Mesotheliom behandling
Årsrapport 2024

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Ætiologi

- Asbest eksponering hos 75 % af patienterne 30-40 år tidligere
- Strålebehandling (lymfom)
- Røntgen kontrastmiddel (thorotrast)
- Genetik (tab af BAP1-ekspression)

Asbest forbud i DK 1972-1988

- **1972** blev det forbudt at bruge asbest eller asbestholdige materialer til termisk-, støj- og fugtisolering.
- **1980** blev det helt forbudt at bruge asbest, bortset fra i tagbeklædning, friktionsbelægninger, pakningsmaterialer og materialer til at fore f.eks. kuglelejer med.
- **1986** blev kravet skærpet yderligere. Herefter måtte der kun bruges asbest i eternitbølgepladerne B6 og B9 samt pakningsmaterialer og friktionsbelægninger.
- **1988** stoppede al anvendelse af asbest i tagbeklædninger.

Men eksponering kan fremdeles ske da asbest fortsat findes fuldt lovligt mange steder (gamle tagplader, installationer isoleret med asbest mm).

Asbest eksponering årsrapport 2024
DLCR 2024

Tabel 9.5.10. Asbesteksponering fordelt på bopælsregion, 2021-2024 – n (%)

Asbesteksponering	Danmark	Hovedstaden	Sjælland	Syddanmark	Midtjylland	Nordjylland
Ja	228 (39.9%)	50 (42.4%)	12 (16.2%)	41 (24.6%)	45 (40.5%)	80 (79.2%)
Nej	73 (12.8%)	26 (22.0%)	6 (8.1%)	15 (9.0%)	18 (16.2%)	8 (7.9%)
Ved ikke	12 (2.1%)	0.0 (0,0%)	# (#%)	3 (1.8%)	# (#%)	5 (5.0%)
Uoplyst	258 (45.2%)	42 (35.6%)	54 (73.0%)	108 (64.7%)	46 (41.4%)	8 (7.9%)
Total	**571 (100%)**	**118 (100%)**	**74 (100%)**	**167 (100%)**	**111 (100%)**	**101 (100%)**

Tabel 9.5.11. Asbesteksponering fordelt på årstal for diagnose, 2021-2024 – n (%)

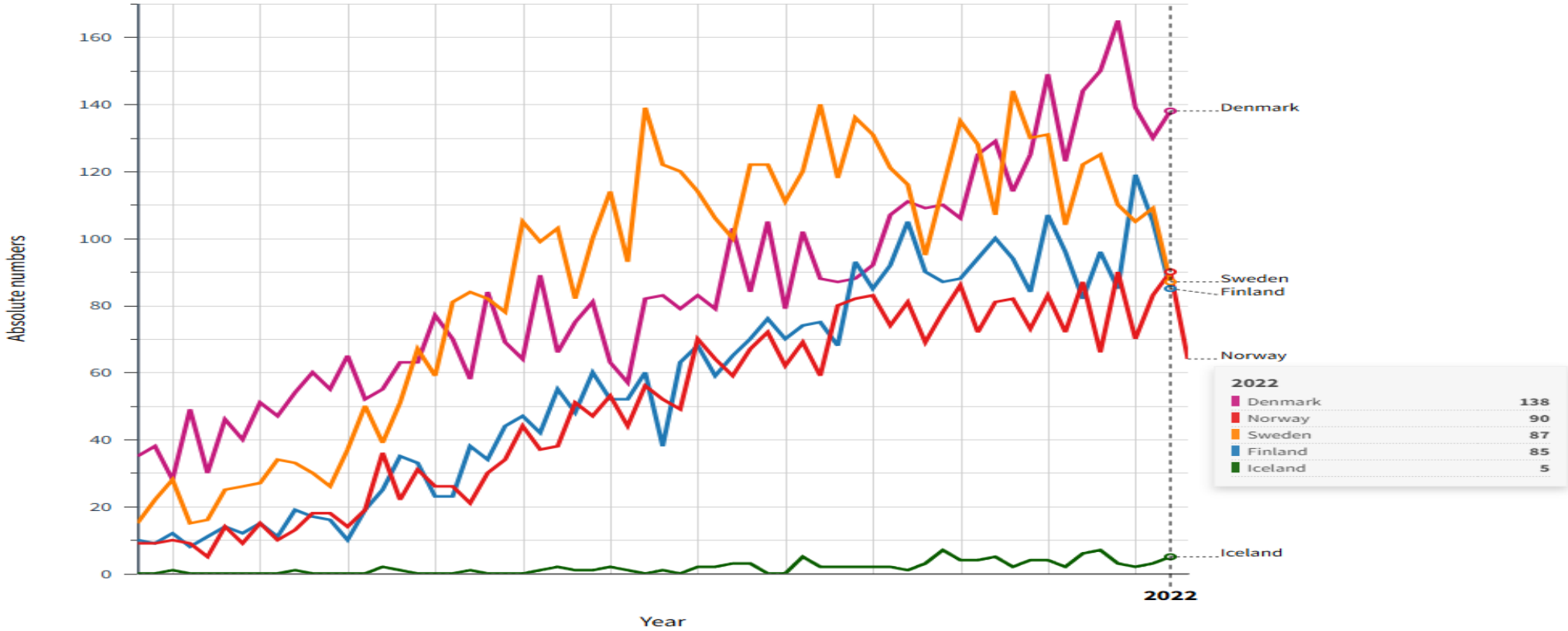
Asbesteksponering	2024	2023	2022	2021	Total
Ja	63 (38.0%)	58 (42.6%)	61 (45.2%)	46 (34.3%)	228 (39.9%)
Nej	26 (15.7%)	19 (14.0%)	17 (12.6%)	11 (8.2%)	73 (12.8%)
Ved ikke	5 (3.0%)	# (#%)	3 (2.2%)	# (#%)	12 (2.1%)
Uoplyst	72 (43.4%)	57 (41.9%)	54 (40.0%)	75 (56.0%)	258 (45.2%)
Total	**166 (100,0%)**	**136 (100,0%)**	**135 (100,0%)**	**134 (100,0%)**	**571 (100,0%)**

