Occurence of cancer in people with ID in Germany

Tanja Sappok

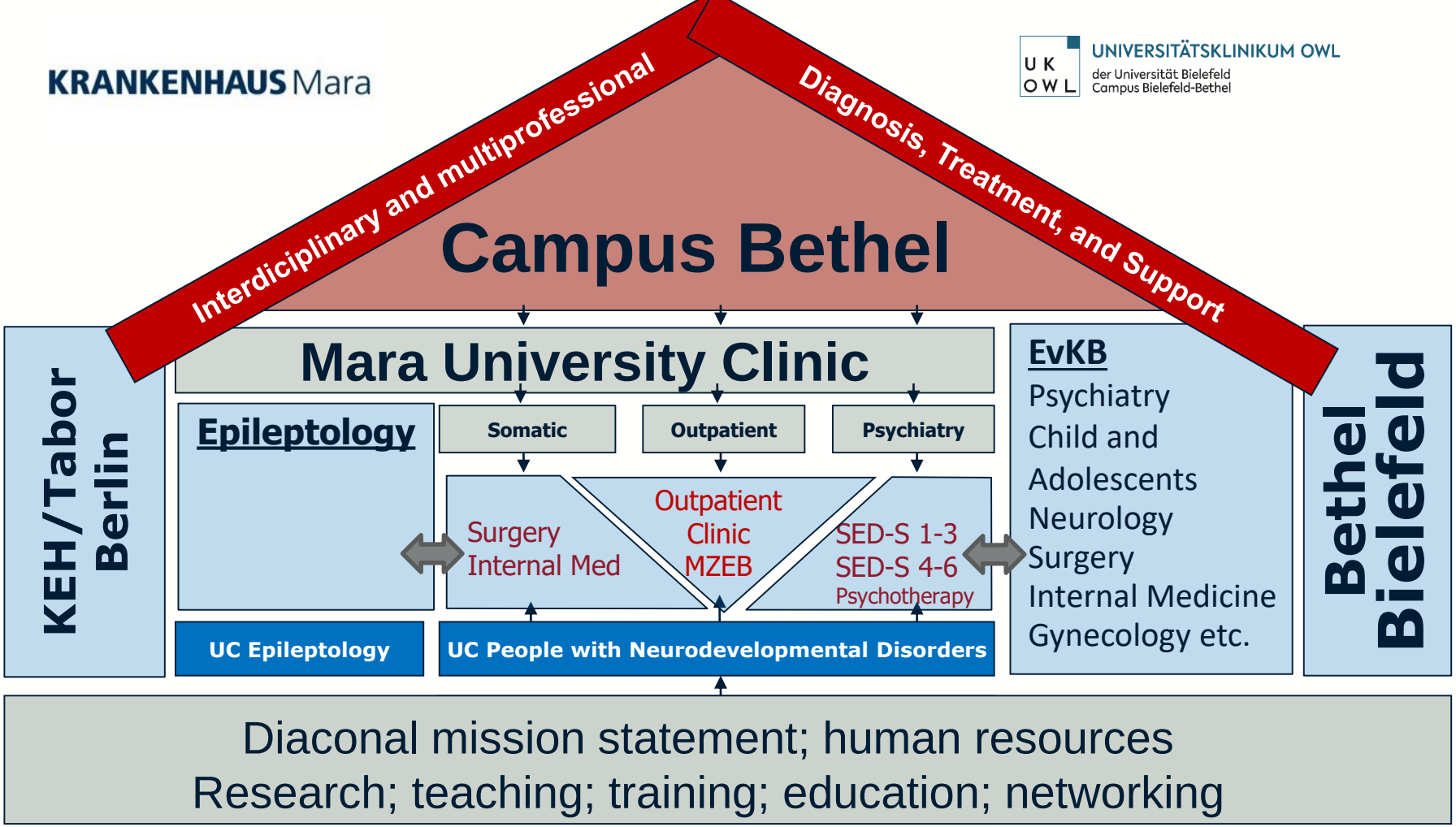
University Clinic for People with Neurodevelopmental Disorders, Mara

