Rigshospitalet
Mary Elizabeths Hospital

Mary Elizabeths Hospitals Center for Data og Effektforskning

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Sammenlægning af psykiatri og somatik

- Hvad er det egentlig, vi skal lægge sammen?
- Hvordan kan vi overordnet set vide noget om pædiatrisk hospitals-somatik vs. psykiatri?
- Hvordan har det set ud de seneste år?

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ORIGINAL ARTICLE OPEN ACCESS

Pediatric Somatic and Psychiatric Hospital Contacts in Denmark: A National Overview of Risk Factors, Admissions, and Mortality

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Received: 26 May 2025 | **Revised:** 29 August 2025 | **Accepted:** 30 August 2025

Funding: The present study was funded by the Foundation for Mary Elizabeth Hospital and Børneriget Fonden.

Keywords: biostatistics | child and adolescent psychiatry | comorbidity | epidemiology | risk factors

ABSTRACT

Objectives: Prior studies have identified comorbidity between pediatric somatic and psychiatric diseases within specific diagnostic groups. However, population-level data on these associations and their impact on mortality and morbidity are limited. This study aimed to examine these associations in the Danish pediatric population.

Methods: We conducted a national cohort study using Danish register data, including 1,413,177 children and adolescents from 2019 to 2023. We assessed background factors, mortality, and hospital contacts across three patient groups: somatic-only, psychiatric-only, and somatic-psychiatric. A new-user design classified patients as somatic-only or psychiatric-only if they had no hospital contacts in the preceding 12 months. Patients with subsequent contacts for the other condition were reclassified into the somatic-psychiatric group.

Results: Most individuals were included in the somatic-only group ($n = 532{,}324$), with fewer in the psychiatric-only group ($n = 21{,}501$) or somatic-psychiatric group ($n = 23{,}108$). Psychiatric patients were more often boys and from lower socioeconomic backgrounds. Somatic hospital contacts often involved less severe symptoms. In contrast, psychiatric contacts involved specific diagnoses, including suicide attempts. Pediatric patients with both conditions had a higher 3-year readmission risk (12.1%, 95% CI: 11.6%–12.6%) compared to somatic-only patients (9.4%, 95% CI: 9.3%–9.5%), and longer average hospital stays (6.32 vs. 1.97 h). Psychiatric patients also had significantly higher all-cause mortality.

Conclusion: Somatic hospital contacts were more common, but children with psychiatric conditions faced significantly higher mortality and morbidity. These findings are relevant amid rising pediatric psychiatric diagnoses and recent Danish policy to integrate psychiatric and somatic care. Further research is needed to replicate these findings and inform optimal resource allocation for pediatric psychiatric care.

Beslutninger i forskningsprojektet

- Børn og unge 0-17 år
- 2019 – 2023
  - obs COVID-19 og omlægning af Landspatientregisteret
- Hospitalskontakter
  - Fødsler og hørescreening og akutte ambulante/skadestuebesøg ekskluderet
- Opdeling i somatisk versus psykiatriske kontakter
  - Somatisk hvis man kun har kontakt til somatikken
  - Psykiatrisk hvis man kun har kontakt til psykiatrien
  - Somatisk *og* psykiatrisk, hvis man har begge indenfor 12 måneder
- New-user design
  - Man tæller med, hvis man får en ny kontakt uden at have haft kontakt i 12 måneder
  - Man holder øje med alle hospitalskontakter i 12 måneder med henblik på somatisk *og* psykiatrisk