Pleural mesothelioma
Incidens

- 2803 /yr US (2021$_{USCS}$)
- 2707 /yr UK (2019$_{NHS}$)
- 138 /yr Denmark (2022$_{nordcan}$)
- 87/ yr Sweden (2022$_{nordcan}$)
- 64/yr Norway (2023$_{nordcan}$)
- 85/yr Finland(2022$_{nordcan}$)

- Latency 30-40 years after asbest exposure

Pleuralt mesotheliom incidens 1965-2023



NORDCAN
Association of the Nordic Cancer Registries

Patologidiagnose fordelt på de 4 kohorter DLCR 2024

Tabel 9.5.3. Patologi diagnose, fordelt på årstal for diagnose, 2013-2024 – n (%)

Diagnose	2022-2024	2019-2021	2016-2018	2013-2015	Total
Sarkotomatoidt mesotheliom	46 (10.5%)	52 (11.6%)	41 (9.4%)	40 (10.4%)	179 (10.5%)
Epiteloidt mesotheliom	196 (44.9%)	194 (43.3%)	133 (30.5%)	157 (41.0%)	680 (39.9%)
Bifasisk mesotheliom	60 (13.7%)	68 (15.2%)	119 (27.3%)	89 (23.2%)	336 (19.7%)
Desmoplastisk mesotheliom	0.0 (0,0%)	5 (1.1%)	13 (3.0%)	3 (0.8%)	21 (1.2%)
Mesotheliom	55 (12.6%)	66 (14.7%)	63 (14.4%)	46 (12.0%)	230 (13.5%)
Stærkt suspekt for mesotheliom	36 (8.2%)	22 (4.9%)	15 (3.4%)	3 (0.8%)	76 (4.5%)
Uoplyst	44 (10.1%)	41 (9.2%)	52 (11.9%)	45 (11.7%)	182 (10.7%)
Total	**437 (100%)**	**448 (100%)**	**436 (100%)**	**383 (100%)**	**1704 (100%)**

Udredningspopulation i de 5 regioner fordelt i de 4 kohorter DLCR 2024

Tabel 9.5.2. Udredningspopulation per år, fordelt på bopælsregion, 2013-2024 – n (%)

Bopælsregion	2022-2024	2019-2021	2016-2018	2013-2015	Total
Danmark	**437 (100%)**	**448 (100%)**	**436 (100%)**	**383 (100%)**	**1704 (100%)**
Hovedstaden	91 (20.8%)	86 (19.2%)	104 (23.9%)	87 (22.7%)	368 (21.6%)
Sjælland	56 (12.8%)	69 (15.4%)	71 (16.3%)	51 (13.3%)	247 (14.5%)
Syddanmark	128 (29.3%)	107 (23.9%)	95 (21.8%)	88 (23.0%)	418 (24.5%)
Midtjylland	84 (19.2%)	87 (19.4%)	90 (20.6%)	89 (23.2%)	350 (20.5%)
Nordjylland	78 (17.8%)	99 (22.1%)	76 (17.4%)	68 (17.8%)	321 (18.8%)

Alder fordelt på de 4 kohorter DLCR 2024

Tabel 9.5.4. Median alder fordelt på køn og årstal for diagnose, 2013-2024

Køn	2022-2024	2019-2021	2016-2018	2013-2015	Total
Mand	77	75	73	72	74
Kvinde	75	73	71.5	70	73
Total	**77**	**75**	**73**	**72**	**74**

Tabel 9.5.5. Alder fordelt årstal for diagnose, 2013-2024 – n (%)

Alder	2022-2024	2019-2021	2016-2018	2013-2015	Total
<59	23 (5.3%)	29 (6.5%)	41 (9.4%)	49 (12.8%)	142 (8.3%)
60-79	276 (63.2%)	297 (66.3%)	314 (72.0%)	265 (69.2%)	1152 (67.6%)
=>80	138 (31.6%)	122 (27.2%)	81 (18.6%)	69 (18.0%)	410 (24.1%)
Total	437 (100%)	448 (100%)	436 (100%)	383 (100%)	1704 (100%)

Andel af pt. Der modtager onkologisk behandling DLCR 2024

Tabel 9.5.17. Systemisk onkologisk behandling (medicinsk onkologisk behandling) fordelt på bopælsregion, 2013-2024 – n (%)

Andelen af patienter med mindst én registreret SKS procedurekode for systemisk behandling (medicinsk onkologisk
behandling) (=JA til variablen *kemo* i Onkologiformularen i DLCR-TOPICA (mesotheliom databasen)).

Systemisk terapi	Danmark	Hovedstaden	Sjælland	Syddanmark	Midtjylland	Nordjylland
Nej	441 (25.9%)	82 (22.3%)	64 (25.9%)	113 (27.0%)	85 (24.3%)	97 (30.2%)
Ja	1263 (74.1%)	286 (77.7%)	183 (74.1%)	305 (73.0%)	265 (75.7%)	224 (69.8%)
Total	**1704 (100%)**	**368 (100%)**	**247 (100%)**	**418 (100%)**	**350 (100%)**	**321 (100%)**

