Evidence tables surveillance of education and employment outcomes

2. What are the risk factors for poor educational/employment outcomes?				
De Blank et al. **Impact of vision loss among survivors of childhood central nervous system astroglial tumors. 2016**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1970-1986** **Years of follow-up:** **DX 1970-1986** **FU Survey 2: 2002-2005** **FU Survey 4: 2007-2010**	**Sample size:** N=587 **Diagnoses:** Astroglial tumor **Age at diagnosis:** < 21 years ≤4 years: 210 (35.8%) 5-9 years: 134 (22.8%) ≥10 years: 243 (41.4%) **Age at study:** 23.8 years (SD 7.3 years) **Controls:** None	Surgery: n=538 (98.0%) Chemotherapy: n=87 (15.8%) Radiation: n=324 (58.9%)	**Risk factors for "no college attendance"** (vs. some attendance with or without college degree) **from multivariable logistic regression (n=525):** • Sex: NS in univariable analysis, therefore not included in the multivariable model • Age at interview: NS in univariable analysis, therefore not included in the multivariable model • Vision with impairment (Ref. vision without impairment) OR 0.93 (95%CI:0.56-1.55) • Bilateral vision loss (Ref. vision without impairment) OR 2.05 (95%CI:0.99-4.23) • **Age at diagnosis: ≤4 years (Ref. ≥10 years) OR 2.01 (95%CI:1.29-3.12)** • Age at diagnosis: 5-9 years (Ref. ≥10 years) OR 1.41 (95%CI:0.86-2.30) • Cranial radiation: ≤30 Gy (Ref. None) OR 0.53 (95%CI:0.14-1.98) • **Cranial radiation: >30 Gy (Ref. None) OR 2.05 (95%CI:1.37-3.06)** • **Medical comorbidity: Yes (Ref. No) OR 1.84 (95%CI:1.25-2.72)** **Risk factors for unemployment from multivariable logistic regression (n=533):** • Age at diagnosis: NS in univariable analysis, therefore not included in the multivariable model • Age at interview: NS in univariable analysis, therefore not included in the multivariable model • Vision with impairment (Ref. vision without impairment) OR 1.29 (95%CI:0.79-2.09) • **Bilateral vision loss (Ref. vision without impairment) OR 2.17 (95%CI:1.06-4.46)** • **Sex: female (Ref. male) OR 1.68 (95%CI:1.16-2.44)** • Cranial radiation: ≤30 Gy (Ref. None) OR 2.41 (95%CI:0.78-7.46) • **Cranial radiation: >30 Gy (Ref. None) OR 1.74 (95%CI:1.17-2.59)** • **Medical comorbidity: Yes (Ref. No) OR 2.83 (95%CI:1.92-4.15)** **Bolding indicates statistical significance (p<0.05)**	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 587/1233 eligible survivors completed both surveys 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 533/525 survivors responded to employment/education questions (90.8%/89.4%) 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Prasad et al. Psychosocial and Neurocognitive Outcomes in Adult Survivors of Adolescent and Early Young Adult Cancer: A Report From the Childhood Cancer Survivor Study. 2015

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1986** **Years of follow-up:** **Baseline CCSS administered between 1992-2002; this report is from FU 2 in 2007.** **Age at diagnosis:** **AeYA: 11-21 years** **Non YeYA 0-10 years** **Age at study:** **AeYA:** **25-29 years: 2.4%** **30-34 years: 21.9%** **≥35 years: 75.7%** **Non-AeYA:** **15-19 years: 3.4%** **20-24 years: 25.3%** **25-29 years: 31.3%%** **30-34 years: 24.9%** **≥35 years: 15.0%**	**Sample size:** 6192 survivors (grouped by: AeYA* (11 to 21 years at diagnosis) or non-AeYA (0-10 years at diagnosis)) **Diagnoses:** AeYA(%)/Non-AeYA(%) Leukemia 17.8%/55.4% CNS tumor 11.3%/16.9% Hodgkin lymphoma 30.8%/5.1% Non-Hodgkin lymphoma 10.7%/7.6% Soft tissue sarcoma 10.8%/10.5% Osteosarcoma/Ewing 18.6%/4.5% **Controls:** 390 siblings	AeYA(%)/non-AeYA(%): Overall treatment: Surgery only 7.9%/5.9% Chemotherapy 20.9%/25.1% Radiotherapy 19.1%/9.2% Chemotherapy and radiotherapy 20.9%/53.3% CNS irradiation: None 31.9%/34.0% Indirect 37.3%/11.8% Direct <20 Gy 10.6%/18.0% Direct ≥Gy 15.6%/30.8%	**Risk educational outcomes:** No statistically significant differences between AeYA survivors and siblings regarding educational outcomes (education<12 years; high school graduate; post-high school training; college, postgraduate; p =0.089). AeYA survivors had higher educational attainment than non-AeYA survivors (education<12 years; high school graduate; post-high school training; college, postgraduate; p<0.001). 　　　　　　　　　　　AeYA / 　non-AeYA / 　siblings less than HS grad: 　2.9% / 　4.5% / 　2.3% HS grad: 　10.9% / 　16.3% / 　13.1% Post-high school training: 　30.8% / 　37.7% / 　33.9% College: 　35.0% / 　31.6% / 　34.6% Postgraduate: 　19.8% / 　9.0% / 　15.6% **Risk employment outcomes:** Compared to siblings, survivors diagnosed during AeYA had statistically significant differences in employment outcomes (p<0.001). AeYA survivors were more likely unable to work, less likely student or working part time than siblings. Compared to non-AeYA, survivors diagnosed during AeYA had statistically significant differences in employment outcomes (p<0.001). AeYA survivors were more likely unable to work or working full time, less likely student or working part time than non-AeYA. 　　　　　　　　　AeYA / 　non-AeYA / 　siblings Unable to work: 　7.8% / 　6.9%% / 　1.5% Unemployed: 　10.6% / 　10.9% / 　11.3% Student: 　1.0% / 　6.9% / 　3.9% Working part time: 　9.4% / 　13.9% / 　13.1% Working full time: 　70.1% / 　60.2% / 　70.0% Age not taken into account for pure rates of college or employment and non-AeYA survivors and siblings were younger than AeYA survivors!	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 6192 of 11576 contacted participated (53.5%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** *AeYA=Adolescent and early young adulthood

2. What are the risk factors for poor educational/employment outcomes?

Prasad et al. Psychosocial and Neurocognitive Outcomes in Adult Survivors of Adolescent and Early Young Adult Cancer: A Report From the Childhood Cancer Survivor Study. 2015

Study Design / Treatment era / Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment / Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1986** **Years of follow-up:** **Baseline CCSS administered between 1992-2002; this report is from FU 2 in 2007.** **Age at diagnosis:** **AeYA: 11-21 years** **Non YeYA 0-10 years** **Age at study:** **AeYA:** **25-29 years: 2.4%** **30-34 years: 21.9%** **≥35 years: 75.7%** **Non-AeYA:** **15-19 years: 3.4%** **20-24 years: 25.3%** **25-29 years: 31.3%%** **30-34 years: 24.9%** **≥35 years: 15.0%**	**Sample size:** 6192 survivors (grouped by: AeYA* (11 to 21 years at diagnosis) or non-AeYA (0-10 years at diagnosis)) **Diagnoses:** AeYA(%)/Non-AeYA(%) Leukemia 17.8%/55.4% CNS tumor 11.3%/16.9% Hodgkin lymphoma 30.8%/5.1% Non-Hodgkin lymphoma 10.7%/7.6% Soft tissue sarcoma 10.8%/10.5% Osteosarcoma/Ewing 18.6%/4.5% **Controls:** 390 siblings	AeYA(%)/non-AeYA(%): Overall treatment: Surgery only 7.9%/5.9% Chemotherapy 20.9%/25.1% Radiotherapy 19.1%/9.2% Chemotherapy and radiotherapy 20.9%/53.3% CNS irradiation: None 31.9%/34.0% Indirect 37.3%/11.8% Direct <20 Gy 10.6%/18.0% Direct ≥Gy 15.6%/30.8%	**Risk for less than a college degree from multivariable logistic regression** (stepwise exclusion of non-significant co-variables, it's unclear what variables were included in the first step and excluded due to non-significance)**:** Neurocognitive: • **Task efficiency: Impaired (Ref. Not impaired) OR=1.31 (95%CI:1.02-1.69)** • **Memory: Impaired (Ref. Not impaired) OR=10.45 (95%CI:1.17-1.79)** • **Organization: Impaired (Ref. Not impaired) OR=0.73 (95%CI:0.56-0.95)** • Emotional regulation: removed from the model (NS) Emotional: • **Somatization: Impaired (Ref. Not impaired) OR=1.48 (95%CI:1.18-1.85)** • Depression: removed from the model (NS) • Anxiety: removed from the model (NS) Demographic: • Female (Ref. Male): OR=1.04 (95%CI:0.89-1.22) • **Current age (per year): OR=0.98 (95%CI:0.97-0.99)** **Risk for unemployment from multivariable logistic regression:** Neurocognitive: • **Task efficiency: Impaired (Ref. Not impaired) OR=2.93 (95%CI:2.28-3.77)** • Memory: removed from the model (NS) • Organization: removed from the model (NS) • Emotional regulation: removed from the model (NS) Emotional: • **Somatization: Impaired (Ref. Not impaired) OR=2.29 (95%CI:1.77-2.98)** • **Depression: Impaired (Ref. Not impaired) OR=1.94 (95%CI:1.43-2.63)** • Anxiety: removed from the model (NS) Demographic: • **Female (Ref. Male): OR=0.41 (95%CI:0.33-0.52)** • Current age (per year): OR=0.98 (95%CI:0.97-1.00)	**Quality assessment:** **Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 6192 of 11576 contacted participated (53.5%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Ghaderi et al. Educational attainment among long-term survivors of cancer in childhood and adolescence: a Norwegian population-based cohort study. 2016				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1965-2004- Data analyzed** **by treatment era** **1) 1965-1974,** **2)1975-1984,** **3) 1985-1994,** **4) 1995-2004** **Years of follow-up:** **At least 5 years of survival**	**Sample size:** N=2213 **Diagnoses:** All childhood cancers **Age at diagnosis:** 0-9 years: 997 10-14 years: 473 15-19 years: 743 **Age at study:** Assessed all participants at age 17, 20, and 23 corresponding to the age of the three levels of schooling. **Controls:** Population controls	CNS radiation Intrathecal chemotherapy	**Risk educational outcomes:** A lower proportion of the cancer survivors completed intermediate (67 versus 70%) undergraduate (31 versus 35%) and graduate (7 versus 9%) education compared to cancer free controls (p values not provided). **Risk employment outcomes:** Not investigated	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2213 survivors were eligible & included 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 64 survivors had missing information on educational achievement (assessed for 97.1%) 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** N was not adjusted for sample weights and design effects