CANCER PREVENTION IN PERSONS WITH INTELLECTUAL DISABILITIES - EUROPEAN REALITY

Cupid Webinar, May 10th 2024

Bethel

NO CONFLICT OF INTEREST


Interdiciplinary and multiprofessional
Diagnosis, Treatment, and Support
Campus Bethel
KEH/Tabor Berlin
Mara University Clinic
Epileptology
Somatic
Outpatient
Psychiatry
Surgery
Internal Med
Outpatient
Clinic
MZEB
SED-S 1-3
SED-S 4-6
Psychotherapy
UC Epileptology
UC People with Neurodevelopmental Disorders
EvKB
Psychiatry
Child and
Adolescents
Neurology
Surgery
Internal Medicine
Gynecology etc.
Bethel Bielefeld
Diaconal mission statement; human resources
Research; teaching; training; education; networking

TARGET GROUP:
PEOPLE WITH NEURODEVELOPMENTAL DISORDERS

1. Intellectual disability (1%)
2. Acquired brain damage (1%)
3. Autism spectrum disorders (1-2%)
4. Complex, severe multiple disabilities




CANCER RISK FOR PEOPLE WITH ID

- … **increased: HR 1,57** (Sweden – Cohort study 3,5m F/U 43y, ID: 28k + cancer: 188; younger; Liu et al. 2021)
- … **equal: SIR 0,9** (Finland – Cohort study F/U 30y; ID: 2,2k + cancer: 173; Patja et al. 2001)
- … **equal** (Australia – Cohort study; F/U 19y; ID 9,4k + cancer: 200; Sullivan et al. 2004)
- … **increased with ASD**: OR 1,3 - ASD without ID: OR 1,0 (Liu et al. 2022)
- … **independent of gender** (Liu et al. 2021)
- … **independent of the severity of ID** (Liu et al. 2021; Patja et al. 2001)
- … **decreased at age >55** (Sweden, ID: 8k; Satgé et al. 2020; Sullivan et al. 2004)
- … **increased with syndromic ID** (Liu et al. 2021)
- … **increased for some tumor types**, e.g. GI, testis, CNS, blood, thyroid (Böhmer 1997; Satgé et al. 2023; Liu et al. 2021; Patja et al. 2001).
- … **reduced for others**, e.g. lung, prostate (Patja et al. 2001; Sullivan et al. 2004)

CANCER INCIDENCE COMPARISONS FOR PEOPLE +/- ID (CENTRAL INSTITUTE FOR OUTPATIENT BILLING, 2019)

N = 65 762 146 - General population

N = 438 028 - Intellectual disability

Matching (age, sex, location):

N = 4 378 020 GP (5.06 % cancer)
N = 437 802 ID (4.23 % cancer)

0 - 95 years old

Confidential preliminary data!

AGE COMPARISON OF CANCERS FOR PEOPLE WITH AND WITHOUT INTELLECTUAL DISABILITY (CENTRAL INSTITUTE FOR OUTPATIENT BILLING 2019)

90 – 95 years
80 – 85 years
70 – 75 years
60 – 65 years
50 – 55 years
40 – 45 years
30 – 35 years
20 – 25 years
10 – 15 years
0 – 5 years

N = 221.477
Cancer patients without ID

N = 18.536
Cancer patients with ID

Confidential preliminary data!

Proportion cancer patients without ID Proportion cancer patients with ID

RISK PROFILE DEPENDING ON THE SEVERITY OF ID

Table 3 Differences in the incidence of certain cancers according to the level of intellectual disability (ID)

Affected organ	SPID (30 patients)	Moderate and mild ID (87 patients)
Digestive tract	1.4	1.1
Esophagus	2.5	2
Gallbladder	10.3	1.4
Lung	0.0	0.8
Prostate	0.4	0.2
Testis	9.9	2.1
Urinary tract	0.9	0.2
Central nervous system	3.5	0.6
Thyroid	3.1	2.1
Lymphoma	1.2	1.5

Values are presented as standardized incidence ratio (SIR) compared to the general population. For example, for people with severe to profound ID, gallbladder cancers have an SIR of 10.3 compared to the general population, whereas the SIR is only 1.4-fold higher for people with mild and moderate ID compared to the general population. Data are not provided for female reproductive organs. SPID: severe and profound intellectual disability. Following Patja et al. [1]

Assessing cancer in people with profound and multiple disabilities
Daniel Satagé et al. in BMC Cancer 2023