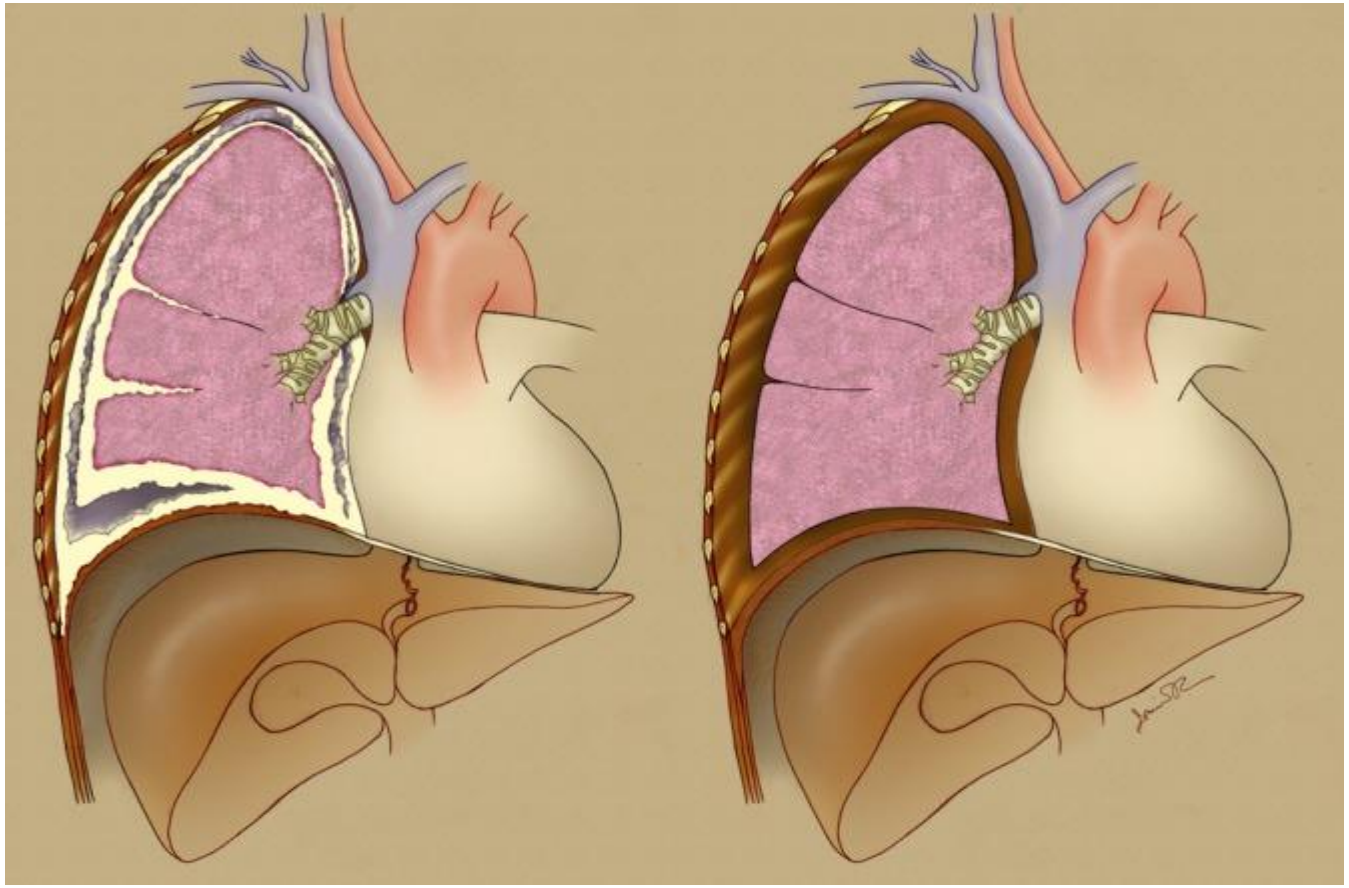
Pleural Mesothelioma
Prognosis without surgery

- 2-Component (cisplatin & Alimta) chemotherapy MS 12,1 month and 2 yr. survival 22% (Vogelzang 2003)
- MAPS trial Chemo +Bevacizumab 18,8 months MS (Lancet 2016)
- Scandinavian subgroub (Hillersdal & Sørensen *Thorac Oncol. 2008nov)* MS 21,5 month. 2 and 4 yr. survival 33% and 11.2 %
- Prognostic factors:
  - Histology (epithelial>biphasic>sarcomatoid)
  - Stage (both T and N status)
  - Multimodal treatment
  - Age (perfomance)
  - Sex (female)

Resektionsrate 1446 pt 2013-2024
DLCR 2024

	2022 – 2024		2019 – 2021		2016 – 2018		2013 – 2015	
Bopælsregion	Tæller/Nævner	Andel (%)	Tæller/Nævner	Andel (%)	Tæller/Nævner	Andel (%)	Tæller/Nævner	Andel (%)
Danmark	56 / 357	16	63 / 385	16	66 / 369	18	67 / 335	20
Hovedstaden	17 / 78	22	14 / 76	18	23 / 92	25	15 / 73	21
Sjælland	9 / 49	18	11 / 59	19	9 / 58	16	7 / 40	18
Syddanmark	12 / 101	12	11 / 96	11	9 / 81	11	19 / 79	24
Midtjylland	9 / 64	14	10 / 69	14	14 / 75	19	9 / 77	12
Nordjylland	9 / 65	14	17 / 85	20	11 / 63	17	17 / 66	26

Pleurectomy /decortication (P/D)