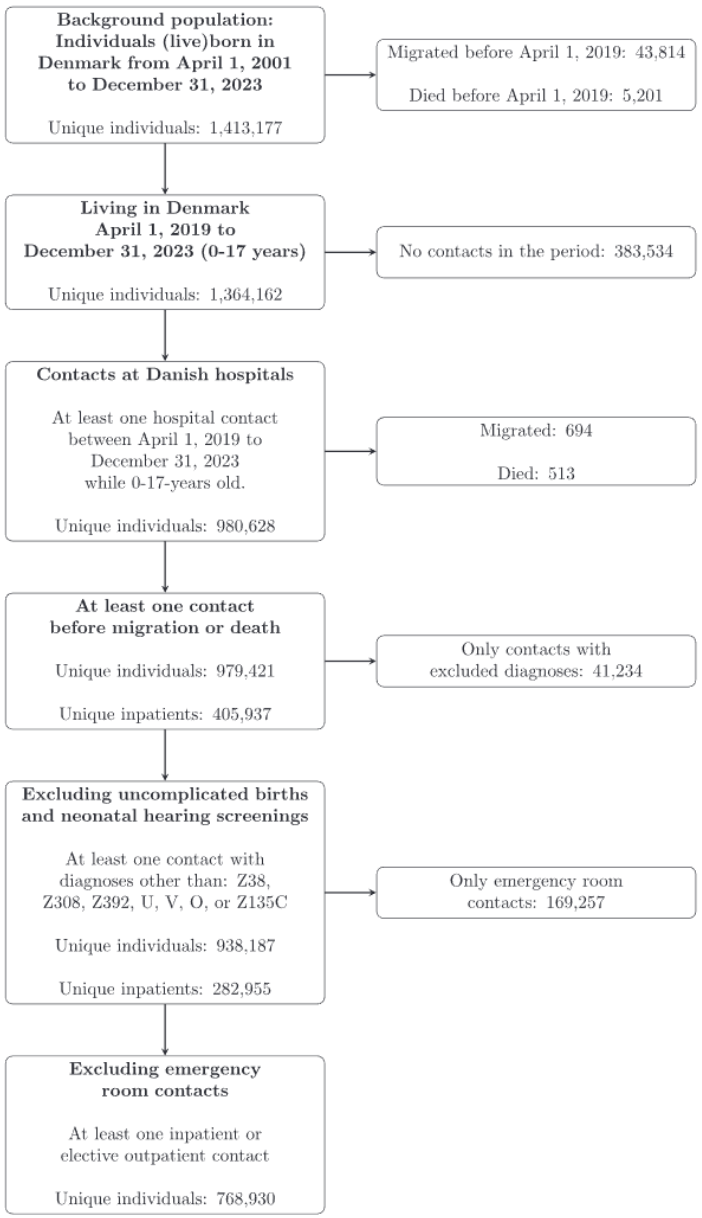

FIGURE 2 | Flowchart showing how the patients eligible for the study were identified.