Ghaderi et al. **Educational attainment among long-term survivors of cancer in childhood and adolescence: a Norwegian population-based cohort study. 2016**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1965-2004- Data analyzed by treatment era** **1) 1965-1974,** **2) 1975-1984,** **3) 1985-1994,** **4) 1995-2004** **Years of follow-up:** **At least 5 years of survival**	**Sample size:** N=2213 **Diagnoses:** All childhood cancers **Age at diagnosis:** 0-9 years: 997 10-14 years: 473 15-19 years: 743 **Age at study:** Assessed all participants at age 17, 20, and 23 corresponding to the age of the three levels of schooling. **Controls:** 1'212'623 cancer-free individuals (population controls)	CNS radiation Intrathecal chemotherapy	**Risk factors for educational attainment (from cox regression models, adjusted for gender, year of birth and parental education)** Intermediate education (equivalent to high school education): • Year of diagnosis: 1965-1974 (Ref. Cancer-free population (CFP)): HR 0.8 (95%CI:0.7-1.0) • Year of diagnosis: 1975-1984 (Ref. CFP): HR 0.9 (95%CI:0.8-1.0) • **Year of diagnosis: 1985-1994 (Ref. CFP): HR 0.8 (95%CI:0.7-0.9)** • Year of diagnosis: 1995-2004 (Ref. CFP): HR 1.4 (95%CI:0.8-2.2) • **Age at diagnosis: 0-4 (Ref. CFP) HR 0.8 (95%CI:0.7-0.9)** • Age at diagnosis: 5-9 (Ref. CFP) HR 0.9 (95%CI:0.8-1.0) • Age at diagnosis: 10-14 (Ref. CFP) HR 0.9 (95%CI:0.8-1.1) Under graduate education (bachelor level): • Year of diagnosis: 1965-1974 (Ref. CFP): HR 0.8 (95%CI:0.6-1.1) • **Year of diagnosis: 1975-1984 (Ref. CFP): HR 0.8 (95%CI:0.7-0.9)** • **Year of diagnosis: 1985-1994 (Ref. CFP): HR 0.8 (95%CI:0.6-0.9)** • Year of diagnosis: 1995-2004 (Ref. CFP): HR 0.8 (95%CI:0.6-1.2) • Age at diagnosis: 0-4 (Ref. CFP) HR 0.8 (95%CI:0.7-0.9) • Age at diagnosis: 5-9 (Ref. CFP) HR 0.8 (95%CI:0.7-1.0) • Age at diagnosis: 10-14 (Ref. CFP) HR 0.8 (95%CI:0.7-1.0) Graduate education (master level): • Year of diagnosis: 1965-1974 (Ref. CFP): HR 0.6 (95%CI:0.4-1.2) • **Year of diagnosis: 1975-1984 (Ref. CFP): HR 0.7 (95%CI:0.6-0.9)** • Year of diagnosis: 1985-1994 (Ref. CFP): HR 0.9 (95%CI:0.7-1.2) • Year of diagnosis: 1995-2004 (Ref. CFP): HR 1.2 (95%CI:0.7-1.8) • Age at diagnosis: 0-4 (Ref. CFP) HR 0.8 (95%CI:0.6-1.0) • **Age at diagnosis: 5-9 (Ref. CFP) HR 0.4 (95%CI:0.3-0.7)** • Age at diagnosis: 10-14 (Ref. CFP) HR 1.0 (95%CI:0.7-1.4) • Age at diagnosis: 15-18 (Ref. CFP) HR 1.1 (95%CI:0.8-1.4) **Risk employment outcomes:** Not investigated	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2213 survivors were eligible & included 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 64 survivors had missing information on educational achievement (assessed for 97.1%) 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Winterling et al. Perceptions of school among childhood cancer survivors: A comparison with peers. 2015

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **2004-2006** **Years of follow-up:** **"Median of 5 years after having been diagnosed with childhood cancer"** **The specific research questions were these: (1) How do survivors and peers describe their school situation? (2) Do survivors differ from peers in their perceptions of their school situation? (3) Are diagnosis and type of treatment related to survivors' descriptions of their school situation?**	**Sample size:** N = 48 **Diagnoses n (%):** Leukemia: n = 19 (40) Skeletal and soft tissue sarcoma n = 12 (24) CNS: n = 8 (17) Hodgkin's disease/Non-Hodgkin's Lymphoma: n = 7 (15) Other: n = 2 (4) **Age at diagnosis, median:** 11 (range 7-15) **Age at study, Median:** Survivors 16 (range 12-21) Controls 15 (range 11-22) **Controls:** Comparison group: n = 47 drawn from a group of 500 young adult peers randomly selected from the Swedish population registrar	Treatment Radiotherapy combined with other treatment: N=17 (35%) Chemotherapy and/or surgery: N=31 (65%)	**Risk educational outcomes:** 15% (vs. 4% of controls) had repeated a school year (p=0.159). 88% (vs. 92% of controls) reported not to receive additional tutoring (p=0.740) 63% (vs. 62% of controls) reported not to have difficulties achieving learning objectives (p=0.740) 71% (vs. 53% of controls) are satisfied with their academic performance (p=0.076). Educational level[a] / Survivors N (%) / Comparison N (%) / p-value Compulsory school (age 11-16): 25 (52) / 25 (53) / 0.990 Senior high school (age 16-21): 17 (35) / 16 (34) University (age 19-22): 6 (13) / 6 (13) **Risk employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 48/90 eligible survivors participated & were included (53.3%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear Outcomes were assessed for all n=48 survivors 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:** [a]Survivors median age was 16 years at study (range 12-21) – so this is not the highest achieved education level that this cohort (and comparison group) will reach!

1. What is the risk of poor educational/employment outcomes?

Essig et al. Risk of late effects of treatment in children newly diagnosed with standard-risk acute lymphoblastic leukaemia: a report from the Childhood Cancer Survivor Study cohort. 2014

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1970-1986** **Years of follow-up:** **Median follow-up of ALL survivors was 18.4 years** **CCSS Baseline Questionnaire 1992-2002** **The aims of this study were to examine the long-term outcomes observed in members of the CCSS treated in a manner consistent with standard-risk ALL protocols.**	**Sample size:** N = 556 **Diagnoses:** ALL **Age at diagnosis:** 0-4 years: n = 385 (69%) 5-9 years: n = 171 (31%) **Age at study:** <20 years: n = 65 (12%) 20-29 years: n = 308 (55%) 30-39 years: n = 158 (28%) 40-60 years: n = 25 (5%) Median age: 27.8 years **Controls:** 2232 siblings	Received anthracyclines Yes: n = 33 (6%) No: n = 523 (94%) Alkylating agent score 0: n = 468 (88%) 1: n = 65 (12%) Cumulative dose of Methotrexate (mg/m2) <1000: n = 355 (68%) ≥1000: n = 171 (33%) Type of Steroids Prednisone only n = 503 (91%) Prednisone & Dexamethasone N = 43 (8%)	**Risk educational outcomes:** No significant differences found between survivors and siblings in educational attainment (p=0.76): College Graduate n = 210 (45%) vs. controls n = 922 (45%) Less than College Graduate n = 254 (55%) vs. controls n = 1108 (55%) **Risk employment outcomes:** Not reported	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 14358/20690 eligible survivors completed baseline CCSS questionnaire (69.4%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear Main outcomes were assessed for all 556 survivors 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Ishida et al. **Recent employment trend of childhood cancer survivors in Japan: a cross-sectional survey. 2014**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **Years of follow-up:** The study was conducted from July until September 2012. Questionnaires were collected by November 2012.	**Sample size:** N=240 **Diagnoses:** Male/Female n (%): Leukemia 60 (50%)/ 66 (57 %) Lymphoma 15 (13 %)/ 8 (7 %) Other solid cancers 18 (15 %) /19 (16 %) Bone/soft tissue sarcoma 7 (6 %) /6 (5 %) Brain tumor 20 (17 %)/ 17 (15 %) **Age at diagnosis:** Male/Female n (%): 3 years or younger: 36 (29 %) /33 (28 %) 4–7 years: 32 (26 %)/ 25 (22 %) 8–12 years: 27 (22 %) /37 (32 %) 13 years or older: 28 (23 %) /21 (18 %) **Age at study:** Mean = 24.3 years Median = 24.0 years (range 16-42 years) Male/Female n (%): 20 years or younger: 39 (32 %) /33 (28 %) 21–24 years: 26 (21 %)/ 30 (26 %) 25–29 years: 35 (29 %) /23 (20 %) 30 years or older: 22 (18 %) /30 (26 %) **Controls:** N/A	**Male / Female n (%):** Chemotherapy: 108 (88 %) / 106 (91 %), p=0.367 Radiation: 63 (51 %) / 59 (51 %), p=0.956 Surgery: 47 (38 %) / 42 (36 %), p=0.749 Stem cell transplantation: 29 (24 %) / 19 (16 %), p=0.165 Immunotherapy: 6 (4 %) / 3 (3 %), p=0.501 Others: 11 (9 %) / 6 (5 %), p=0.257	**Risk factors educational outcomes:** Not investigated **Risk factors for unemployment from univariable analysis (Chi^2):** The unemployment rate was 15.9 % among CCSs, n=156, excluding homemakers and students. • Age at survey: not statistically significant (p=0.608) • Gender: not statistically significant (p=0.098) • Education: not statistically significant (p=0.110) • Diagnosis of cancer: **Brain tumor survivors** and **lymphoma survivors** were significantly more often unemployed (p=0.016) (compared to leukemia, bone/soft tissue sarcoma or other solid cancer survivors) • Treatment (chemotherapy/radiation/surgery/stem cell transplantation): all not statistically significant (p>0.3) • Late effects: survivors with late effects were significantly more often unemployed (p<0.001) **Risk factors for unemployment from logistic regression analysis (unclear whether univariable or multivariable),** covariates included if p<0.20 in univariable analysis: The unemployment rate was 15.9 % among CCSs, n=156, excluding homemakers and students. • Gender: Male (Ref. Female) OR=2.05 (95%CI:0.71-5.90; p=0.183) • **Education: Dropout (Ref. University) OR=8.46 (95%CI:1.66-43.1; p=0.010)** • Education: Junior high school (Ref. University) OR=1.66 (95%CI:0.11-24.8; p=0.713) • Education: High school (Ref. University) OR=1.78 (95%CI:0.52-6.12; p=0.359) • Education: College or vocational school (Ref. University) OR=1.26 (95%CI:0.29-5.54; p=0.757) • Diagnosis of cancer: Lymphoma (Ref. Leukemia) OR=1.55 (95%CI:0.34-7.19, p=0.575) • Diagnosis of cancer: Other solid cancers (Ref. Leukemia) OR=0.22 (95%CI:0.02-2.32, p=0.210) • Diagnosis of cancer: Bone/soft tissue sarcoma (Ref. Leukemia) OR=1.05 (95%CI:0.14-7.92, p=0.964) • Diagnosis of cancer: Brain tumor (Ref. Leukemia) OR=2.73 (95%CI:0.83-8.96, p=0.098) • **Late effects: Yes (Ref. No) OR=6.22 (95%CI:1.80-21.4, p=0.004)**	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 217/631 survivors responded (34.4%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 238/240 were assessed 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☐ no/ ☒ unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Krull et al. Neurocognitive outcomes decades after treatment for childhood acute lymphoblastic leukemia: a report from the St Jude lifetime cohort study. 2013

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1962-1999** **Years of follow-up:** **On average 26 years from diagnosis (10 + years from diagnosis)**	**Sample size:** 567 participants **Diagnoses:** Acute lymphoblastic leukemia **Age at diagnosis:** Mean 6.5 years **Age at study:** On average 33 years at study **Controls:** N/A	St Jude SJCRH total therapy protocol: No CRT n=214 (37.7%) 18Gy CRT n=167 (29.5%) 24 GY CRT n=186 (32.8%)	**Risk factors educational outcomes (from Poisson models, adjusted for current age and sex):** Risk for not graduating from college was associated with: • Impaired intellect RR=1.33 (95%CI:1.18-1.49) • Impaired academics RR=1.28 (95%:CI 1.14-1.44) • Impaired executive function RR=1.21 (95%CI:1.04-1.41) • Self-reported behavior problems RR=1.18 (95%CI:1.07-1.31) Attention, memory, processing speed, and cognitive rating, current age, and sex were also tested but not reported. **Risk factors employment outcomes (from Poisson models):** Factors associated with not maintaining full-time employment • Impaired intellect RR=1.42 (95%CI:1.10-1.84) • Impaired academics RR=1.31 (95%CI:1.01-1.68) • Impaired attention RR=1.29 (95%CI 1.02-1.64) • Impaired processing speed RR=1.31 (95%CI:1.01-1.70) • Self-reported cognitive problems RR=1.51 (95%CI:1.22-1.85) • Female sex was associated with increased risk for unemployment: RR=1.33 (95%CI:1.06-1.66) • Older current age was associated with decreased risk for unemployment (risk decreased by RR=0.98 per year of age (95%:CI 0.96-0.99) Executive function, memory, and behavior problems were also tested but not reported. Overall, employment status was similar to age and sex adjusted expected proportions using census data for US population [data not shown]	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 567/1014 potentially eligible survivors particated (55.9%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear All participants assessed 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☐ no/ ☒ unclear **Remarks:** Not the whole model of risk factors is presented, only significant factors are reported.