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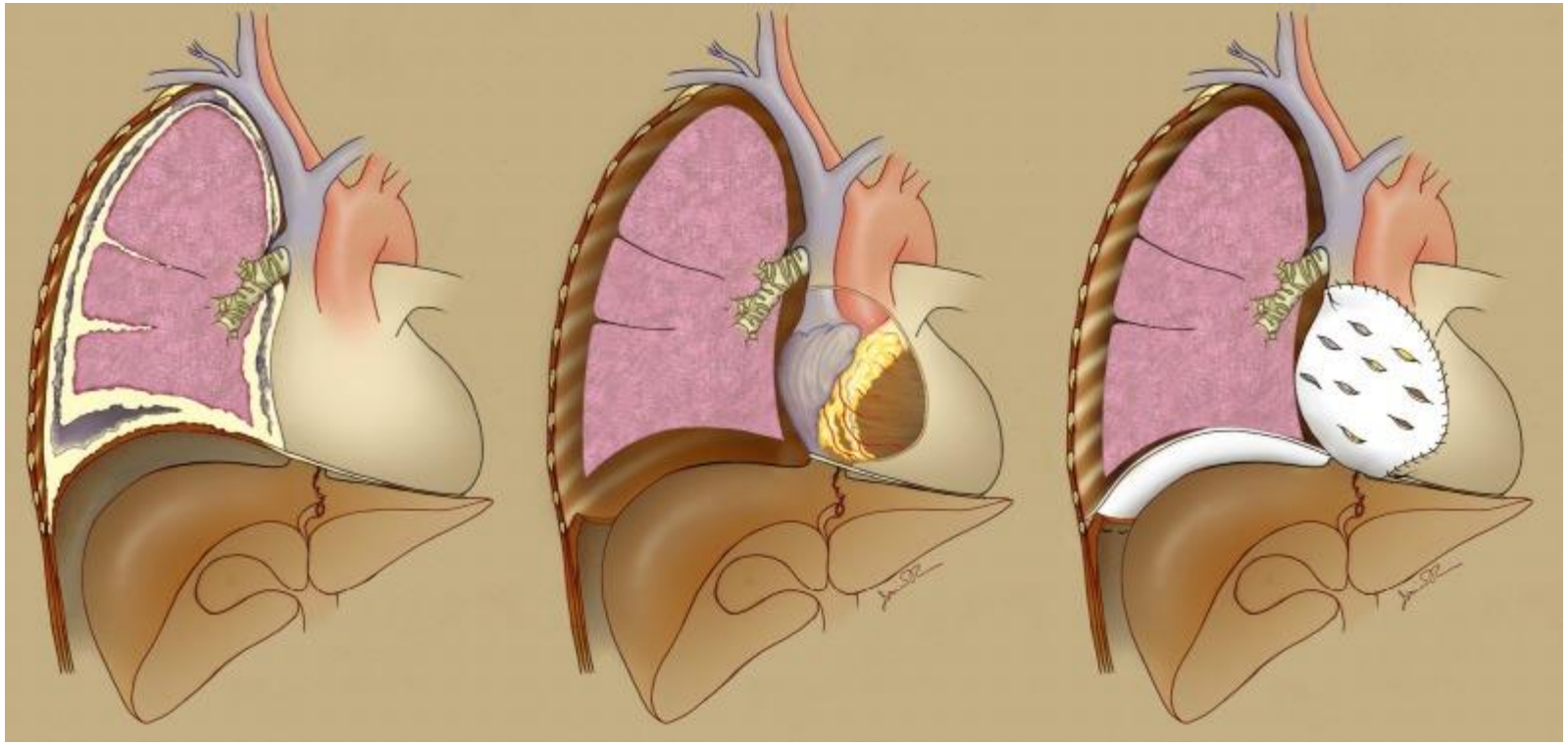
Extended pleurectomy/decortication (EPD)



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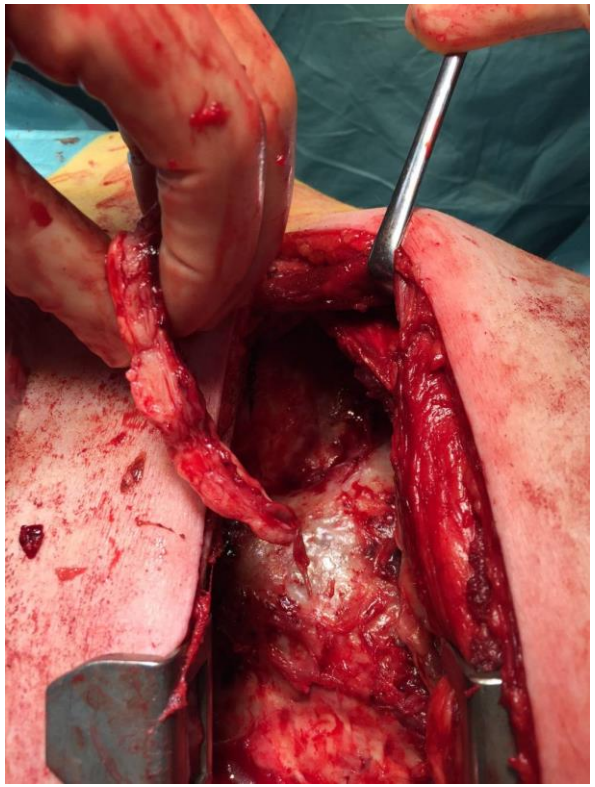
Pleurectomy



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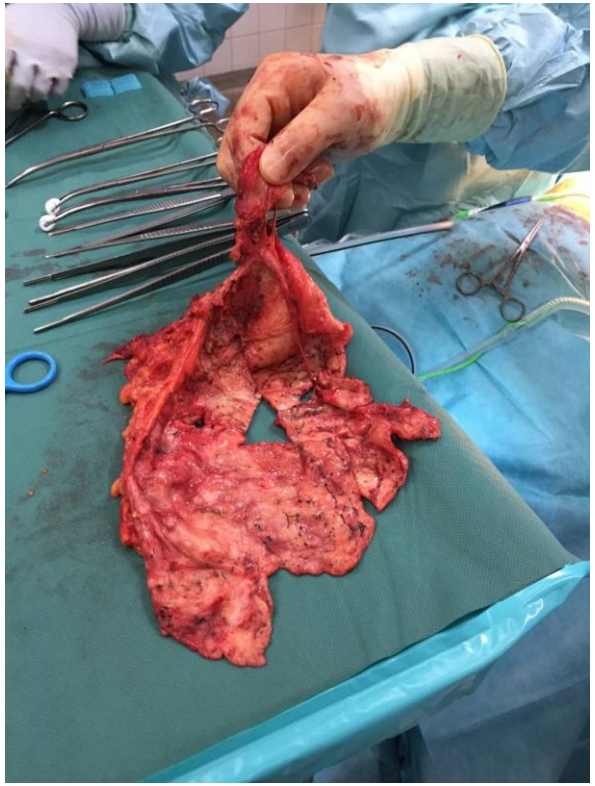
Pleurectomy