MORTALITY INCREASED WITH ID

- Life expectancy reduced by approx. 20 years
- Causes of death in ID:
  - Circulatory and respiratory disease
  - **Malignancies 15-20%**
- Increased cancer-associated mortality in ID
  - SMR 1,48 (NL, Cohort study: 12m, ID: 17k + cancer: 2408; Cuypers et al. 2022)
  - HR 1,44 (England, ID: 16,6k + cancer: 98; Hosking et al. 2016)
  - HR 1,68 Lung cancer (Korea, Shin et al. 2018)
- Increased mortality for various tumor types

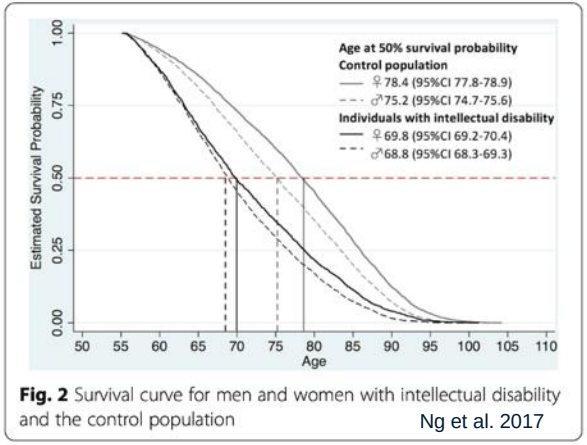


Fig. 2 Survival curve for men and women with intellectual disability and the control population Ng et al. 2017

	SMR	95% CI
Cancer types with screening[c]		
Colon (C18)	1.66	1.43-1.89
Breast (C50)	1.43	1.21-1.66
Cervix uteri (C53)	1.94	1.02-2.86
Cancer types without screening		
Bronchus and lung (C34)	1.24	1.13-1.35
Cancer without specification of site (C80)	2.48	2.06-2.89
Pancreas (C25)	1.24	1.03-1.46
Esophagus (C15)	1.56	1.29-1.84
Other (ill-defined) digestive organs (C26)	2.65	2.06-3.25
Bladder (C67)	2.07	1.61-2.54
Rectum (C20)	1.71	1.32-2.10
Prostate (C61)	0.91	0.70-1.12

Cuypers et al. 2022

GENETIC SYNDROMES - ONCOGENESIS

- Genetic cause of ID increases tumor risk
- approx. 1/3 of genes with somatic tumor-associated changes are also associated with cognitive impairment (Nussinov et al. 2022; Bellacosa A 2013):
  - **Phacomatoses** (e.g. tuberous sclerosis, neurofibromatosis)
  - **RASopathies** (e.g. Noonan syndrome, Costello syndrome)
  - Diseases of the **PI3K-AKT signaling pathway** (e.g. Cowden syndrome)
  - Disorders of **chromatin regulation** (e.g. Cornelia de Lange, Kabuki, Coffin-Siris, Rubinstein-Taybi, Sotos syndrome)
  - **Chromosome instability syndromes** (e.g. ataxia teleangiectasia, Nijmegen breakage syndrome, LIG4 syndrome)
  - **rare chromosomal deletions** ("contiguous gene deletions"), which contain genes for known familial tumor predispositions

GENETIC SYNDROMES – CANCER TYPE

- **Down syndrome:** acute leukemia (myel. and lymphatic) + testicular cancer, especially in children and young adults (Hassle et al. 2000)
- **Tuberous sclerosis:** benign (70%) and rarely malignant (1%) angiomyolipomas of the kidneys, renal cell carcinoma (2-5%); subenpendymal giant cell astrocytomas of the brain (5-15%) (Northrup et al. 1993)
- **Neurofibromatosis type 1:** cutaneous neurofibromas, optic gliomas (15-20 %), malignant nerve sheath tumors (8-13 %), breast cancer (approx. 20 %), pheochromocytomas; gastrointestinal stromal tumors (Friedman 2022)
- **Rubinstein-Taybi syndrome:** Pilomatrixomas (Boot et al. 2018)
- **Ataxia teleangiectatica:** leukemias and lymphomas, various solid tumors
- **Nijmegen-Breakage-Syndrome:** Lymphomas and other tumors
- **Del in 13q** - *RB1 gene: familial retinoblastoma* (Baud et al. 1999)
- **Del in 5q** - *APC gene: familial polyposis* (Raedle et al. 2001)
- **Del in 2p** - *MSH2 and MSH6: hereditary non-polyposis colon carcinoma* (Salo-Mullen et al. 2018)