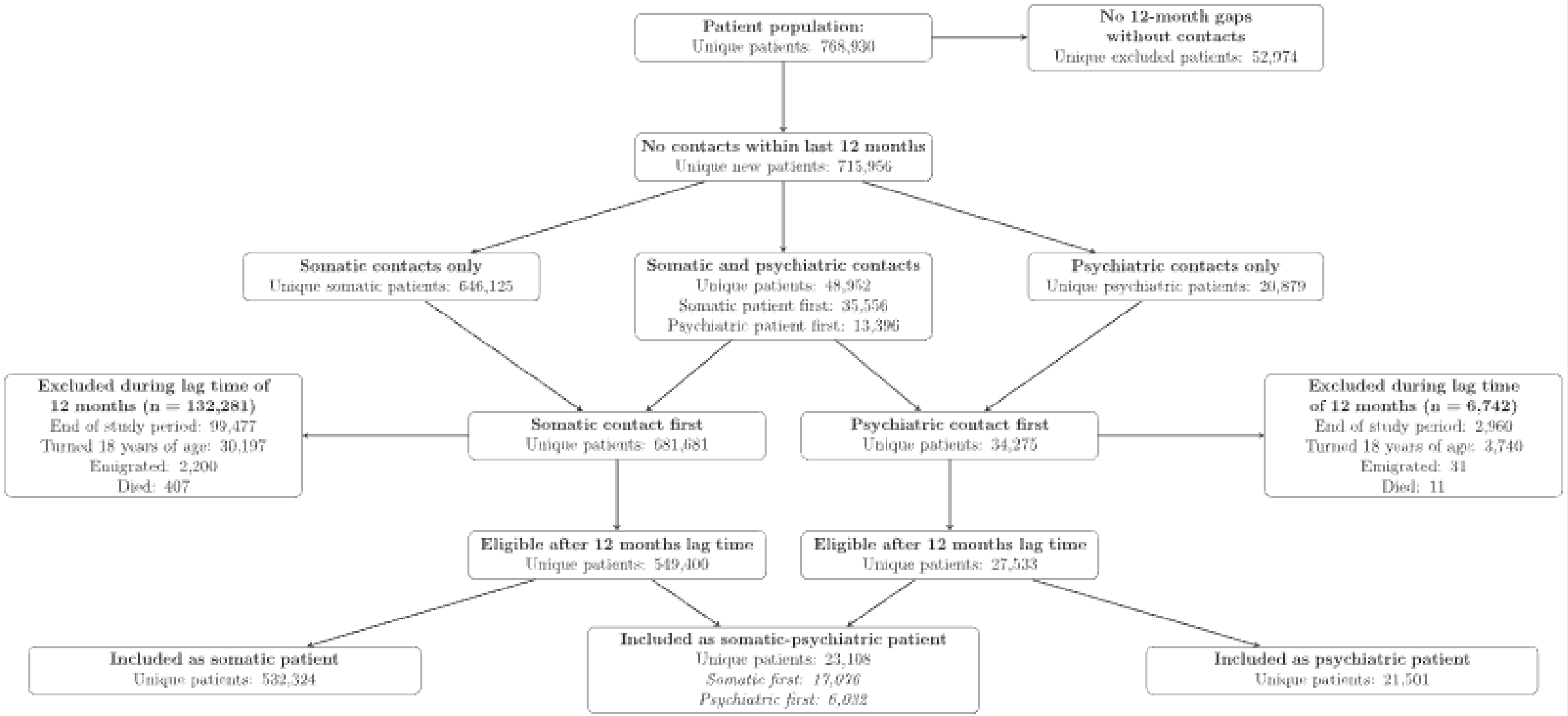

FIGURE 3 | Flowchart of the identification of new patients eligible after 12 months lag time.

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TABLE 1 | Baseline characteristics by patient groups, somatic ($n = 532,324$), psychiatric ($n = 21,501$), and somatic-psychiatric ($n = 23,108$).

Baseline characteristics	Somatic, *n* (%)	Psychiatric, *n* (%)	Somatic-psychiatric, *n* (%)
Sex			
Female	252,477 (47.4)	9033 (42.0)	10,060 (43.5)
Male	279,847 (52.6)	12,468 (58.0)	13,048 (56.5)
Age group (years)			
0	168,796 (31.7)	97 (0.5)	485 (2.1)
1–5	98,005 (18.4)	2043 (9.5)	2680 (11.6)
6–11	132,264 (24.8)	7316 (34.0)	8517 (36.9)
12–16	133,259 (25.0)	12,045 (56.0)	11,426 (49.4)
Patient type			
Inpatient	90,687 (17.0)	1380 (6.4)	2140 (9.3)
Outpatient	441,637 (83.0)	20,121 (93.6)	20,968 (90.7)
Index hospital			
Rigshospitalet	44,128 (8.3)	125 (0.6)	626 (2.7)
Odense University Hospital	47,317 (8.9)	1436 (6.7)	1705 (7.4)
Aarhus University Hospital	42,510 (8.0)	156 (0.7)	586 (2.5)
Aalborg University Hospital	34,216 (6.4)	97 (0.5)	478 (2.1)
Other	364,153 (68.4)	19,687 (91.6)	19,713 (85.3)
Maternal education level			
Secondary or lower	220,503 (41.4)	11,546 (53.7)	12,092 (52.3)
Short-cycle or bachelor's degree	197,654 (37.1)	7065 (32.9)	7839 (33.9)
Master's or doctoral degree	109,278 (20.5)	2756 (12.8)	3022 (13.1)
Not elsewhere classified or missing	4889 (0.9)	134 (0.6)	155 (0.7)
Danish origin			
Yes	477,140 (89.6)	[a] (95)	[a] (94)
No	54,433 (10.2)	[a] (5)	[a] (6)
Missing	751 (0.1)	[a] (0)	[a] (0)
Region of residence			
Capital Region of Denmark	167,669 (31.5)	[a] (32)	[a] (29)
Region of Southern Denmark	120,271 (22.6)	[a] (18)	[a] (23)
Central Denmark Region	125,638 (23.6)	[a] (20)	[a] (27)
North Denmark Region	50,448 (9.5)	[a] (9)	[a] (9)
Region Zealand	67,732 (12.7)	[a] (20)	[a] (12)
Missing	566 (0.1)	[a] (0)	[a] (0)
Index year			
2019	147,070 (27.6)	10,131 (47.1)	6436 (27.9)
2020	151,665 (28.5)	4253 (19.8)	6617 (28.6)
2021	126,102 (23.7)	4198 (19.5)	5440 (23.5)
2022	107,487 (20.2)	2919 (13.6)	4615 (20.0)

[a]Numbers masked (percentages rounded) to avoid identifiability of a small number of individuals (< 3).

Antal og incidens

	Ialt	Nye per år	Nye per måned	Procent af total
Somatik	532.324	100.000	9.300	92%
Psykiatri	23.108	4.600	400	4%
Begge	21.501	4.300	400	4%
	576.933			

Somatikken er stor og psykiatrien er lille?