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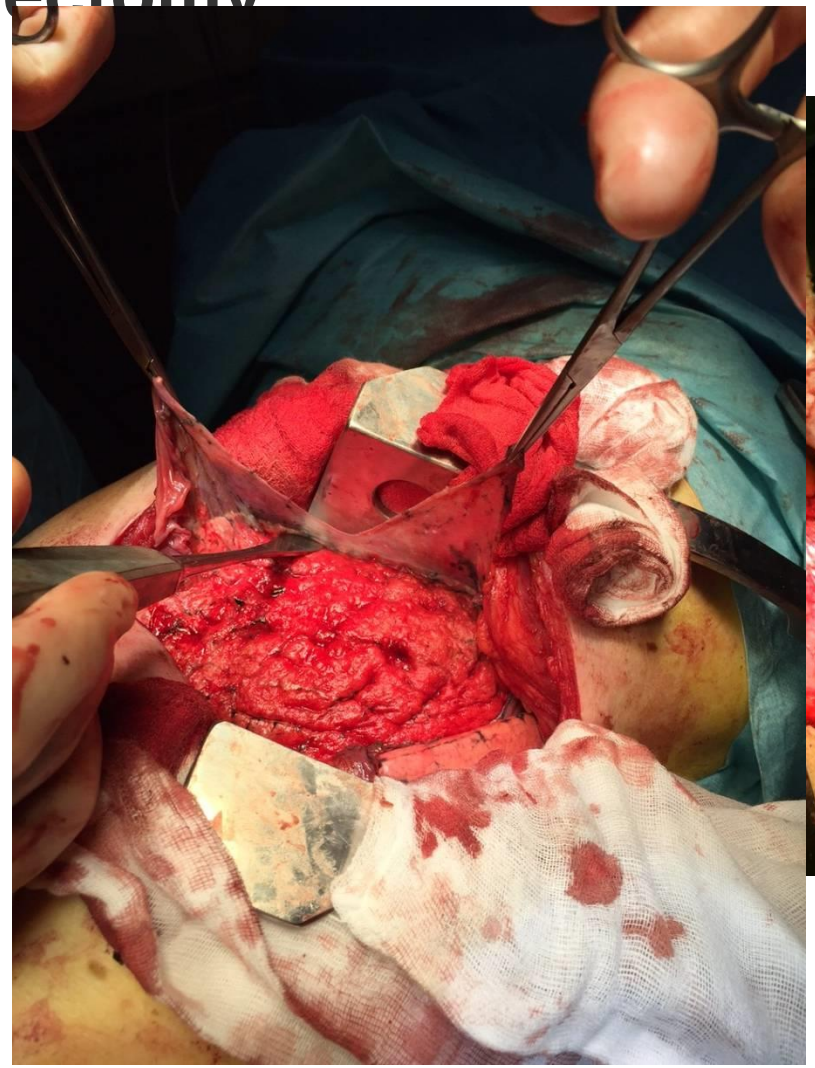
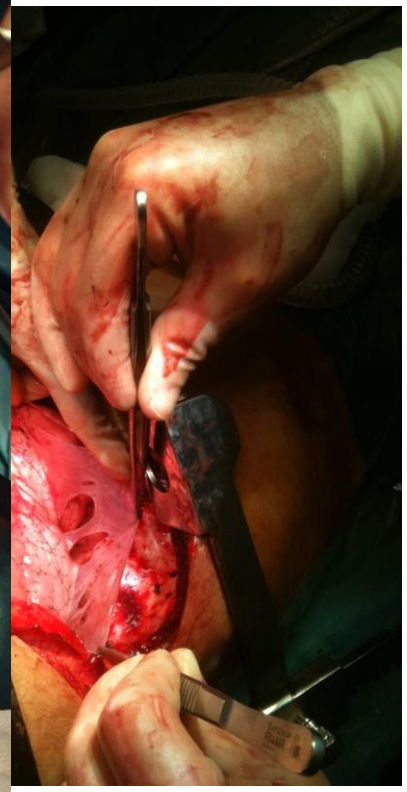
Visceral Pleurectomy





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Mesotheliom 1 års overlevelse 1446 pt. Fordelt på de 4 kohorter DLCR 2024

	2022-2024		2019-2021		2016-2018		2013-2015	
Bopælsregion	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)
Danmark	357	55 (50-61)	385	60 (55-64)	369	55 (50-60)	335	59 (54-64)
Hovedstaden	78	68 (56-77)	76	54 (42-64)	92	59 (48-68)	73	60 (48-70)
Sjælland	49	60 (43-74)	59	68 (54-78)	58	52 (38-64)	40	65 (48-78)
Syddanmark	101	47 (37-58)	96	67 (56-75)	81	51 (39-61)	79	66 (54-75)
Midtjylland	64	53 (37-66)	69	55 (43-66)	75	53 (41-64)	77	49 (38-60)
Nordjylland	65	50 (37-62)	85	55 (44-65)	63	59 (46-70)	66	58 (45-68)