1. What is the risk of poor educational/employment outcomes?

Freycon et al. **Academic difficulties and occupational outcomes of adult survivors of childhood leukemia who have undergone allogeneic hematopoietic stem cell transplantation and fractionated total body irradiation conditioning. 2014**

Study Design cohort study Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** 1988-2011 **Years of follow-up:** N/A	**Sample size:** N=59 **Diagnoses:** ALL n=47 AML n=4 Chronic Myeloblastic leukemia with Philadelphia chromosome+ n=4 Myelodysplastic syndrome n=4 **Age at diagnosis:** Median 9.1 years (range 1.1-14.6 years) **Age at study:** Median 23.0 years (range 18.0-38.2 years) **Controls:** General French population and 19 a-HSCT patients who underwent HSCT with chemotherapy conditioning only (no fractionated total body irradiation)	Allogenic hematopoietic stem cell transplantation (a-HSCT) with fractionated total body irradiation (TBI; 12Gy) Conditioning (total N = 59): Cytarabine/melphalan = 30 (controls: 0) Cyclophosphamide = 16 (controls: 0) Etoposide = 13 (controls: 0) BuCy = 0 (controls: 9) BAM = 0 (controls: 7) BuCyMel = 0 (controls: 3)	**Risk educational outcomes:** Average academic delay of 0.98 (1.19 for boys (n=27) and 0.81 for girls (n=32) years at start of Year 10 for survivors. This is significantly higher than French general population average (0.34 years, p<0.001) Average academic delay Year 13 (final year secondary) 1.32 years. (French general population.51 years p<.002) Fewer students than expected in the general population received Baccalaureate (high school diploma), but the difference was not significant. **Risk employment outcomes:** Job distribution did not differ significantly from general population although significantly more girls were employed in intermediate-level professions such as nurses, teachers and technical workers than the number expected in the general population.	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 59/63 survivors were included 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear All participants assessed 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Yilmaz et al. Determination of school-related problems in children treated for cancer. 2014				
Study Design cohort **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **N/A** **Years of follow-up:** **1 year+ off treatment**	**Sample size:** N=56 **Diagnoses:** Lymphoma n=18 Leukaemia n= 16 Soft tissue tumour n=10 Brain n=5 Osteosarcoma n=4 Other n=3 **Age at diagnosis:** Unknown **Age at study:** 7 to 18 years: 7-12 years: n=31 (55.4%) 13-18 years: n=25 (44.6%) **Controls:** N=56 school children matched for age, sex and sociodemographic characteristics	N/A	**Risk educational outcomes:** More CCS started school later than controls (14.3% vs. 1.8%, Chi^2= 5.92, p=0.01) More CCS repeated a class than controls (12.5% vs. 1.8%, Chi^2= 4.84, p=0.02) Average grade points in Turkish, science, foreign languages, art and music lower in survivor group (p<0.05) 51.8% of CCS experienced difficulties in school compared with 14.3% in the control group (p=0.000) **Risk employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 56/63 participated (88.8%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear All participants assessed 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☐ no/ ☒ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Ottaviani et al. Sociooccupational and Physical Outcomes More Than 20 Years After the Diagnosis of Osteosarcoma in Children and Adolescents. Limb Salvage Versus Amputation. Cancer 2013				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **n.a.** **Years of follow-up:** **Mean 24.3 yrs (range 20-39 yrs)**	**Sample size:** N=38 **Diagnoses:** Osteosarcoma **Age at diagnosis:** Mean age 13.2 yrs (range 3-19 yrs) **Age at study:** Mean age 37.9 yrs (range 22-52 yrs) **Controls:** No controls, but compared survivors with averages of the US general population and for some variables with siblings (siblings' outcomes reported by the survivors)	Surgery and neoadjuvant and adjuvant chemotherapy Group 1 (n=19) had been treated with amputation Group 2 (n=19) had been treated with limb salvage	**Risk educational outcomes:** - 82% (n=32) of survivors had education beyond high school - Majority of survivors had either the same (49%) or higher (42%) level of education than their siblings -Education level was found to be higher than the average of the US general population (based on published data). **Risk employment outcomes:** - 24% of survivors had an annual income >$75,000 - employment status did not differ significantly from siblings	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 38/112 participated (<75%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear All participants assessed 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☐ no/ ☒ unclear **Remarks:** Survivor responded on behalf of their sibling.

2. What are the risk factors for poor educational/employment outcomes?				
Pfitzer et al. **Educational level of childhood brain tumor survivors: results from a German survey. 2013**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era: 1980-2004** **Years of follow-up: A median of 12.0 years (range 5–24) from diagnosis.**	**Sample size:** 203 **Diagnoses:** Childhood brain tumour - medulloblastoma n = 68 (33.5 %) - low-grade glioma n = 56 (27.6 %) - germ cell tumor n = 55 (27.1 %) - primitive neuroectodermal tumor n = 8 (3.9 %) - ependymoma n = 6 (3.0 %) - high grade glioma n = 6 (3.0 %) - Craniopharyngioma n = 2 - other not specified brain entities n = 2 **Age at diagnosis:** Median 11 yrs (range 1-15 yrs) **Age at study:** Median 22 yrs (19-37 yrs) **Controls:** none	**Radiotherapy** - 118/203 (58.1 %) treated with craniospinal irradiation - 152/203 (74.9 %) received local irradiation to the tumor **Chemotherapy** - 118/203 (58.1 %) survivors received chemotherapy	**Chances for achieving a high school diploma (vs. lower educational levels) in pediatric brain tumor survivors from multivariable logistic regression analysis (controlling for age at diagnosis and chemotherapeutic treatment):** • Irradiation: either craniospinal irradiation or irradiation of the tumor (Ref. no irradiation): OR=0.54 (95%CI:0.08-3.76, p=0.536) • Irradation: craniospinal irradiation and irradiation of the tumor (Ref. no irradiation): OR=0.51 (95%CI:0.07-3.59, p=0.502) • Irradiation: not defined (Ref. no irradiation): OR=0.34 (95%CI:0.05-2.24, p=0.262) • Age at diagnosis: 6-10 years (Ref. 1-5 years): OR=2.24 (95%CI:0.45-11.25, p=0.326) • Age at diagnosis: older than 10 years (Ref. 1-5 years): OR=2.65 (95%CI:0.54-13.01, p=0.231) • Chemotherapy: Chemotherapy (Ref. No chemotherapy): OR=2.00 (95%CI:0.98-4.04, p=0.058)	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 203/505 eligible survivors participated (<75%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% responded to main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** Could not control for sex due to the distribution in the population (54.7% were male). Other confounders were considered. Small numbers in these diagnostic groups – differences should be interpreted with caution.

1. What is the risk of poor educational/employment outcomes?				
Yagci-Kupeli et al. **Educational achievement, employment, smoking, marital, and insurance statuses in long-term survivors of childhood malignant solid tumors. 2013**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1972-2009** **Years of follow-up:** **Median 13.5 years** **(range 3-31)**	**Sample size:** 201 (126 male; 75 female) **Diagnoses: %** Hodgkin lymphoma 27.2% Non-hodgkin lymphoma 21.7% CNS 11.3% Rhabdomyosarcoma 6.4% Willms/related tumours 5.4% Langerhans-cell hystiocytosis 5.0% Germ cell tumours 4.0% Others (e.g. Ewing, osteosarcoma, neuroblastoma) 20.0% **Age at diagnosis:** Median 10 years (range 0-19) **Age at study:** Median 23 years (range 18-39) **Controls:** National data provided for general population by Turkish Institute of Statistics	Not reported	**Risk educational outcomes:** - 43 (21.5%) of survivors competed primary school (vs. 45% of normal population, p<0.001) - 111 (55.5%) of survivors were high school graduates (vs. 29.9% of normal population, p<0.001) - 47 (23%) of survivors were university graduates (vs. 11.1% of normal population, p<0.001) → compared to rates for 14-39 year olds in general population, survivors had higher rates of high school graduation (55.5% v 29.9%; p<0.001) and higher rates of university education (23% v 11.1%, p<0.001) **Risk employment outcomes:** - unemployment rate in survivors was higher than unemployment rate in normal population (36.8% v 10.3-11.7%; p<0.001)	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 201/214 survivors were included (>75%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 201/201 survivors were included (>75%) for main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:** Used national data as comparison