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TABLE S2: The ten most frequent somatic and psychiatric diagnoses at inclusion.

#	Somatic diagnoses			Psychiatric diagnoses		
	ICD-10 code	Name	Number (%)	ICD-10 code	Name	Number (%)
1	Z016	Radiological examination	125,822 (23.6)	F900	Disturbance of activity and attention	4,675 (21.7)
2	Z001	Planned child health examination	50,679 (9.5)	F999	Mental disorder, not otherwise specified	1,905 (8.9)
3	Z038	Observation for other suspected diseases and conditions	15,410 (2.9)	F849	Pervasive developmental disorder, unspecified	1,792 (8.3)
4	Z762	Health supervision and care	10,251 (1.9)	F909	Hyperkinetic disorder, unspecified	1,253 (5.8)
5	P073	Preterm infants	7,499 (1.4)	F840	Childhood autism	1,157 (5.4)
6	Z019	Special examination, unspecified	5,785 (1.1)	F439	Reaction to severe stress, unspecified	893 (4.2)
7	Z011	Examination of ears and hearing	4,902 (0.9)	F988C	Other specified behavioural and emotional disorders with onset usually occurring in childhood and adolescence	550 (2.6)
8	J459	Asthma, unspecified	4,825 (0.9)	F959	Tic disorder, unspecified	451 (2.1)
9	Z038PA1	Observation for suspected COVID-19	4,169 (0.8)	F329	Depressive episode, unspecified	380 (1.8)
10	Z138	Special screening examination for other specified diseases and disorders	4,156 (0.8)	F952	Combined vocal and multiple motor tic disorder [de la Tourette]	364 (1.7)

Diagnosis at subsequent admissions

The ten most frequent diagnoses among the somatic, psychiatric, and somatic-psychiatric patients, based on the admission outcome events, are presented in Table S3.

TABLE S3: The ten most frequent admission outcome diagnoses by patient group.

#	Somatic			Psychiatric			Somatic-psychiatric		
	ICD-10 code	Name	Number (%)	ICD-10 code	Name	Number (%)	ICD-10 code	Name	Number (%)
1	Z032	Observation for suspected mental and behavioural disorders	851 (2.5)	F900	Disturbance of activity and attention	402 (17.4)	F900	Disturbance of activity and attention	361 (15.8)
2	Z038	Observation for other suspected diseases and conditions	532 (1.6)	Z032	Observation for suspected mental and behavioural disorders	75 (3.2)	Z032	Observation for suspected mental and behavioural disorders	98 (4.3)
3	J459	Asthma, unspecified	508(1.5)	F840	Childhood autism	65 (2.8)	F840	Childhood autism	62 (2.7)
4	R100	Acute abdomen	497 (1.5)	F845	Asperger syndrome	37 (1.6)	F988C	Attention deficit disorder without hyperactivity	41 (1.8)
5	N479D	Phimosis	488 (1.5)	F988C	Attention deficit disorder without hyperactivity	34 (1.5)	F901	Hyperkinetic conduct disorder	35 (1.5)
6	F900	Disturbance of activity and attention	394 (1.2)	T398A	Poisoning by paracetamol	29 (1.3)	F845	Asperger syndrome	34 (1.5)
7	S525	Fracture of lower end of radius	383 (1.1)	F901	Hyperkinetic conduct disorder	28 (1.2)	F8410	Atypical autism	32 (1.4)
8	J350	Chronic tonsillitis	380 (1.1)	R100	Acute abdomen	26 (1.1)	T398A	Poisoning by paracetamol	29 (1.3)
9	T781B	Allergic food reactions	376 (1.1)	Z038	Observation for other suspected diseases and conditions	26 (1.1)	N479D	Phimosis	28 (1.2)
10	R102C	Pelvic and perineal pain	365 (1.1)	N479D	Phimosis	24 (1.0)	Z016	Radiological examination	27 (1.2)