Mesotheliom 2 års overlevelse 1446 pt. Fordelt på de 4 kohorter DLCR 2024

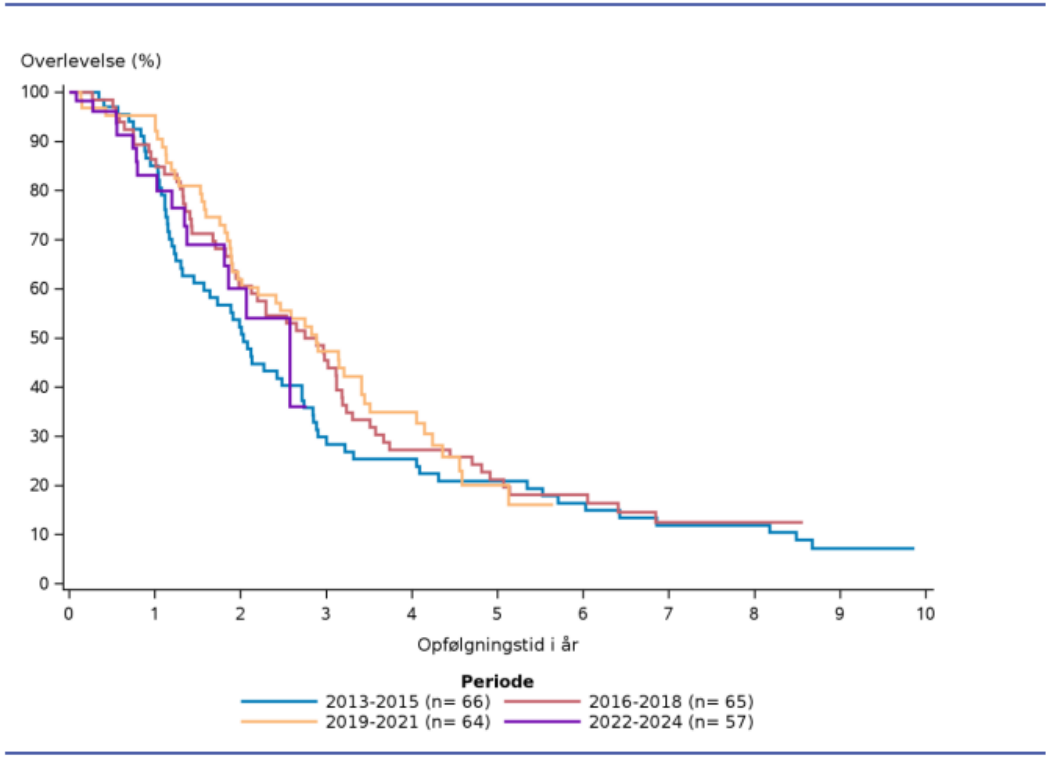
	2022-2024		2019-2021		2016-2018		2013-2015	
Bopælsregion	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)
Danmark	357	32 (26-38)	385	28 (24-33)	369	28 (24-33)	335	25 (20-29)
Hovedstaden	78	40 (28-53)	76	29 (19-39)	92	37 (27-47)	73	27 (18-38)
Sjælland	49	31 (15-48)	59	32 (21-44)	58	22 (13-34)	40	20 (9-33)
Syddanmark	101	30 (19-42)	96	25 (17-34)	81	30 (20-40)	79	30 (21-41)
Midtjylland	64	27 (14-43)	69	29 (19-40)	75	25 (16-36)	77	15 (8-24)
Nordjylland	65	27 (15-41)	85	27 (18-37)	63	24 (14-35)	66	29 (18-40)

Mesotheliom 5 års overlevelse 1446 pt. Fordelt på de 4 kohorter DLCR 2024

	2022-2024		2019-2021		2016-2018		2013-2015	
Bopælsregion	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)	Antal	% (95 CI)
Danmark	357	-	385	7 (5-10)	369	8 (6-12)	335	7 (5-11)
Hovedstaden	78	-	76	4 (1-12)	92	13 (7-21)	73	11 (5-19)
Sjælland	49	-	59	9 (4-19)	58	7 (2-15)	40	5 (1-15)
Syddanmark	101	-	96	6 (2-12)	81	10 (5-18)	79	8 (3-15)
Midtjylland	64	-	69	10 (4-19)	75	7 (2-14)	77	5 (2-12)
Nordjylland	65	-	85	8 (3-16)	63	3 (1-10)	66	8 (3-16)

- : Kan ikke estimeres.