2. What are the risk factors for poor educational/employment outcomes?				
Marina et al. Changes in health status among aging survivors of pediatric upper and lower extremity sarcoma: a report from the childhood cancer survivor study. 2013				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1970-1986** **Years of follow-up:** **Baseline questionnaire plus 2003 and 2007 questionnaires.**	**CCSS cohort study:** survivors diagnosed before 21 years of age, surviving more than 5 years and treated between 1970-1986 **Sample size:** 1094 from baseline questionnaire **Diagnoses:** Bone and soft tissue sarcoma in upper or lower extremity (Lower extremity tumours 75%) **Age at diagnosis:** Median age 13 years (range 0-20) **Age at study:** Median age 33 years (range 10-53) **Controls:** n/a	Chemotherapy treatment included anthracyclines in 64.4% of the population and alkylating agents in 57.1%. Local control included limb irradiation (20.6%), chest irradiation (9.3%) and above the knee amputation (35%).	**Risk factors for "did not graduate from college" from multivariable generalized linear models (2 models: 1 adjusted for all variables with * and age at diagnosis*; 2 adjusted for all variables with + and tumor location, age at questionnaire and race+):** - **Tumor location: Lower Extremity (Ref. Upper Extremity) RR=0.87 (95%CI:0.77-0.97) *** - **Age at questionnaire: 30–39 years (Ref. <30 years) RR=0.85 (95%CI:0.74-0.97) *** - Age at questionnaire: 40+ years (Ref. <30 years) RR=0.92 (95%CI:0.80-1.07) * - Sex: Female (Ref. Male) RR=1.01 (95%CI:0.92-1.11) * - **Race: Non-white (Ref. White) RR=1.23 (95%CI:1.07-1.41) *** - **Tumor Type: Ewings sarcoma (Ref. soft tissue sarcoma (STS)) RR=0.84 (95%CI:0.71-0.99)*** - Tumor Type: Osteosarcoma (Ref. STS) RR=1.07 (95%CI:0.95-1.20) * - Tumor Type: Other bone (Ref. STS) RR=0.73 (95%CI:0.50-1.06) * - **Limb Surgery: Above Knee Amputation (Ref. None) RR=1.36 (95%CI:1.18-1.56) +** - **Limb Surgery: Below Knee Amputation (Ref. None) RR=1.46 (95%CI:1.15-1.86+** - **Limb Surgery: Upper Extremity Amputation (Ref. None) RR=1.80 (95%CI:1.48-2.18) +** - Limb Surgery: Limb sparing (Ref. None) RR=1.11 (95%CI:0.95-1.30) + - **Alkylating agent: Any (Ref. None) RR=1.21 (95%CI:1.07-1.37) +** - **Anthracyclines: Any (Ref. None) RR=0.81 (95%CI:0.71-0.91) +** **Risk factors for unemployment from multivariable generalized linear models (2 models: 1 adjusted for all variables with * and age at diagnosis*; 2 adjusted for all variables with + and tumor location, gender and race+):** - Tumor location: Lower Extremity (Ref. Upper Extremity) RR=0.81 (95%CI:0.62-1.06) * - Age at questionnaire: 30–39 years (Ref. <30 years) RR=0.96 (95%CI:0.69-1.33) * - Age at questionnaire: 40+ years (Ref. <30 years) RR=1.25 (95%CI:0.88-1.78) * - **Sex: Female (Ref. Male) RR=1.44 (95%CI:1.16-1.80) *** - **Race: Non-white (Ref. White) RR=1.42 (95%CI:1.04-1.93) *** - Tumor Type: Ewings sarcoma (Ref. soft tissue sarcoma (STS)) RR=1.38 (95%CI:0.96-2.00)* - **Tumor Type: Osteosarcoma (Ref. STS) RR=1.64 (95%CI:1.23-2.20) *** - Tumor Type: Other bone (Ref. STS) RR=1.44 (95%CI:0.74-2.80) * - **Limb Surgery: Above Knee Amputation (Ref. None) RR=1.88 (95%CI:1.38-2.55) +** - **Limb Surgery: Below Knee Amputation (Ref. None) RR=1.78 (95%CI:1.00-3.17+** - Limb Surgery: Upper Extremity Amputation (Ref. None) RR=1.65 (95%CI:0.97-2.80) + - Limb Surgery: Limb sparing (Ref. None) RR=0.84 (95%CI:0.58-1.24) + - **Alkylating agent: Any (Ref. None) RR=1.44 (95%CI:1.11-1.86) +** - **Vincristine: Any (Ref. None) RR=1.33 (95%CI:1.03-1.71) +**	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear Figure 1: 1094/1777= <75% participated in baseline questionnaire 2. Is the follow-up adequate? ☒ Yes/ ☒ no/ ☐ unclear Yes: 77% completed the T2 questionnaire (2003) No: 69% completed the 2007 questionnaire 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** Self-reported data. 60.4% of survivors participated in all 3 questionnaires;

1. What is the risk of poor educational/employment outcomes?

Pillon et al. **Psychosocial life achievements in adults even if they received prophylactic cranial irradiation for acute lymphoblastic leukemia during childhood. 2013**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1961 to 1990** **Years of follow-up:** **off therapy for at least 15 years**	**Sample size:** 141 survivors **Diagnoses:** Acute Lymphoblastic Leukemia **Age at diagnosis:** Median 4.8 (0.5-14.8 years) **Age at study:** 21-49 years **Controls:** - comparison with a matched healthy population living in the same geographic area - comparison between patients treated with 24 Gy vs. 18 Gy CRT	Until 1976, only local institutional protocols, were used. From 1976, patients entered Italian Association of Pediatric Hematology and Oncology (AIEOP) protocols. CNS prophylaxis consisted of 24 Gy or 18 Gy CRT, before and after 1978, respectively, in addition to intrathecal methotrexate.	**Risk educational outcomes:** 32% (n=45) of survivors completed primary school 55% (n =45) completed secondary school 13% (n = 18) completed university. Compared to the healthy population of north-eastern Italy, survivors had equivalent education and employment levels (analysis stratified into two groups: 25-34 years, 35-44 years), all differences between survivors and controls were statistically not significant:	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear >75% of eligible participated 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% of participants reported on main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

(Main outcomes continued)

Risk educational outcomes:

Education:	25-34 years		35-44 years	
	Survivors	Controls	Survivors	Controls
Primary school:	23.3%	32.8%	42.3%	44.6%
Secondary school:	61.6%	50.1%	46.2%	43.0%
University	15.1%	17.1%	11.5%	12.4%

Severe educational difficulties (i.e. need for special education support) were reported in 35% and 27% of patients irradiated before and after 6 years of age, respectively, although no differences were identified in the final educational level achieved.

Overall, 32% needed special education assistance, but significantly fewer in the 18 Gy group compared to the 24 Gy group (p=0.04)

Risk employment outcomes:
88% of survivors were employed. Survivors had similar employment rates to the controls in both age classes:

Employment:	25-34 years		35-44 years	
	Survivors	Controls	Survivors	Controls
Employed	94.4%	95.7%	97.8%	96.7%
Unemployed	5.6%	4.3%	2.2%	3.3%

1. What is the risk of poor educational/employment outcomes?

Uderzo et al. **Life satisfaction in young adults 10 or more years after hematopoietic stem cell transplantation for childhood malignant and nonmalignant diseases does not show significant impairment compared with healthy controls: a case-matched study. 2012**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☒ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **between 1985 and 1998** **Years of follow-up:** **>10yrs (10- 17years)** **Median of 12.2 years after hematopoietic stem cell transplantation (HSCT)**	**Sample size:** 55 survivors + 98 controls **Diagnoses:** patients undergoing hematopoietic stem cell transplantation (52 childhood malignant ALL/CML/AML/NHL + 3 non-malignant diseases MDS/SAA) **Age at diagnosis:** Median 5.2 years, range 0.8-14.9 years **Age at study:** Median 25 years, range 18-40 years **Controls:** 98 healthy young adults visiting the recruiting hospital for blood donation (median age at study 24.5 years, range 18-38 years)	N/A	**Risk educational outcomes:** At the time of the study, 79% of survivors were attending secondary school compared with 54% of controls (p<0.0001). Twelve patients (21%) graduated, compared with 45% of controls (p>0.05) (13 survivors were still enrolled at a university, whereas the majority of the controls had graduated). **Risk employment outcomes:** Slightly more patients than controls (44% versus 33%) had some problems keeping a job, but the difference was not statistically significant.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear <75% of eligible participated (56/116) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% of participants reported on main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Zynda et al. Childhood leukemia and its impact on graduation and having children: results from a national survey. 2012

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1980-2004** **Years of follow-up:** **Mean 18 years (range 4 – 29 years)**	**Sample size:** 1476 survivors **Diagnoses:** 89% acute lymphoblastic leukemia, and 11% from acute myeloid leukemia **Age at diagnosis:** No information **Age at study:** mean age of 25.7 years, range 19 – 43 years **Controls:** Data from 2005 and 2009 for general German population	All patients with AML received cranial irradiation; 61% of patients with ALL received cranial irradiation. No other information provided	**Risk educational outcomes:** Survivors (females and males) achieved a higher level of school education compared to general population (p<0.001): Female survivors/controls Male survivors/controls Secondary school: 13.3%/22.1% 17.2%/30.2% Intermediate school: 37.3%/34.9% 28.3%/29.0% High School: 48.6%/38.0% 52.6%/35.8% **Risk employment outcomes:** Not investigated.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear <75% participated (63.6%) 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% reported on main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Molgaard-Hansen et al. **Quality of health in survivors of childhood acute myeloid leukemia treated with chemotherapy only: a NOPHO-AML study. 2011**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **July 1984-December 2003** **Years of follow-up:** **Median years after diagnosis = 10.6 (range 4.4-25.0)**	**Sample size:** 102 **Diagnoses:** AML **Age at diagnosis:** 0-4 years = 55% 5-9 years = 22% 10-14 years = 22% 15-20 years = 1% **Age at study:** Median age at study 16.2 years (range 5.2-35.4 years) **Controls:** Siblings (n=86): median age at study 15.7 years (range 2.0-42.2 years)	Cytarabine + doxorubicin/mitozantrone Or Cytarabine + etoposide + doxorubicin/mitozantrone + Intrathecal methotrexate	**Risk educational outcomes:** No difference between siblings and cancer survivors: • AML survivors did not participate in a learning-disability programme in elementary school (age≥5 years) more frequently than their siblings (29% vs. 20%; OR= 2.2, 95%CI:0.9-5.3, p=0.1) • 67% of respondents (≥20 years of age) vs. 73% of siblings were undertaking or had completed an education, defined as vocational training or academic education lasting at least 3 years (OR = 1.2, 95%CI:0.2-6.8, p=0.8) **Risk employment outcomes:** Difference: • Fewer AML survivors (≥20 years of age) was in full time employment (≥30hrs per week): 39% vs. 62% of siblings (OR 11.0; 95%CI:1.3-91.7, p=0.03). BUT more likely to be full time students (33% vs. 15%, p=0.07). Not being in full time employment also included people working less than 30 hrs a week, caring for family, and being unemployed. No difference between siblings and cancer survivors: • Had to retire or not able to work due to illness or disability (6% vs. 8%, p = 0.2) • Being turned down when applying for a civilian job, military service or job in a police or fire department due to their previous medical history, 8% vs. 12% (OR=1.6, 95%CI:0.2-10.7)	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☐ no/ ☒ unclear 74% of eligible participated, see remarks 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% reported on main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** Response rate (siblings) = 91%; Education completion and Employment outcomes limited to subsample ages 20 or higher, survivors n = 36, siblings n = 26. Unclear if this sample representative or not. Risk estimation: OR adjusted for sex and age.