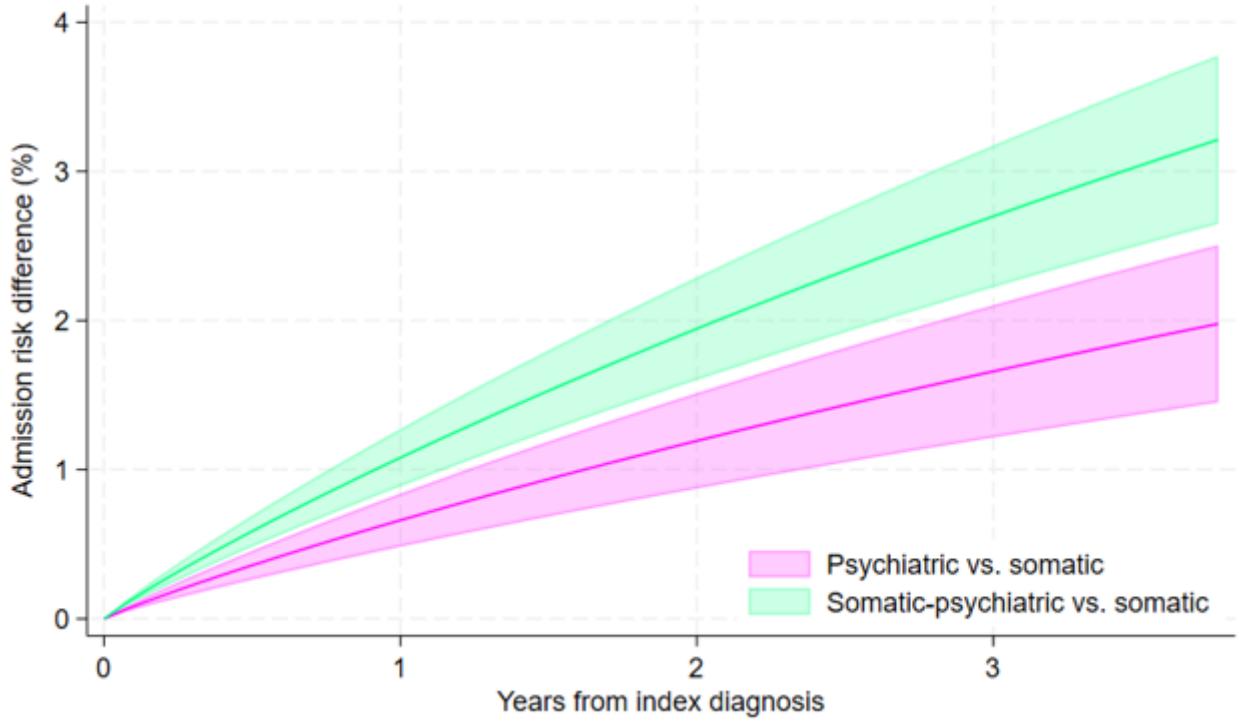
TABLE 2. Mean number of outcome events by patient groups, somatic (*n* = 532,324), psychiatric (*n* = 21,501), and somatic-psychiatric (*n* = 23,108).

Outcomes, mean (SD)	Somatic	Psychiatric	Somatic-psychiatric
Number of all-cause admissions	0.07 (0.26)	0.11 (0.33)	0.10 (0.32)
Number of hours admitted	1.97 (36.32)	6.08 (84.80)	6.32 (92.79)
Number of somatic admissions	0.06 (0.26)	0.07 (0.27)	0.06 (0.25)
Number of psychiatric admissions	0.00 (0.06)	0.04 (0.21)	0.04 (0.21)
Number of outpatient contacts	2.32 (6.46)	8.77 (14.57)	8.51 (13.53)
Number of total hospital contacts	2.39 (6.53)	8.89 (14.65)	8.61 (13.60)

