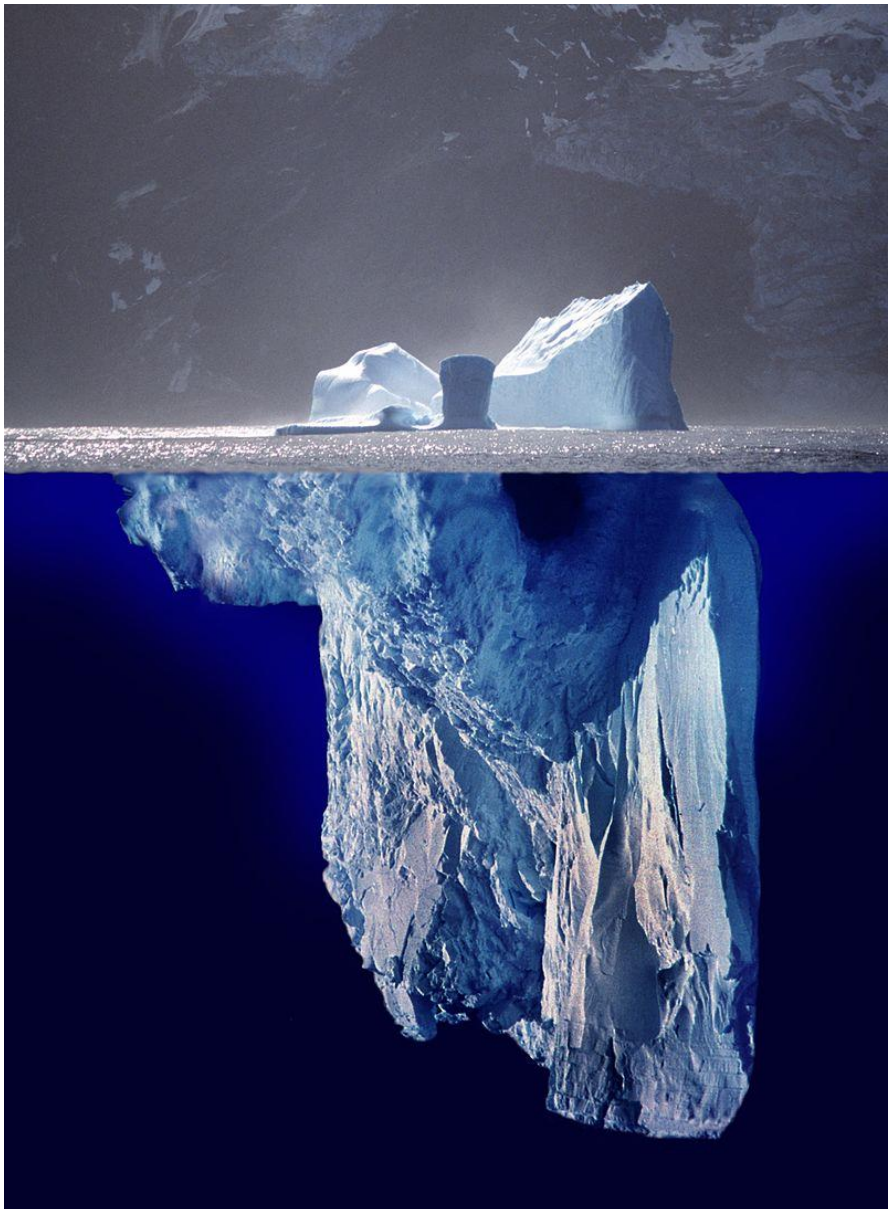
Lunch, Børge Lund



DNA-matching som rutine ved sensitive metoder av klinisk betydning?

Lunch, Børge Lund