Overlevelse efter resektion 2013-2024,252 pt DLCR 2024

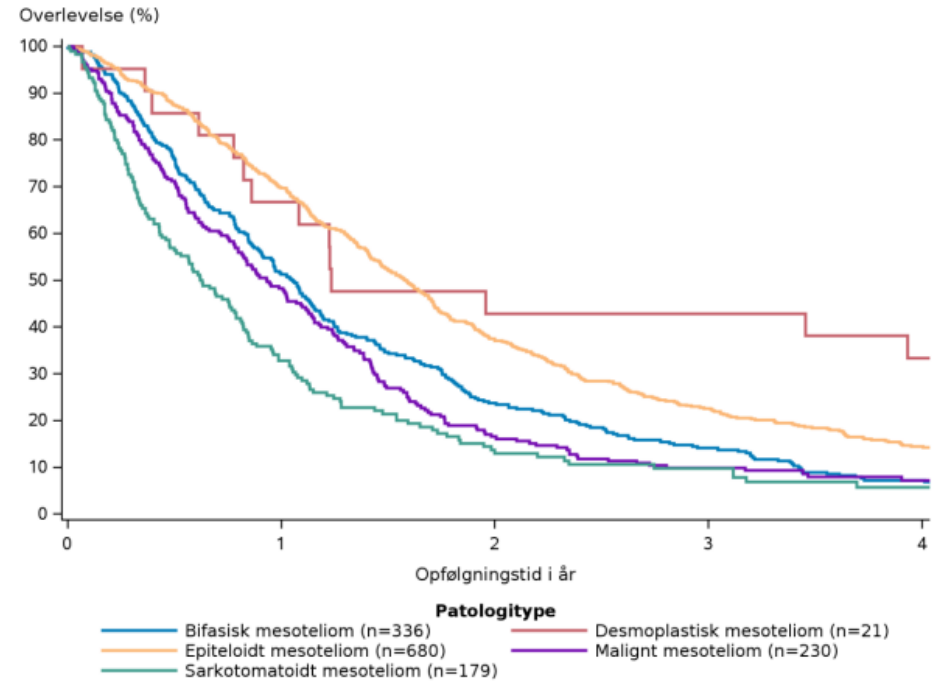


Overlevelse efter resektion 2013-2024,252 pt DLCR 2024

Diagnoseår	30-dages overlevelse (%) (95%CI)	1-års overlevelse (%) (95%CI)	2-års overlevelse (%) (95%CI)	5-års overlevelse (%) (95%CI)
2013-2015 (n= 66)	100 (100-100)	85 (74-92)	52 (40-63)	21 (12-31)
2016-2018 (n= 65)	100 (100-100)	86 (75-93)	61 (48-71)	21 (12-32)
2019-2021 (n= 64)	100 (100-100)	95 (86-98)	62 (49-73)	20 (10-33)
2022-2024 (n= 57)	98 (88-100)	83 (67-92)	60 (40-75)	-

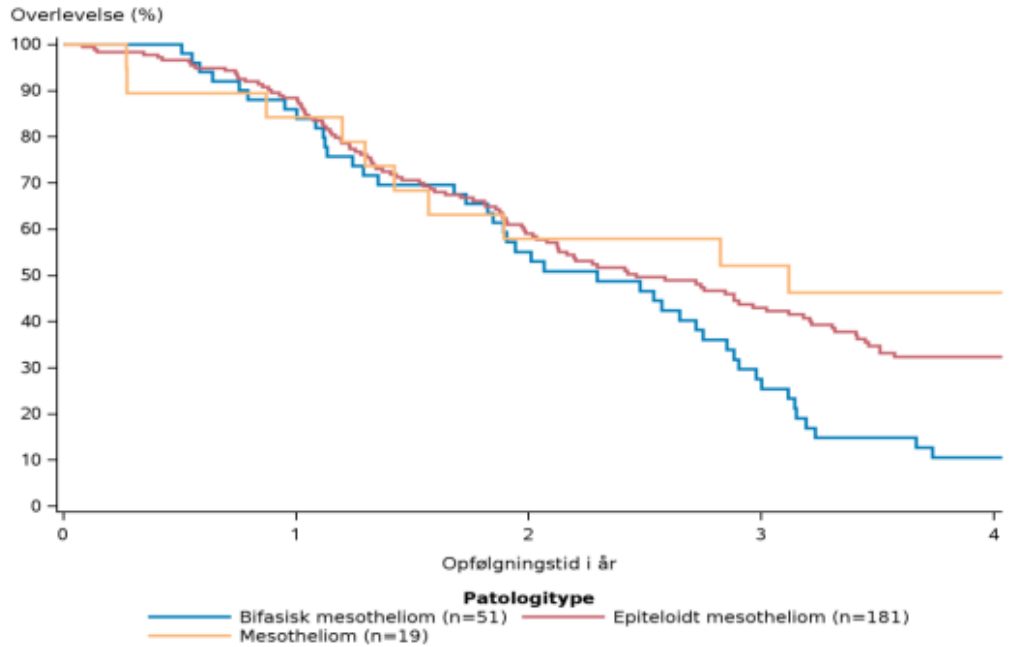
Overlevelse fordelt på patologitype hele kohorten DLCR 2024

Figur 9.6.1. Overlevelse efter diagnose, fordelt på patologitype, 2013-2024 (n=1446)



Overlevelse efter resektion fordelt på patologitype DLCR 2024

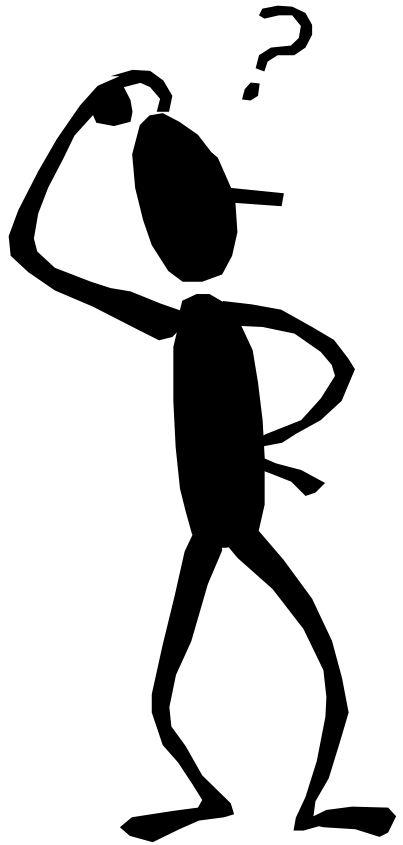
Figur 9.6.4. Overlevelse efter resektion, fordelt på patologitype efter kirurgi, 2013-2024 (n=252)



Konklusion

- 1. opgørelse med nogenlunde valide nationale data
- Få mangler i den opererede kohorte
- Væsentlige problemer med patologidata
- Mangler i indberetningen vedrørende asbesteksponering
- Fejl i TNM status
- Ønsker til yderligere indikatorer; ex overlevelse efter onkologisk behandling

?