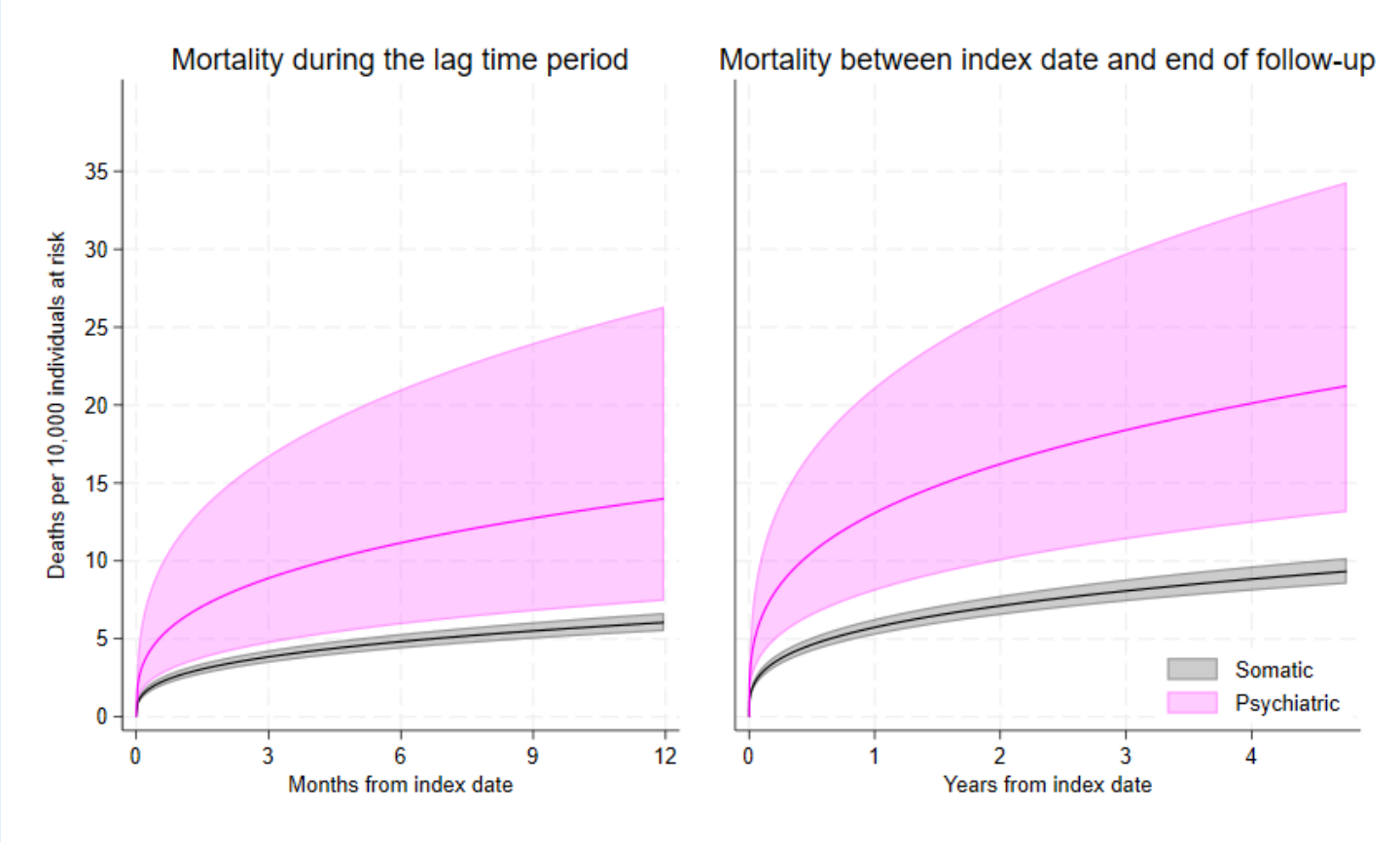
Risk difference curves

FIGURE S2

Standardized differences in risk of admission (with 95% confidence intervals) compared to the somatic patient group as the reference.



Forskel i dødelighed mellem psykiatriske og somatiske patienter (0-17 år), 2019-2023



Nedslagspunkter vedrørende mortalitet

- Blandt børn og unge med hospitalskontakt til psykiatrien var der ca. 20 dødsfald pr. 10.000 individer i de efterfølgende år.
- Blandt børn og unge med hospitalskontakt til somatikken var tallet ca. 10 dødsfald pr. 10.000 individer i de efterfølgende år.
- 78% af dødsfaldene i **somatik-gruppen** var blandt 0-årige, og 90% var højest 10 år.
  - Gennemsnitsalderen ved dødsfald var 2 år, og medianalderen var 0 år.
- I **psykiatri-gruppen** er tallene små; 75% af dødsfaldene var blandt børn på 9 år eller ældre.
  - Gennemsnitsalder ved dødsfald var 11,5 år , og medianalderen var 13 år.
- De lave tal i psykiatrien tillader ikke konklusioner om dødsårsager; men selvmord fylder. Vi har planlagt et udvidet, opfølgende studie.
- Blandt børn og unge i somatikken er perinatale tilstande den dominerende dødsårsag, mens kræft og selvmord er højt rangerede, når man ikke tæller spædbørn med.