ID: NON-GENETIC RISK FACTORS

- Sedentary lifestyle
- Reduced physical activity
- Nutritional factors
- Overweight (Lynch et al. 2021)
- Chronic gastroesophageal reflux (Liu et al. 2021)

DIAGNOSTICS DELAYED / MORE EMERGENCIES

Table 3 Route to diagnosis for adults with intellectual disabilities known from LeDeR data to have died with cancer and for whom linked data about the route to their diagnosis were available from the national cancer registry

	LeDeR data (2017–2019)	
	No.	%
Emergency presentation	162	35%
General Practitioner non-urgent referral	123	27%
Urgent referral ('2-week wait')	116	25%
Other (outpatient attendance/elective inpatient/death certificate only)	45	10%
Screening	16	3%
Total	462	100%
Unknown/missing	309	

GP, General Practitioner; LeDeR, Learning (Intellectual) Disabilities Mortality Review.

Table 4 Stage of cancer at diagnosis for adults with intellectual disabilities known from LeDeR data to have died with cancer and for whom linked data about the route to their diagnosis were available from the national cancer registry

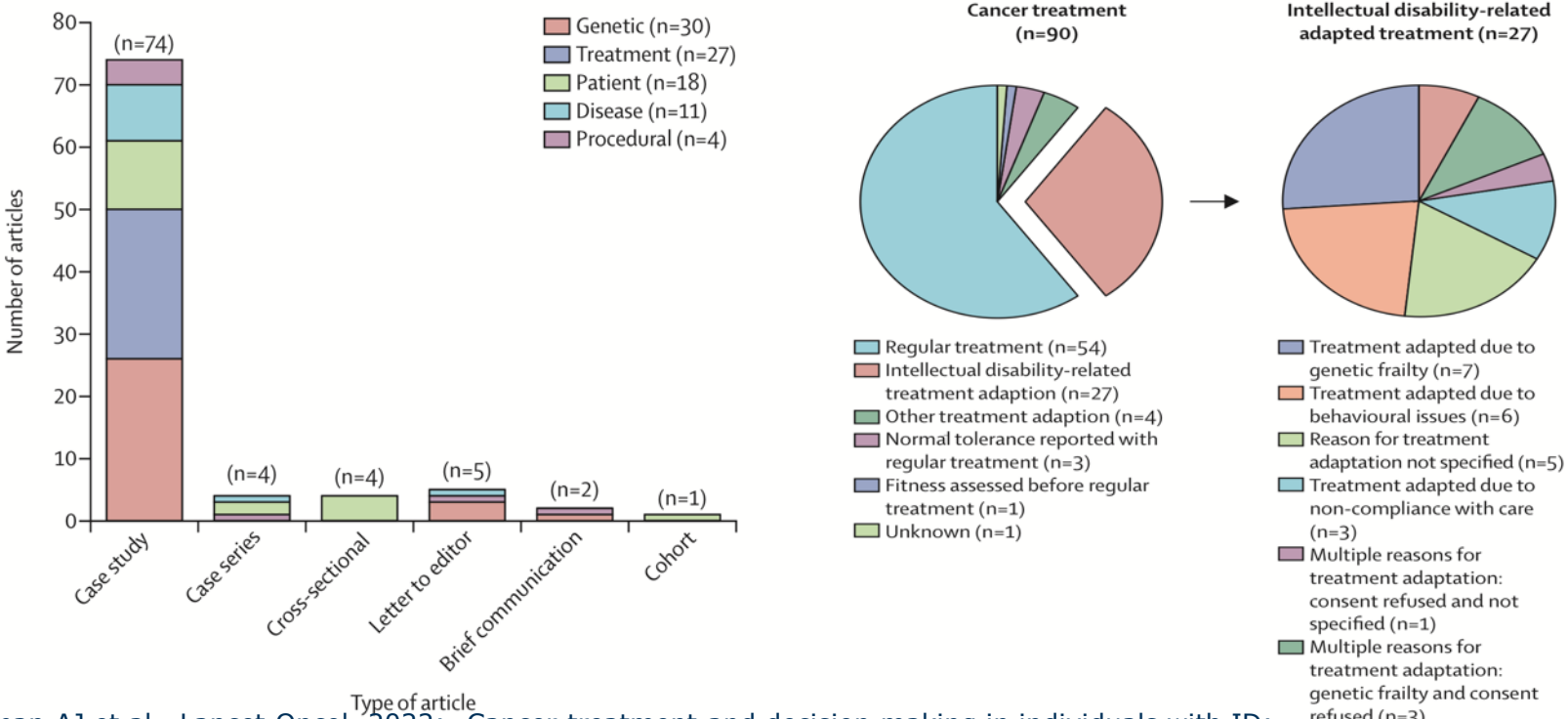
	LeDeR data (2017–2019)	
	No.	%
Stage I	88	18%
Stage II	78	16%
Stage III	105	21%
Stage IV	228	45%
Total number of cancers	502	100%
Unknown/missing/unstageable	363	