2. What are the risk factors for poor educational/employment outcomes?				
Kirchhoff, Krull, Ness, Armstrong et al. Physical, mental, and neurocognitive status and employment outcomes in the childhood cancer survivor study cohort. 2011a				
Study Design Treatment era Years of follow-up	Participants	Treat-ment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1986** **Years of follow-up:** Years since diagnosis ≤20 years: n= 1261 (23.4%) 21-30 years: n=3355 (62.3%) >30 years: n=770 (14.3%)	**Sample size:** 5,448 (for current employment status) 3,763 (for occupational comparisons) **Diagnoses:** Leukaemia (30.1%) CNS malignancies (11.7%) Hodgkin Lymphoma (16.9%) Non-Hodgkin Lymphoma (8.9%) Wilms tumor (7.2%) Neuroblastoma (4.1%) Sarcoma (10.1%) Bone tumour (11.0%) **Age at diagnosis:** <21 years **Age at study:** 25-34 years: n=2997 (55.6%) 35-44 years: n=1898 (35.2%) 45+ years: n=491 (9.1%) **Controls:** None	Not dis-cussed	**Risk factors educational outcomes:** n.a. **Risk factors employment outcomes** (three mutually exclusive employment outcomes: "health-related unemployment" (unable to work because of illness or disability), "unemployed, but seeking work", "not in the labor force" (survivors voluntarily out of the labor market (caring for home or family, retired, student, other) **from generalized linear models, adjusted for sex, age, race, time since treatment, recurrence and secondary cancers:** Full time employment was defined as ≥30hrs per week, part time as <30hrs/week Risk factors for "not in the labor force": • None of the physical, emotional, or neurocognitive risk factors were associated with not participating in the labor force (retired, student, or taking care of family; data not shown). The n=639 survivors that were "not in the labor force" were excluded for the other models. Risk factors for "health-related unemployment" in total sample: • **SF-36 Physical health: <40 (Ref. ≥40) RR=7.83 (95%CI:6.11-10.04, p<0.001)** • SF-36 Mental health: <40 (Ref. ≥40) RR=1.20 (95%CI:0.98-1.48) • BSI Depression: ≥63 (Ref. <63) RR=1.15 (95%CI:0.92-1.43) • **BSI Somatization: ≥63 (Ref. <63) RR=1.32 (95%CI:1.08-1.61, p<0.01)** • BSI Anxiety: ≥63 (Ref. <63) RR=0.88 (95%CI:0.69-1.12) • **NCQ Task efficiency: ≥63 (Ref. <63) RR=2.38 (95%CI:1.89-3.01, p<0.001)** • NCQ Emotional regulation: ≥63 (Ref. <63) RR=0.92 (95%CI:0.75-1.13) • NCQ Organization: N/A • **NCQ Memory: ≥63 (Ref. <63) RR=1.23 (95%CI:1.01-1.50, p<0.05)** Adjusting for cranial radiation exposure did not substantially change the estimates. When adjusted for educational attainment, the relative risks for physical health attenuated but remained significant. Risk factors for "unemployed but seeking work" in total sample: • SF-36 Physical health: <40 (Ref. ≥40) RR=0.94 (95%CI:0.65-1.37) • **SF-36 Mental health: <40 (Ref. ≥40) RR=2.08 (95%CI:1.48-2.91, p<0.001)** • **BSI Depression: ≥63 (Ref. <63) RR=1.57 (95%CI:1.10-2.24, p<0.05)** • BSI Somatization: ≥63 (Ref. <63) RR=1.14 (95%CI:0.79-1.66) • BSI Anxiety: ≥63 (Ref. <63) RR=0.77 (95%CI:0.52-1.15) • **NCQ Task efficiency: ≥63 (Ref. <63) RR=1.39 (95%CI:1.02-1.91, p<0.05)** • NCQ Emotional regulation: ≥63 (Ref. <63) RR=1.08 (95%CI:0.79-1.49) • NCQ Organization: N/A • NCQ Memory: ≥63 (Ref. <63) RR=0.91 (95%CI:0.67-1.24) Neither cranial radiation nor education changed the estimates.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear <75% participated in 2003 survey 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear >75% reported on main outcome 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** Survivors missing employment status and occupation were more often male and more likely to have high school education or less. CNS tumors more common among those missing employment status. Confounding variables – controlled for CRT and education levels and outcomes adjusted for a number of relevant factors

Risk factors for "being in part-time work rather than full-time (>30 hrs/week) work" among employed survivors (total sample)

- **SF-36 Physical health: <40 (Ref. ≥40) RR=0.94 (95%CI:0.90-0.98, p<0.01)**
- SF-36 Mental health: <40 (Ref. ≥40) RR=0.98 (95%CI:0.94-1.02)
- BSI Depression: ≥63 (Ref. <63) RR=0.99 (95%CI:0.94-1.04)
- BSI Somatization: ≥63 (Ref. <63) RR=1.03 (95%CI:0.99-1.07)
- BSI Anxiety: ≥63 (Ref. <63) RR=1.04 (95%CI:0.99-1.09)
- **NCQ Task efficiency: ≥63 (Ref. <63) RR=0.91 (95%CI:0.87-0.94, p<0.001)**
- NCQ Emotional regulation: ≥63 (Ref. <63) RR=1.00 (95%CI:0.98-1.04)
- NCQ Organization: ≥63 (Ref. <63) RR=0.99 (95%CI:0.95-1.04)
- NCQ Memory: ≥63 (Ref. <63) RR=0.97 (95%CI:0.94-1.01)

Risk factors for occupational categories from generalized linear models, adjusted for sex, age, race, time since treatment, recurrence and second cancers:
Having a professional/managerial job

- SF-36 Physical health: <40 (Ref. ≥40) RR=0.93 (95%CI:0.84-1.03)
- SF-36 Mental health: <40 (Ref. ≥40) RR=1.07 (95%CI:0.97-1.18)
- BSI Depression: ≥63 (Ref. <63) RR=0.95 (95%CI:0.83-1.09)
- **BSI Somatization: ≥63 (Ref. <63) RR=0.88 (95%CI:0.78-0.99, p<0.05)**
- BSI Anxiety: ≥63 (Ref. <63) RR=1.05 (95%CI:0.90-1.22)
- **NCQ Task efficiency: ≥63 (Ref. <63) RR=0.90 (95%CI:0.82-1.00, p<0.05)**
- **NCQ Emotional regulation: ≥63 (Ref. <63) RR=0.85 (95%CI:0.77-0.94, p<0.01)**
- **NCQ Organization: ≥63 (Ref. <63) RR=1.21 (95%CI:1.11-1.33, p<0.001)**
- **NCQ Memory: ≥63 (Ref. <63) RR=0.86 (95%CI:0.78-0.94, p<0.01)**

Having a "blue collar-service: nonphysical" job

- SF-36 Physical health: <40 (Ref. ≥40) RR=1.09 (95%CI:0.95-1.28)
- SF-36 Mental health: <40 (Ref. ≥40) RR=0.99 (95%CI:0.86-1.14)
- BSI Depression: ≥63 (Ref. <63) RR=1.05 (95%CI:0.88-1.26)
- BSI Somatization: ≥63 (Ref. <63) RR=1.06 (95%CI:0.91-1.23)
- BSI Anxiety: ≥63 (Ref. <63) RR=0.88 (95%CI:0.72-1.07)
- **NCQ Task efficiency: ≥63 (Ref. <63) RR=1.14 (95%CI:1.00-1.29, p<0.05)**
- **NCQ Emotional regulation: ≥63 (Ref. <63) RR=1.12 (95%CI:1.00-1.26, p<0.05)**
- **NCQ Organization: ≥63 (Ref. <63) RR=0.80 (95%CI:0.69-0.93, p<0.01)**
- **NCQ Memory: ≥63 (Ref. <63) RR=1.27 (95%CI:1.13-1.42, p<0.001)**

Having a "blue collar-service: physical" job

- SF-36 Physical health: <40 (Ref. ≥40) RR=1.09 (95%CI:0.76-1.55)
- SF-36 Mental health: <40 (Ref. ≥40) RR=0.72 (95%CI:0.50-1.05)
- BSI Depression: ≥63 (Ref. <63) RR=1.11 (95%CI:0.75-1.65)
- **BSI Somatization: ≥63 (Ref. <63) RR=1.51 (95%CI:1.07-2.12, p<0.05)**
- BSI Anxiety: ≥63 (Ref. <63) RR=1.16 (95%CI:0.75-1.80)
- NCQ Task efficiency: ≥63 (Ref. <63) RR=1.00 (95%CI:0.73-1.36)
- **NCQ Emotional regulation: ≥63 (Ref. <63) RR=1.47 (95%CI:1.13-1.92, p<0.01)**
- NCQ Organization: ≥63 (Ref. <63) RR=0.77 (95%CI:0.54-1.09)
- NCQ Memory: ≥63 (Ref. <63) RR=0.89 (95%CI:0.66-1.20)

1. What is the risk of poor educational/employment outcomes?

Kuehni et al. **Educational achievement in Swiss childhood cancer survivors compared with the general population. 2012**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1976-2003** **Years of follow-up:** **2007-2009** **Mean time since diagnosis = 19.0 (SD = 6.2 years)** **Range = 5.8-35.7 years**	**Sample size:** 961 (cancer survivors) **Diagnoses:** Leukemia, lymphoma, CNS tumors, malignant solid tumors, and Langerhans cell histiocytosis **Age at diagnosis:** Mean 8.1 (SD = 4.7 years) Range = 0.0-15.9 years **Age at study:** Mean 27.0 (SD 5.2 years) Range = 20.0-39.6 years **Controls:** General population – randomly selected representative sample (with a phone line), then stratified (by region) and stepwise sample procedures (household --> individuals within household, I.e. one individual aged 15 or below)	Surgery only = 8.7% Chemotherapy = 44.4% Radiotherapy = 38.5% BMT = 8.2%	**Risk educational outcomes:** Among survivors, 30% had repeated 1 school year, 35% had received supportive tutoring, and 7% had attended a special school. These data were not obtained from the control group. Educational achievement differed between survivors and the general population (p<0.001) • More survivors than controls had completed only compulsory schooling (8.7% vs. 5.2%, p<0.001) • Fewer survivors achieved a university degree (7.3% vs. 11%. p=0.001) • A much larger proportion of survivors achieved a upper secondary education (36.1% vs. 24.1%, p<0.001) • Fewer survivors received vocational training (47.9% vs. 59.6%, p<0.001) Results for participants aged 27 + (age at which most individuals have completed higher levels of education) • Survivors did not significantly differ from controls in terms of completing compulsory schooling (4.6% vs. 5.9%, p=0.284) or completing a university degree (11.3% vs. 14.5%, p=0.083) • Vocational training (48.2% vs. 54.7%, p=0.016) and upper secondary education (36% vs. 25%, p<0.001) largely remained similar compared with the proportions of survivors and controls ages 20 to 40 years **Risk employment outcomes:** n/a	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:** Non-responders were more likely to be male and French speaking. Analyses were weighted according to the sampling strategies for the national health survey; relevant confounding variables taken into account for multivariable analyses.