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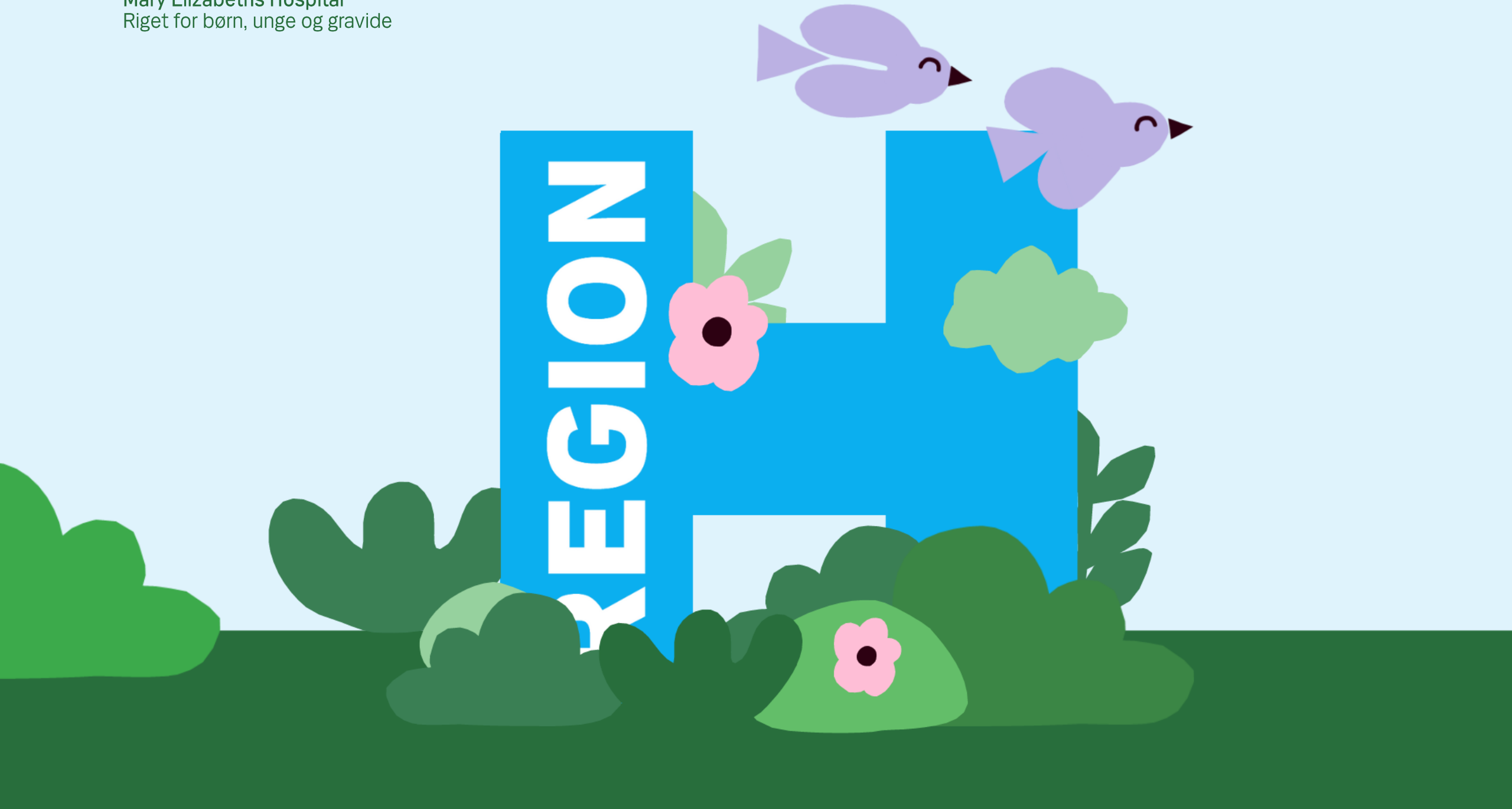