LeDeR, Learning (Intellectual) Disabilities Mortality Review.

Heslop et al Br. Med. J. 2022

43% of Colorectal cancer patients died at an age before early detection is recommended

TREATMENT AND DECISION-MAKING



Boonman AJ et al., Lancet Oncol. 2022: „Cancer treatment and decision making in individuals with ID: a scoping literature review.“ 2000-2020; 90 publications

REDUCED TREATMENT OPTIONS - PRIMARY AND PAIN

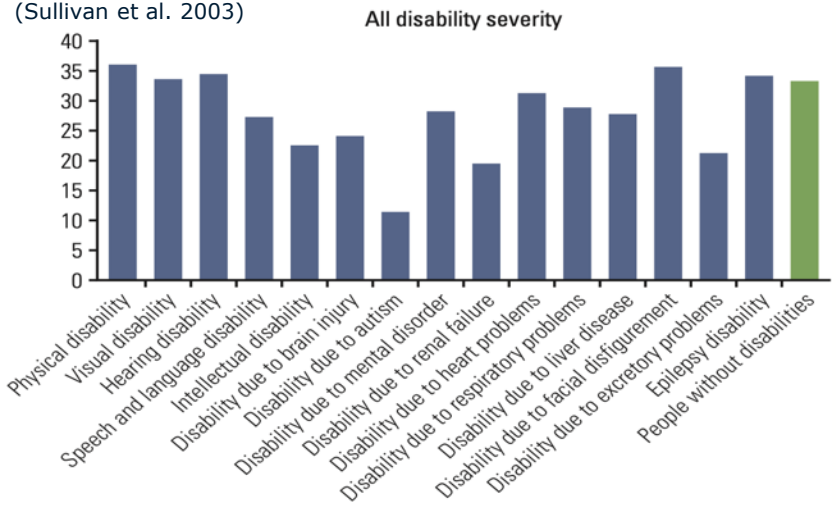
- Lung cancer in ID: **less operations** (HR .39), **chemotherapy** (.47) und **radiation** (.49) (Shin et al. 2018 Korea)
- Prostate cancer in ID: **less operations** (aORs 0.29), more antiandrogens Tx (1.52) (Shin et al. 2021 Korea)
- Cervical cancer in ID: **less operations** (aOR 0.57) (Choi et al. 2021 Korea)
- Bile duct tumors in disabilities: **less operations** (aOR 0.52), **chemotherapy** (0.76), especially in cognitive impairment (Park et al. 2022)
- Adjusted pain therapy: less COX inhibitors (RR 0.61) less weak opioids (RR 0.63), more paracetamol (RR 1.16), Antidepressants (RR 2.09) + Anxiolytics
  (Segerlantz et al. 2019 Sweden; No differences for strong opioids, antiepileptics, tricyclic antidepressants, hypnotics or sedatives)
- Caregivers feel less comfortable communicating with patients about their illness, more dependent on reference person, less satisfied with recognizing patient needs and more stressed (Flynn et al. 2015)

LESS CHECK-UPS

- **Mammography screening**
  - Denmark: 25% ID vs. 62% GP (Horsbøl et al. 2023)
  - Australia: 35% ID vs. 55% GP (Sullivan et al. 2003)
  - US (aOR): 0.63 (Xu et al. 2017)
  - Korea (aOR) ASD: 0.235

    Brain injury: 0.349

    ID: 0.403 (Shin et al. 2020)