2. What are the risk factors for poor educational/employment outcomes?				
Kuehni et al. Educational achievement in Swiss childhood cancer survivors compared with the general population. 2012				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1976-2003** **Years of follow-up:** **2007-2009** **Mean time since diagnosis = 19.0 (SD = 6.2 years)** **Range = 5.8-35.7 years**	**Sample size:** 1448 (cancer survivors) **Diagnoses:** Leukemia, lymphoma, CNS tumors, malignant solid tumors, and Langerhans cell histiocytosis **Age at diagnosis:** Mean 8.1 (SD = 4.7 years) Range = 0.0-15.9 years **Age at study:** Mean 27.0 (SD 5.2 years) Range = 20.0-39.6 years **Controls:** General population – randomly selected representative sample (with a phone line), then stratified (by region) and stepwise sample procedures (household --> individuals within household, I.e. one individual aged 15 or below)	Surgery only = 8.7% Chemotherapy = 44.4% Radiotherapy = 38.5% BMT = 8.2%	Having a diagnosis of a CNS tumour (compared to other diagnoses, I.e. leukaemia, lymphoma and other tumours) was associated with a greater risk of having attended special school (p<0.001), received supportive tutoring (p<0.001) and repeating a school year (p=0.030) (unclear from what analysis). **Sociocultural risk factors for three educational outcomes** ("completed compulsory schooling only", "upper secondary education or higher (vs. lower)", "university degree (vs. lower)") **from multivariable logistic regression (survivors and controls), standardized on age, sex, migration background, place of living, language region of Switzerland:** Compulsory school only: • **Survivor status: Survivor (Ref. Control) OR=2.25 (95%CI:1.65-3.07, p<0.001)** • Sex: Female (Ref. Male) OR=1.00 (95%CI:0.73-1.38, p=0.999) • **Current age: 25-29 years (Ref. 20-24 years) OR=0.60 (95%CI:0.41-0.88, p=0.009)** • **Current age: 30-34 years (Ref. 20-24 years) OR=0.35 (95%CI:0.23-0.51, p<0.001)** • **Current age: 35-40 years (Ref. 20-24 years) OR=0.60 (95%CI:0.37-0.98, p=0.040)** • **Migration: Migration background (Ref. No migration background) OR=1.89 (95%CI:1.23-2.88, p=0.003)** • **Nationality: Italian, Spanish (Ref. Swiss, French, German, Austrian) OR=2.03 (95%CI:1.01-4.08, p=0.046)** • **Nationality: Portuguese, Turkish, Slavic countries (Ref. Swiss, French, German, Austrian) OR=6.25 (95%CI:3.44-11.36, p<0.001)** • **Nationality: Other (Ref. Swiss, French, German, Austrian) OR=5.82 (95%CI:3.24-10.44, p<0.001)** • Language region: French (Ref. German) OR=0.88 (95%CI:0.61-1.27, p=0.495) • Language region: Italian (Ref. German) OR=0.64 (95%CI:0.29-1.41, p=0.267) Upper secondary education or more (participants aged ≥27 years): • **Survivor status: Survivor (Ref. Control) OR=1.36 (95%CI:1.12-1.74, p=0.003)** • **Sex: Female (Ref. Male) OR=0.75 (95%CI:0.60-0.93, p=0.010)** • Current age: 30-34 years (Ref. 25-29 years) OR=0.93 (95%CI:0.72-1.20, p=0.559) • Current age: 35-40 years (Ref. 25-29 years) OR=0.81 (95%CI:0.60-1.08, p=0.144) • Migration: Migration background (Ref. No migration background) OR=1.16 (95%CI:0.87-1.56, p=0.318) • **Nationality: Italian, Spanish (Ref. Swiss, French, German, Austrian) OR=0.31 (95%CI:0.16-0.59, p<0.001)** • **Nationality: Portuguese, Turkish, Slavic countries (Ref. Swiss, French, German, Austrian) OR=0.16 (95%CI:0.07-0.39, p<0.001)**	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:** Out of the 1,448 questionnaires sent out, 1,049 (72.4%) were returned but 961 (66%) were available for analysis. Non-responders were more likely to be male and French speaking. Analyses were weighted according to the sampling strategies for the national health survey; relevant confounding variables taken into account for multivariable analyses.

| | | | | • Nationality: Other (Ref. Swiss, French, German, Austrian) OR=0.76 (95%CI:0.47-1.24, p=0.277)
• Language region: French (Ref. German) OR=1.17 (95%CI:0.90-1.53, p=0.237)
• Language region: Italian (Ref. German) OR=1.18 (95%CI:0.63-2.23, p=0.607)
University Degree (participants aged ≥27 years):
• Survivor status: Survivor (Ref. Control) OR=0.75 (95%CI:0.54-1.05, p=0.090)
• **Sex: Female (Ref. Male) OR=0.62 (95%CI:0.45-0.85, p=0.003)**
• Current age: 30-34 years (Ref. 25-29 years) OR=1.03 (95%CI:0.73-1.46, p=0.867)
• Current age: 35-40 years (Ref. 25-29 years) OR=0.87 (95%CI:0.57-1.33, p=0.530)
• **Migration: Migration background (Ref. No migration background) OR=1.51 (95%CI:1.03-2.21, p=0.034)**
• **Nationality: Italian, Spanish (Ref. Swiss, French, German, Austrian) OR=0.42 (95%CI:0.18-0.98, p<0.001)**
• **Nationality: Portuguese, Turkish, Slavic countries (Ref. Swiss, French, German, Austrian) OR=0.08 (95%CI:0.03-0.20, p<0.001)**
• Nationality: Other (Ref. Swiss, French, German, Austrian) OR=1.18 (95%CI:0.65-2.15, p=0.575)
• **Language region: French (Ref. German) OR=1.48 (95%CI:1.04-2.10, p=0.028)**
• **Language region: Italian (Ref. German) OR=2.86 (95%CI:1.25-6.56, p=0.013)**
There was a significant interaction between age at survey and survivorship status: Survivorship was a risk factor only at younger ages (P$_{interaction}$=0.002). This confirms the results from our univariate analyses and suggests that higher educational degrees eventually are achieved by survivors, although with a delay.

Sociocultural and clinical risk factors for three educational outcomes ("completed compulsory schooling only", "upper secondary education or higher (vs. lower)", "university degree (vs. lower)") **from multivariable logistic regression (survivors only), adjusted for sex, age, migration background, nationality, language region, place of living:**

Compulsory school only:
• **Parental education (highest degree): Compulsory schooling (Ref. Vocational training) OR=3.31 (95%CI:1.54-7.09, p=0.002)**
• Parental education (highest degree): Upper secondary education (Ref. Vocational training) OR=0.76 (95%CI:0.40-1.44, p=0.398)
• Parental education (highest degree): University education (Ref. Vocational training) OR=0.80 (95%CI:0.33-1.98, p=0.633)
• Siblings: Yes (Ref. No) OR=0.53 (95%CI:0.26-1.06, p=0.071)
• Diagnosis (ICCC3): Lymphoma (Ref. Leukemia) OR=0.54 (95%CI:0.22-1.33, p=0.179)
• **Diagnosis (ICCC3): CNS neoplasms (Ref. Leukemia) OR=2.64 (95%CI:1.15-6.06, p=0.022)**
• Diagnosis (ICCC3): Other tumors (Ref. Leukemia) OR=1.37 (95%CI:0.74-2.54, p=0.314)
• Age at diagnosis: 5-9 years (Ref. 0-4 years) OR=1.12 (95%CI:0.60-2.07, p=0.721)
• Age at diagnosis: ≥10 years (Ref. 0-4 years) OR=0.98 (95%CI:0.51-1.85, p=0.940)
• Therapy: Surgery only (Ref. Chemotherapy[a]) OR=0.62 (95%CI:0.22-1.72, p=0.314)
• Therapy: Radiotherapy[b] (Ref. Chemotherapy[a]) OR=1.14 (95%CI:0.63-2.08, p=0.381) | [a] without radiotherapy, may have undergone surgery

[b] may have undergone surgery or received chemotherapy |

- Therapy: Bone marrow transplantation (Ref. Chemotherapy[a]) OR=0.75 (95%CI:0.26-2.14, p=0.584)
- **Relapse: Yes (Ref. No) OR=2.11 (95%CI:1.08-4.12, p=0.028)**

Upper secondary education or more (participants aged ≥27 years):
- Parental education (highest degree): Compulsory schooling (Ref. Vocational training) OR=0.63 (95%CI:0.29-1.40, p=0.259)
- **Parental education (highest degree): Upper secondary education (Ref. Vocational training) OR=1.92 (95%CI:1.14-3.23, p=0.014)**
- **Parental education (highest degree): University education (Ref. Vocational training) OR=14.76 (95%CI:4.22-51.61, p<0.001)**
- Siblings: Yes (Ref. No) OR=1.32 (95%CI:0.63-2.76, p=0.458)
- Diagnosis (ICCC3): Lymphoma (Ref. Leukemia) OR=1.60 (95%CI:0.86-2.97, p=0.135)
- Diagnosis (ICCC3): CNS neoplasms (Ref. Leukemia) OR=0.39 (95%CI:0.15-1.02, p=0.056)
- Diagnosis (ICCC3): Other tumors (Ref. Leukemia) OR=0.97 (95%CI:0.53-1.78, p=0.919)
- Age at diagnosis: 5-9 years (Ref. 0-4 years) OR=1.66 (95%CI:0.90-3.07, p=0.108)
- Age at diagnosis: ≥10 years (Ref. 0-4 years) OR=1.28 (95%CI:0.70-2.34, p=0.431)
- Therapy: Surgery only (Ref. Chemotherapy[a]) OR=1.74 (95%CI:0.55-5.52, p=0.919)
- Therapy: Radiotherapy[b] (Ref. Chemotherapy[a]) OR=0.75 (95%CI:0.45-1.24, p=0.875)
- Therapy: Bone marrow transplantation (Ref. Chemotherapy[a]) OR=0.72 (95%CI:0.30-1.73, p=0.465)
- Relapse: Yes (Ref. No) OR=0.52 (95%CI:0.25-1.05, p=0.069)

University Degree (participants aged ≥27 years):
- Parental education (highest degree): Compulsory schooling (Ref. Vocational training) OR=0.23 (95%CI:0.03-1.49, p=0.123)
- Parental education (highest degree): Upper secondary education (Ref. Vocational training) OR=1.17 (95%CI:0.48-2.83, p=0.727)
- **Parental education (highest degree): University education (Ref. Vocational training) OR=9.13 (95%CI:3.61-23.09, p<0.001)**
- Siblings: Yes (Ref. No) OR=0.88 (95%CI:0.27-2.85, p=0.830)
- Diagnosis (ICCC3): Lymphoma (Ref. Leukemia) OR=1.86 (95%CI:0.70-4.98, p=0.215)
- Diagnosis (ICCC3): CNS neoplasms (Ref. Leukemia) OR=0.74 (95%CI:0.15-3.71, p=0.716)
- Diagnosis (ICCC3): Other tumors (Ref. Leukemia) OR=0.79 (95%CI:0.28-2.22, p=0.651)
- Age at diagnosis: 5-9 years (Ref. 0-4 years) OR=1.64 (95%CI:0.59-4.56, p=0.346)
- Age at diagnosis: ≥10 years (Ref. 0-4 years) OR=1.04 (95%CI:0.36-2.99, p=0.944)
- Therapy: Surgery only (Ref. Chemotherapy[a]) OR=0.24 (95%CI:0.02-3.39, p=0.053)
- Therapy: Radiotherapy[b] (Ref. Chemotherapy[a]) OR=0.95 (95%CI:0.42-2.14, p=0.123)
- Therapy: Bone marrow transplantation (Ref. Chemotherapy[a]) OR=0.55 (95%CI:0.11-2.83, p=0.472)
- Relapse: Yes (Ref. No) OR=0.99 (95%CI:0.28-3.45, p=0.983)

Age at diagnosis was associated with educational achievement: Survivors of leukemia or CNS tumors who were older at diagnosis were at higher risk of receiving compulsory schooling only ($P_{interaction}$=0.014).

Risk factors employment outcomes: Not investigated.