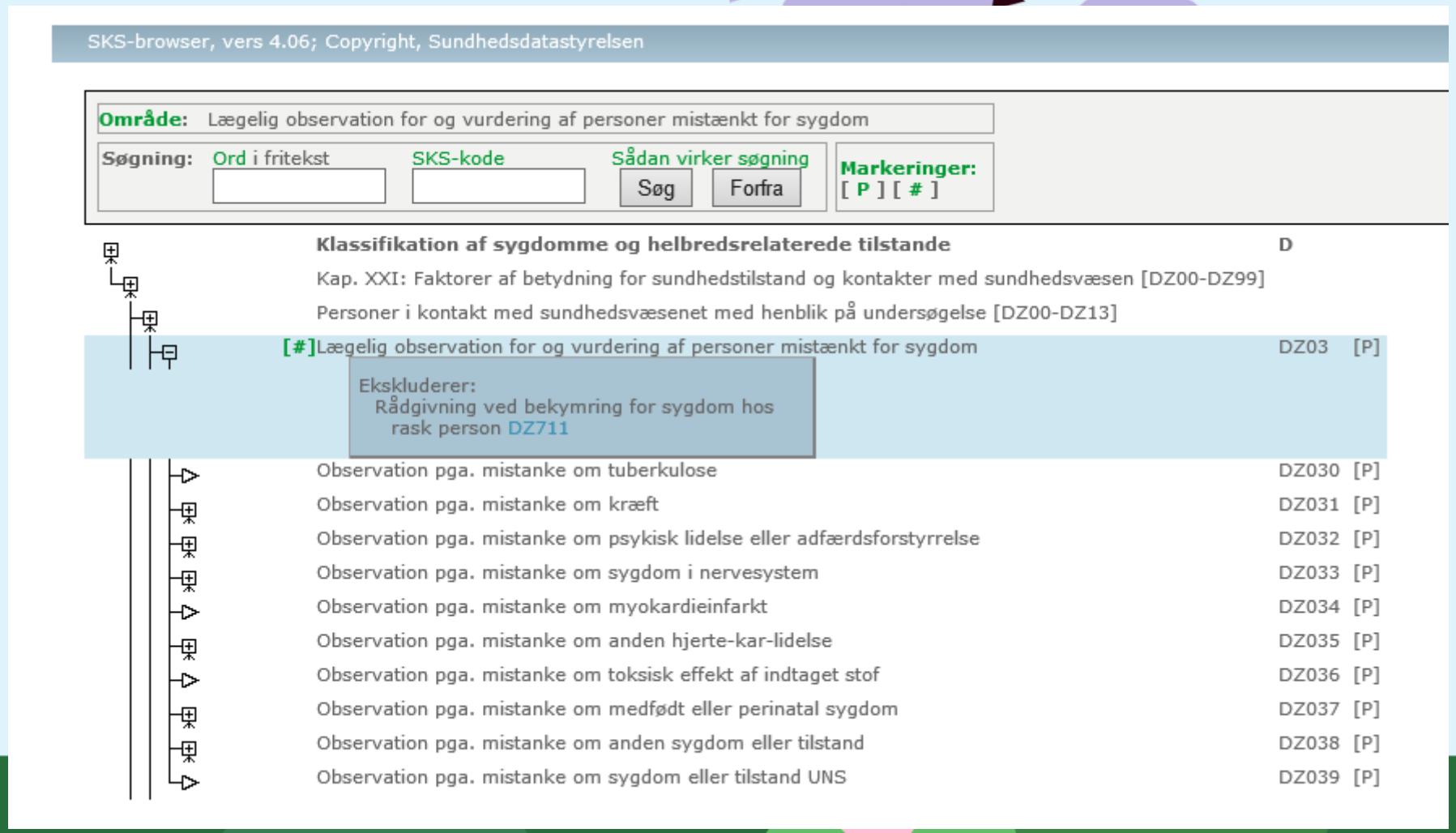
SKS-browser, vers 4.06; Copyright, Sundhedsdatastyrelsen
Område: Lægelig observation for og vurdering af personer mistænkt for sygdom
Søgning: Ord i fritekst
SKS-kode
Sådan virker søgning
Søg
Forfra
Markeringer:
[P] [#]
Klassifikation af sygdomme og helbredsrelaterede tilstande D
Kap. XXI: Faktorer af betydning for sundhedstilstand og kontakter med sundhedsvæsen [DZ00-DZ99]
Personer i kontakt med sundhedsvæsenet med henblik på undersøgelse [DZ00-DZ13]
[#]Lægelig observation for og vurdering af personer mistænkt for sygdom DZ03 [P]
Ekskluderer:
Rådgivning ved bekymring for sygdom hos rask person DZ711
Observation pga. mistanke om tuberkulose DZ030 [P]
Observation pga. mistanke om kræft DZ031 [P]
Observation pga. mistanke om psykisk lidelse eller adfærdsforstyrrelse DZ032 [P]
Observation pga. mistanke om sygdom i nervesystem DZ033 [P]
Observation pga. mistanke om myokardieinfarkt DZ034 [P]
Observation pga. mistanke om anden hjerte-kar-lidelse DZ035 [P]
Observation pga. mistanke om toksisk effekt af indtaget stof DZ036 [P]
Observation pga. mistanke om medfødt eller perinatal sygdom DZ037 [P]
Observation pga. mistanke om anden sygdom eller tilstand DZ038 [P]
Observation pga. mistanke om sygdom eller tilstand UNS DZ039 [P]