- **Pap test**
  - US (aOR): 0.17 (Xu et al. 2017)
- **Coloscopy**
  - Korea (aOR) ASD: 0.468; Brain: 0.581; ID: 0.610 (Shin et al. 2020)

CHALLENGES IN ID (WHO, 2022)

1. **Structural factors**
   - Legislation, political factors
   - Lack of funding
   - Lack of transportation to the investigation
2. **Social factors**
   - Reduced support
3. **Patient-related factors (Cuypers et al. 2020)**
   - Anxiety
   - Health competence
   - Communicative difficulties
   - Diagnostic overshadowing
   - Coping reduced-Comorbidities
4. **Healthcare system (Reppermund et al. 2020)**
   - Barriers to access
   - insufficient knowledge
   - lack of guidelines
   - Discriminatory attitudes

DISPARITIES IN CANCER CARE IN ID

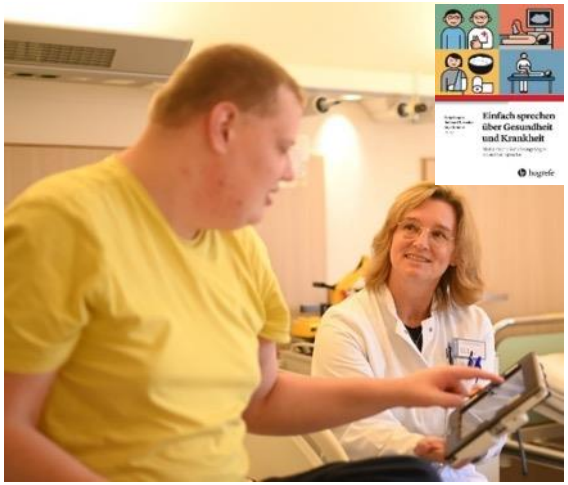
- Poorer survival
- Higher overall and cancer-specific mortality
- Poorer quality cancer care
- Lower access to state-of-the-art care or curative-intent therapies
- Treatment delays
- Undertreatment or excessively invasive treatment
- Worse access to inhospital services
- Less specialist healthcare utilization
- Less access to pain medications
- Inadequate end-of-life quality of care

Tosetti I, Kuper H. Do people with disabilities experience disparities in cancer care? A systematic review. PLoS One. 2023 Dec 13;18(12):e0285146. doi: 10.1371/journal.pone. Time period: 2000-2022; 31 engl. studies

Fig 3. Barriers experienced by PwD during cancer care.