1. What is the risk of poor educational/employment outcomes?

Ishida et al. Social outcomes and quality of life of childhood cancer survivors in Japan: a cross-sectional study on marriage, education, employment and health-related QOL (SF-36). 2011

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Not stated** **Years of follow-up:** **0-4 years: 3%** **5-9 years: 27%** **10-14 years: 31%** **≥15 years: 40%**	**Sample size:** N=185 (survivors) 72 (siblings) **Diagnoses:** Acute lymphoblastic leukemia = 43.9% Acute myeloid leukemia/ myelodysplastic syndrome = 13.3% Lymphoma = 12.3% Brain tumors = 10 cases Bone/ soft tissue sarcoma = 18 cases Other solid tumors = 29 cases Overall: Solid tumours =31% Haematological = 69% **Age at diagnosis:** 18 or younger Mean 8.3 years (SD 4.8) **Age at study:** Mean 23.1 years (SD 4.9) **Controls:** Siblings n=72; mean of 24.9 years at study (SD 5.1) (p=0.001 compared to survivors)	Operation= 38% Anthracyclines = 82% Alkylating agents = 84% Etoposide = 41% Radiation = 61% HSCT = 25% 98% received chemotherapy	**Risk educational outcomes:** There were no large differences in educational attainment (p=0.169); the CCSs revealed a higher proportion of high school level: Educational achievement: Survivors Siblings Lower than high school 4% 3% High school 33% 19% College/vocational school 28% 39% University/graduate school 36% 45% **Risk employment outcomes:** The unemployment rate tended to be a little higher in the CCSs. The proportion of company desk workers ("white collar") was significantly higher in the siblings group. There was a high proportion of CCSs holding medical jobs: Current job: Survivors Siblings Student 39% 33% Company (white collar) 15% 25% Part-time job 8% 11% Medical job 11% 0% Industry (blue collar) 8% 4% Homemaker 8% 13% Unemployed 4% 0% Others 9% 14% There were no large differences in working ability or annual income (p>0.4).	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% responded 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☐Yes/☒no/ ☐unclear **Remarks:** Study group: Survivor response rate = 72%

1. What is the risk of poor educational/employment outcomes?

Termuhlen et al. Twenty-five year follow-up of childhood Wilms tumor: a report from the Childhood Cancer Survivor Study. 2011

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1986** **Years of follow-up:** **5-14 years: 9.7%** **15-24 years: 63.5%** **25+ years: 26.8%**	**Sample size:** n = 645 (survivors) Total reported sample is bigger (N=1256 survivors) but for the targeted outcomes they only included people aged 25 and above. **Diagnoses:** Wilms tumor **Age at diagnosis:** 0-3 = 63.8% 4-9 = 32.5% 10-14 = 2.6% 15-20 = 1.1% **Age at study:** 5-9 years: 0.4% 10-19 years: 18.4% 20-29 years: 58.9% 30-39 years: 21.4% 40-49 years: 0.9% ≥50 years: 0% **Controls:** N = 2,962 (sibling controls): Age at study: 5-9 years: 0.3% 10-19 years: 9.5% 20-29 years: 34.4% 30-39 years: 34.6% 40-49 years: 18.8% ≥50 years: 2.5%	Two or three-drug chemotherapy (vincristine and dactinomycin, with or without doxorubicin), and depending on stage of disease on diagnosis, RT to the flank, whole abdomen, and/or whole lung 23% = combined chest and abdominal RT 39% = doxorubicin	**Risk educational outcomes:** Education: Survivors Siblings Not high school graduate 2.2% (n=14) 2.8% (n=84) High school graduate/GED 50.2% (n=324) 45.2% (n=1339) College graduate 45% (n=290) 51.4% (n=1521) A slightly lower proportions of survivors compared to siblings graduated from college (p=0.045) **Risk employment outcomes:** Ever Employed: Survivors Siblings No 1.1% (n=7) 0.2% (n=7) Yes 96.6% (n=623) 99.6% (n=2951) A slightly lower proportion of survivors compared to siblings had held a job (p=0.046)	**Quality assessment:** 1. Is the study group representative? ☐Yes/☐no/☒unclear 2. Is the follow-up adequate? ☒Yes/☐no/☐unclear See remarks 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☐Yes/☒no/☐unclear **Remarks:** Education/Employment outcomes only reported for Survivors ≥25 years of age

1. What is the risk of poor educational/employment outcomes?				
Kirchhoff, Krull, Ness, Park et al. **Occupational outcomes of adult childhood cancer survivors: A report from the childhood cancer survivor study. 2011b**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Dx 01/01/1970-12/31/1986** **Years of follow-up:** **Years since diagnosis:** **≤20 years: n=1547 (23.2%)** **21-30 years: n=4170 (62.5%)** **>30 years: n=954 (14.3%)**	**Sample size:** N=6671 survivors (CCSS) **Diagnoses:** Leukemia: n=2046 CNS (all types) : n=829 Hodgkin: n=1096 Non-Hodgkin lymphoma: n=585 Wilms: n=482 Neuroblastoma: n=287 Soft tissue sarcoma: n=650 Malignant bone tumor: n=696 **Age at diagnosis:** ≤4 years: n=1782 (26.7%) 5-9 years: n=1696 (25.4%) 10-14 years: n=1729 (25.9%) ≥15 years: n=1464 (21.9%) **Age at study:** 25-34 years: 57% 35-44 years: 34% 45+ years: 9% Range 25-58 years **Controls:** N=2280 Siblings: CCSS	Any chemotherapy: n=4754 Any platinum chemotherapy: n=237 Any radiation: n=4338 Any cranial radiation: n=4099 Any surgery: n=1448	**Risk educational outcomes:** N/A **Risk employment outcomes:** - 27% of survivors unemployed vs 19% siblings (p<0.001). Reasons for unemployment were staying home to take care of family or children, being student or retired (survivors 12%; siblings 14%), not working because of health limitations (9.3% vs. 1.5%) and being unemployed but currently seeking work (5% vs. 2.7%). - 39% of survivors reported a professional occupation (i.e., higher skill; higher experience jobs) vs. 48% siblings (p<0.001). The distribution of specific jobs within this category did not differ. - The proportions reporting physical (25% vs. 27%) and nonphysical (7% vs. 7%) occupations were similar between survivors and siblings; however, within these categories there were differences in the proportions reporting certain jobs. Results from multivariable regression comparing currently employed survivors and siblings: - Survivors were less likely to hold professional occupations (RR=0.93, 95%CI:0.89-0.98) and more likely to be employed in nonphysical occupations (RR=1.15, 95%CI:1.07-1.24) than siblings. - Leukemia, CNS tumor, and non-Hodgkin lymphoma patients reported fewer professional positions, whereas bone cancer patients were more likely than siblings to be working in a professional occupation (RR=1.12, 95%CI:1.04-1.21) - Leukemia patients were more likely (RR=1.26, 95%CI:1.03-1.54) and bone cancer patients less likely (RR=0.37, 95%CI:0.23-0.61) to report physical occupations. -Except for neuroblastoma, survivors were more likely to be unemployed compared with siblings (RR=1.45, 95%CI:1.32-1.60, p<0.001)	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear For this study, the second follow-up survey was used (9289/14357) <75% of eligible 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** ***Service Blue Collar Jobs (Physical = heavy labor; Nonphysical = sitting/standing/walking)*

2. What are the risk factors for poor educational/employment outcomes?				
Kirchhoff et al. Occupational outcomes of adult childhood cancer survivors: A report from the childhood cancer survivor study. 2011b				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** Dx 01/01/1970-12/31/1986 **Years of follow-up:** Years since diagnosis: ≤20 years: n=1547 (23.2%) 21-30 years: n=4170 (62.5%) >30 years: n=954 (14.3%)	**Sample size:** N=6671 survivors (CCSS) **Diagnoses:** Leukemia: n=2046 CNS (all types) : n=829 Hodgkin: n=1096 Non-Hodgkin lymphoma: n=585 Wilms: n=482 Neuroblastoma: n=287 Soft tissue sarcoma: n=650 Malignant bone tumor: n=696 **Age at diagnosis:** ≤4 years: n=1782 (26.7%) 5-9 years: n=1696 (25.4%) 10-14 years: n=1729 (25.9%) ≥15 years: n=1464 (21.9%) **Age at study:** 25-34 years: 57% 35-44 years: 34% 45+ years: 9% Range 25-58 years **Controls:** N=2280 Siblings: CCSS	Any chemotherapy: n=4754 Any platinum chemotherapy: n=237 Any radiation: n=4338 Any cranial radiation: n=4099 Any surgery: n=1448	**Risk factors educational outcomes:** N/A **Risk factors for unemployment from multivariable relative risk regression (n=5985), adjusted for treatment era:** • Current age: 35-44 years (Ref. 25-34 years) RR=1.04 (95%CI:0.90-1.20, p=0.60) • Current age: 45+ years (Ref. 25-34 years) RR=0.96 (95%CI:0.74-1.26, p=0.79) • **Sex: Female (Ref. Male) RR=1.93 (95%CI:1.76-2.11, p<0.001)** • **Race: Black, non-Hispanic (Ref. White, non-Hispanic) RR=1.36 (95%CI:1.09-1.70, p=0.007)** • **Race: Hispanic (Ref. White, non-Hispanic) RR=1.33 (95%CI:1.09-1.61, p=0.004)** • **Race: Other/mixed (Ref. White, non-Hispanic) RR=1.34 (95%CI:1.17-1.55, p<0.001)** • Age at diagnosis: 5-9 years (Ref. ≤4 years) RR=0.94 (95%CI:0.82-1.07, p=0.34) • Age at diagnosis: 10-14 years (Ref. ≤4 years) RR=0.88 (95%CI:0.75-1.03, p=0.11) • Age at diagnosis: ≥15 years (Ref. ≤4 years) RR=0.85 (95%CI:0.68-1.06, p=0.14) • Cranial radiation: Scatter low (Ref. None) RR=0.98 (95%CI:0.87-1.11, p=0.79) • Cranial radiation: Scatter high (Ref. None) RR=0.97 (95%CI:0.72-1.31, p=0.85) • Cranial radiation: <18 Gy (Ref. None) RR=0.91 (95%CI:0.76-1.10, p=0.35) • Cranial radiation: 18-24 Gy (Ref. None) RR=1.00 (95%CI:0.85-1.16, p=0.96) • Cranial radiation: 25-34 Gy (Ref. None) RR=1.04 (95%CI:0.76-1.42, p=0.81) • **Cranial radiation: ≥35 Gy (Ref. None) RR=1.61 (95%CI:1.39-1.87, p<0.001)** • Platinum chemotherapy: N/A • **CNS tumor resection: Yes (Ref. No) RR=1.29 (95%CI:1.12-1.48, p<0.001)** • **Amputation: Yes (Ref. No) RR=1.30 (95%CI:1.09-1.55, p=0.003)** • Limb-sparing: Yes (Ref. No) RR=1.40 (95%CI:1.00-1.97, p=0.05) **Risk factors for physical occupations from multivariable relative risk regression (n=4258):** • Current age: 35-44 years (Ref. 25-34 years) RR=1.02 (95%CI:0.74-1.40, p=0.90) • Current age: 45+ years (Ref. 25-34 years) RR=1.36 (95%CI:0.75-2.47, p=0.32) • **Sex: Female (Ref. Male) RR=0.19 (95%CI:0.14-0.25, p<0.001)** • Race: Black, non-Hispanic (Ref. White, non-Hispanic) RR=0.84 (95%CI:0.39-1.82, p=0.66) • Race: Hispanic (Ref. White, non-Hispanic) RR=1.40 (95%CI:0.86-2.28, p=0.18) • Race: Other/mixed (Ref. White, non-Hispanic) RR=0.95 (95%CI:0.65-1.39, p=0.79) • **Age at diagnosis: 5-9 years (Ref. ≤4 years) RR=0.75 (95%CI:0.57-0.97, p=0.03)** • **Age at diagnosis: 10-14 years (Ref. ≤4 years) RR=0.59 (95%CI:0.42-0.83, p=0.002)** • **Age at diagnosis: ≥15 years (Ref. ≤4 years) RR=0.49 (95%CI:0.32-0.80, p=0.005)** • Cranial radiation: Scatter low (Ref. None) RR=0.82 (95%CI:0.63-1.05, p=0.11) • Cranial radiation: Scatter high (Ref. None) RR=1.06 (95%CI:0.63-1.79, p=0.81) • Cranial radiation: <18 Gy (Ref. None) RR=1.03 (95%CI:0.76-1.41, p=0.87) • **Cranial radiation: 18-24 Gy (Ref. None) RR=1.57 (95%CI:1.20-2.05, p=0.001)** • Cranial radiation: 25-34 Gy (Ref. None) RR=0.93 (95%CI:0.48-1.82, p=0.84) • Cranial radiation: ≥35 Gy (Ref. None) RR=0.96 (95%CI:0.65-1.41, p=0.84) • **Platinum chemotherapy: Yes (Ref. No) RR=0.34 (95%CI:0.14-0.80, p=0.01)** • CNS tumor resection: N/A • Amputation: N/A • Limb-sparing: N/A	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear For this study, the second follow-up survey was used (9289/14357) <75% of eligible 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