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MARS-2 Trial

Extended pleurectomy decortication and chemotherapy versus chemotherapy alone for pleural mesothelioma (MARS 2): a phase 3 randomised controlled trial

*Eric Lim, David Waller, Kelvin Lau, Jeremy Steele, Anthony Pope, Clinton Ali, Rocco Bilancia, Manjusha Keni, Sanjay Popat, Mary O'Brien, Nadza Tokaca, Nick Maskell, Louise Stadon, Dean Fennell, Louise Nelson, John Edwards, Sara Tenconi, Laura Socci, Robert C Rintoul, Kelly Wood, Amanda Stone, Dakshinamoorthy Muthukumar, Charlotte Ingle, Paul Taylor, Laura Cove-Smith, Raffaele Califano, Yvonne Summers, Zacharias Tasigiannopoulos, Andrea Bille, Riyaz Shah, Elizabeth Fuller, Andrew Macnair, Jonathan Shamash, Talal Mansy, Richard Milton, Pek Koh, Andreea Alina Ionescu, Sarah Treece, Amy Roy, Gary Middleton, Alan Kirk, Rosie A Harris, Kate Ashton, Barbara Warnes, Emma Bridgeman, Katherine Joyce, Nicola Mills, Daisy Elliott, Nicola Farrar, Elizabeth Stokes, Vikki Hughes, Andrew G Nicholson, Chris A Rogers, on behalf of the MARS 2 Investigators**

Summary

Background Extended pleurectomy decortication for complete macroscopic resection for pleural mesothelioma has never been evaluated in a randomised trial. The aim of this study was to compare outcomes after extended pleurectomy decortication plus chemotherapy versus chemotherapy alone.

Lancet Respir Med 2024; 12: 457-66
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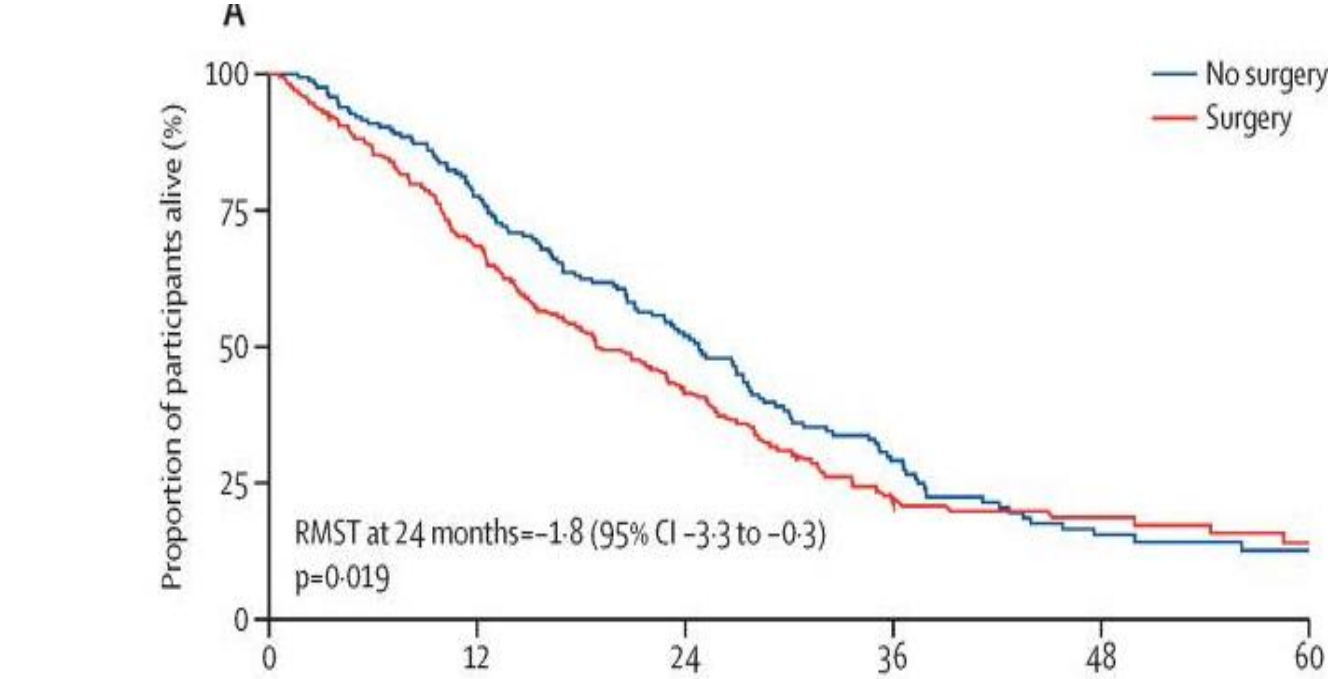
MARS-2
2015-2021

- 169/166 patients in each group
- MS surgery: **19,3 months**
- MS no-surgery: **24,8 months**
- 5 years survival surgery: **14%**
- 5 years survival no-surgery: **13 %**
- Median Follow up: **22,4 months**
- **90 days mortality: 9%**
- Median post-op stay: **13 days**

MARS-2



Number at risk (number censored)						
No surgery	166 (1)	129 (4)	82 (14)	37 (7)	15 (7)	6 (6)
Surgery	169 (1)	115 (6)	64 (14)	24 (6)	15 (5)	7 (7)

MARS -2 perspectives
JTO december 2024

PERSPECTIVES

IASLC

A Perspective on the MARS2 Trial

Eric Lim, MD,[a] Isabelle Opitz, MD,[b] Gavitt Woodard, MD,[c] Raphael Bueno, MD,[d]
Marc de Perrot, MD,[e] Raja Flores, MD,[f] Ritu Gill, MD,[g] David Jablons, MD,[h]
Harvey Pass, MD[i,*]

MARS -2 perspectives
JTO december 2024

- PET-CT and mediastinal staging only performed in 40 %
- Only 2 cycles of Neoadjuvant Chemo
- High number of extended resections (diafragm 81,5 %, pericardium 53,5%)
- ”expert center” > 5 operations/year
- 9 % 90 days mortality
- Low survival in the surgical group compared to the litterature