https://doi.org/10.1371/journal.pone.0285146.g003

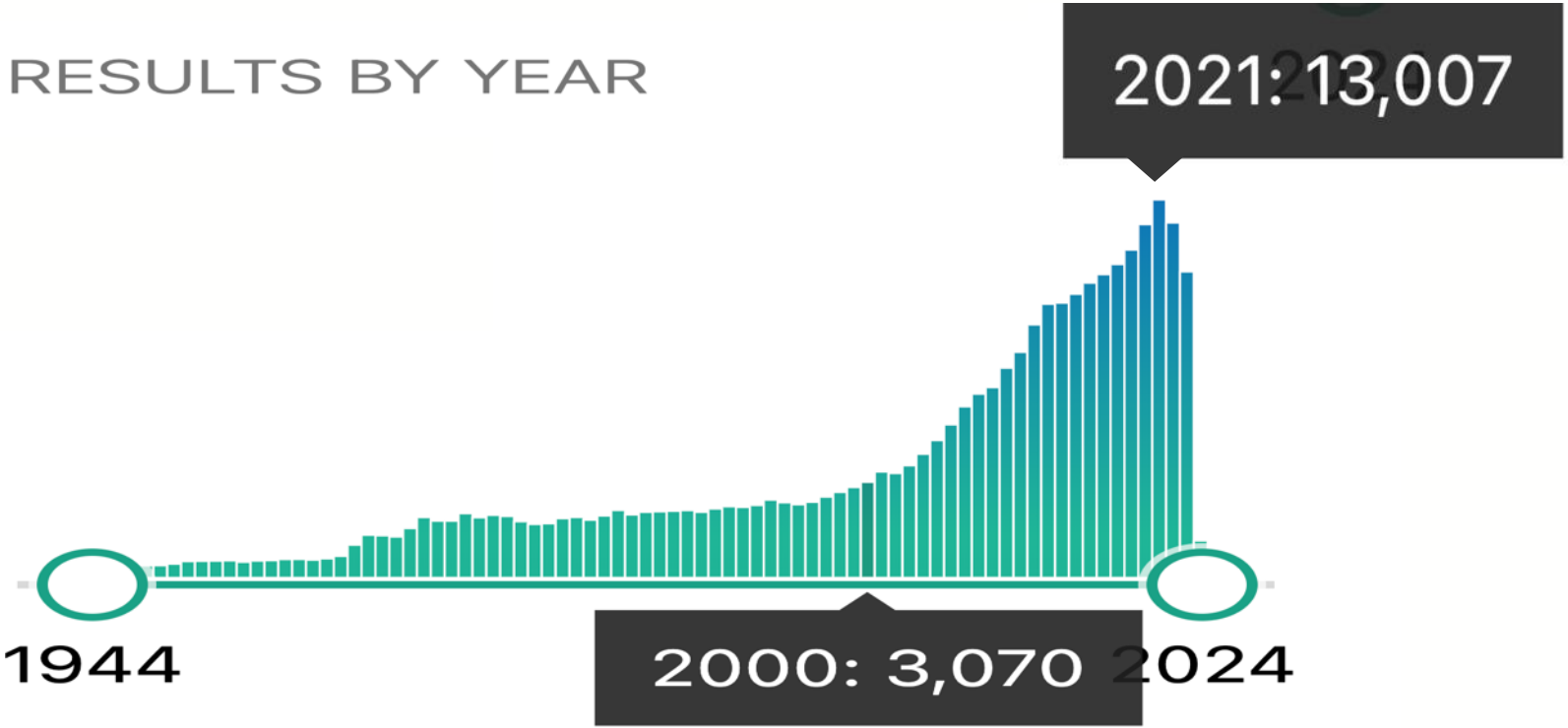
SUCCESS FACTORS: STAFF, COMMUNICATION, TIME



6 second rule

Consent of the patient/ legal guardian

PUBMED SEARCH FOR „ONCOLGY" AND „ID" OR „NDD"



KRANKENHAUS Mara

UNIVERSITÄTSKLINIKUM OWL
der Universität Bielefeld
Campus Bielefeld-Bethel

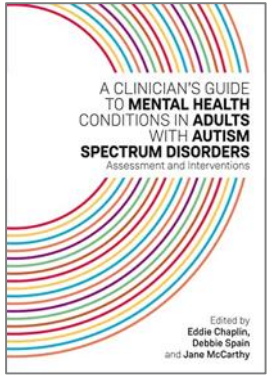
DISSEMINATION AND COMMUNICATION

available in English

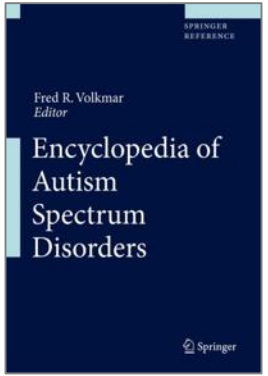
caregivers

patients

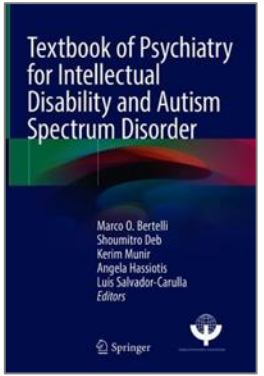
professionals



UK



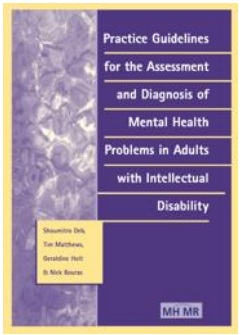
US



worldwide

AWMF online
Das Portal der wissenschaftlichen Medizin

NICE National Institute for Health and Care Excellence



EAMHID
EUROPEAN ASSOCIATION FOR MENTAL HEALTH IN INTELLECTUAL DISABILITY

dgsgb
Deutsche Gesellschaft für seelische Gesundheit bei Menschen mit geistiger Behinderung e.V.

NEED
NETWORK OF EUROPEANS ON EMOTIONAL DEVELOPMENT

EPA
European Psychiatric Association
Our mission is to improve Psychiatry and Mental Health Care in Europe

Bethel