		Risk factors for nonphysical occupations from multivariable relative risk regression (n=4259): • Current age: 35-44 years (Ref. 25-34 years) RR=1.00 (95%CI:0.87-1.14, p=0.98) • Current age: 45+ years (Ref. 25-34 years) RR=0.98 (95%CI:0.76-1.25, p=0.84) • **Sex: Female (Ref. Male) RR=1.19 (95%CI:1.10-1.29, p<0.001)** • **Race: Black, non-Hispanic (Ref. White, non-Hispanic) RR=1.51 (95%CI:1.24-1.85, p<0.001)** • Race: Hispanic (Ref. White, non-Hispanic) RR=0.91 (95%CI:0.71-1.17, p=0.47) • Race: Other/mixed (Ref. White, non-Hispanic) RR=1.00 (95%CI:0.85-1.18, p=0.96) • Age at diagnosis: 5-9 years (Ref. ≤4 years) RR=0.92 (95%CI:0.82-1.04, p=0.19) • **Age at diagnosis: 10-14 years (Ref. ≤4 years) RR=0.83 (95%CI:0.71-0.96, p=0.01)** • Age at diagnosis: ≥15 years (Ref. ≤4 years) RR=0.83 (95%CI:0.68-1.01, p=0.07) • Cranial radiation: Scatter low (Ref. None) RR=1.00 (95%CI:0.90-1.11, p=0.99) • Cranial radiation: Scatter high (Ref. None) RR=0.85 (95%CI:0.65-1.13, p=0.26) • Cranial radiation: <18 Gy (Ref. None) RR=1.15 (95%CI:0.99-1.33, p=0.06) • **Cranial radiation: 18-24 Gy (Ref. None) RR=1.29 (95%CI:1.15-1.47, p<0.001)** • **Cranial radiation: 25-34 Gy (Ref. None) RR=1.42 (95%CI:1.14-1.79, p=0.002)** • **Cranial radiation: ≥35 Gy (Ref. None) RR=1.30 (95%CI:1.12-1.52, p=0.001)** • Platinum chemotherapy: N/A • **CNS tumor resection: Yes (Ref. No) RR=1.23 (95%CI:1.09-1.40, p=0.001)** • Amputation: N/A • Limb-sparing: N/A **Risk factors for professional occupations from multivariable relative risk regression (n=4421):** • Current age: 35-44 years (Ref. 25-34 years) RR=1.00 (95%CI:0.91-1.09, p=0.93) • Current age: 45+ years (Ref. 25-34 years) RR=0.95 (95%CI:0.81-1.11, p=0.52) • Sex: Female (Ref. Male) RR=1.13 (95%CI:1.07-1.19, p<0.001) • Race: Black, non-Hispanic (Ref. White, non-Hispanic) RR=0.67 (95%CI:0.51-0.88, p=0.004) • Race: Hispanic (Ref. White, non-Hispanic) RR=0.98 (95%CI:0.83-1.16, p=0.83) • Race: Other/mixed (Ref. White, non-Hispanic) RR=0.99 (95%CI:0.88-1.12, p=0.90) • Age at diagnosis: 5-9 years (Ref. ≤4 years) RR=1.16 (95%CI:1.05-1.27, p=0.003) • Age at diagnosis: 10-14 years (Ref. ≤4 years) RR=1.31 (95%CI:1.18-1.46, p<0.001) • Age at diagnosis: ≥15 years (Ref. ≤4 years) RR=1.32 (95%CI:1.14-1.52, p<0.001) • Cranial radiation: Scatter low (Ref. None) RR=1.01 (95%CI:0.95-1.08, p=0.66) • Cranial radiation: Scatter high (Ref. None) RR=1.05 (95%CI:0.92-1.20, p=0.48) • Cranial radiation: <18 Gy (Ref. None) RR=0.88 (95%CI:0.78-0.98, p=0.02) • Cranial radiation: 18-24 Gy (Ref. None) RR=0.71 (95%CI:0.64-0.80, p<0.001) • Cranial radiation: 25-34 Gy (Ref. None) RR=0.73 (95%CI:0.57-0.92, p=0.008) • Cranial radiation: ≥35 Gy (Ref. None) RR=0.78 (95%CI:0.67-0.92, p=0.002) • Platinum chemotherapy: N/A • CNS tumor resection: Yes (Ref. No) RR=0.82 (95%CI:0.73-0.92, p=0.001) • Amputation: N/A • Limb-sparing: N/A	

1. What is the risk of poor educational/employment outcomes?

Dieluweit et al. Educational and vocational achievement among long-term survivors of adolescent cancer in Germany

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **Not reported** **Years of follow-up:** **Years since diagnosis: 13.7 (SD 6.0 years)**	**Sample size:** N=820 **Diagnoses:** n (%) Leukemia: n=158 (19.3%) Lymphoma: n=250 (30.5%) CNS tumors: n= 78 (9.5%) Neuroblastoma: n=4 (0.5%) Renal tumors: n=7 (0.9%) Malignant bone tumors: n=174 (21.2%) Soft tissue and other extraosseous sarcomas: n=75 (9.2%) Germ cell tumors: n=54 (6.6%) Other malignant epithelial neoplasms and malignant melanomas: n=20 (2.4%) **Age at diagnosis:** 15.8 years (SD 0.9 years) **Age at study:** 29.9 years (SD 6.0 years) **Controls:** N=820 Age-matched, German Socioeconomic Panel (G-SOEP) 30.4±6.7 years	N (%): Surgery: 589 (71.8%) Radiation: 474 (57.8%) Chemotherapy: 742 (90.5%)	**Risk educational outcomes:** - Survivors more likely than controls to attain a high school degree: 52.4% of survivors vs. 38.3% controls (p<0.001) - No significant differences regarding completion of professional training (85.2% (survivors) vs. 85.9%, p>0.05) - College/university degrees more common in survivors (24.7% vs. controls 17.0%, p=0.001). When controlling for the effect of school education, the effect of group (survivors vs. controls) was no longer significant in predicting college/university degrees (OR=0.93, 95%CI:0.65-1.33, p>0.05) Thus, the number of persons with a high school degree graduating from university did not differ between the survivors and the controls. **Risk employment outcomes:** - Survivors more likely to be employed at time of the study: 79.6% vs. 74.2% in controls, p=0.013. Multiple logistic regression analysis revealed that after statistical control of gender, age, high school graduations, and college/university degrees, the factor group (survivors vs. controls) was no longer statistically significant (OR=1.11, 95% I:0.83–1.47, p>0.05). - Survivors significantly older at commencement of first employment (mean 21.8 years (SD 3.6) vs. controls mean 19.9 years (SD 2.4), p<0.001). A Cox proportional hazard model analysis also demonstrated significant differences between the survivors and the control sample for age at first employment; even after statistical control for high school graduations and college/university degrees survivors were significantly older at their first employment compared to the age-matched reference sample (effect of group [survivors vs. controls] OR=1.90, 95%CI:1.67–2.17, P<0.001).	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☐Yes/☐no/☒unclear Unclear how many participants reported on the main outcome 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Dieluweit et al. Educational and vocational achievement among long-term survivors of adolescent cancer in Germany

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Not reported** **Years of follow-up:** **Years since diagnosis: 13.7 (SD 6.0 years)**	**Sample size:** N=820 **Diagnoses:** n (%) Leukemia: n=158 (19.3%) Lymphoma: n=250 (30.5%) CNS tumors: n= 78 (9.5%) Neuroblastoma: n=4 (0.5%) Renal tumors: n=7 (0.9%) Malignant bone tumors: n=174 (21.2%) Soft tissue and other extraosseous sarcomas: n=75 (9.2%) Germ cell tumors: n=54 (6.6%) Other malignant epithelial neoplasms and malignant melanomas: n=20 (2.4%) **Age at diagnosis:** 15.8 years (SD 0.9 years) **Age at study:** 29.9 years (SD 6.0 years) **Controls:** N=820 Age-matched, German Socioeconomic Panel (G-SOEP) 30.4±6.7 years	<u>N (%):</u> Surgery: 589 (71.8%) Radiation: 474 (57.8%) Chemotherapy: 742 (90.5%)	**Risk factors high school degree from multivariate logistic regression:** Sex, age at study, age at diagnosis, diagnosis, duration of treatment, cancer recurrence and treatment were tested in removed from the model in a first step as they were not associated with "high school degree" • **Intensive care/Bone marrow/stem cell transplantation unit: Yes (Ref. No) OR=0.73 (95%CI:0.54-0.99, p=0.042)** • **Late effects: Visual or hearing: Yes (Ref. No) OR=0.69 (95%CI:0.48-0.99, p=0.048)** **Risk factors college/university degree from multivariate logistic regression:** Age at diagnosis, stay at an intensive care unit/bone marrow/stem cell plantation unit, cancer recurrence and treatment were tested and removed from the model in a first step as they were not associated with "college/university degree" • Duration of treatment (months): OR=0.99 (95%CI:0.99-1.00, p=0.133) • **Age at study: OR=1.08 (95%CI:1.05-1.11, p<0.001)** • **Sex: Female (Ref. Male) OR=0.67 (95%CI:0.48-0.95, p=0.025)** • **Diagnosis: CNS tumors (Ref. Leukemia and lymphoma) OR=0.39 (95%CI:0.17-0.92, p=0.031)** • Diagnosis: Solid tumors (Ref. Leukemia and lymphoma) OR=0.76 (95%CI:0.53-1.10, p=0.143) • **Late effects: Neuropsychological: Yes (Ref. No) OR=0.50 (95%CI:0.27-0.91, p=0.024)** **Risk factors employment outcomes from multivariate logistic regression:** Diagnosis, duration of treatment, stay at an intensive care unit/bone marrow/stem cell plantation unit, cancer recurrence, treatment and family status were tested in removed from the model in a first step as they were not associated with "employment" • **Age at study: OR=1.04 (95%CI:1.01-1.08, p=0.017)** • **Sex: Female (Ref. Male) OR=0.59 (95%CI:0.34-0.89, p=0.016)** • **Age at diagnosis: OR=0.80 (95%CI:0.66-0.98, p=0.032)** • **Having children: Yes (Ref. No) OR=0.36 (95%CI:0.23-0.56, p<0.001)** • **Late effects: Neuropsychological: Yes (Ref. No) OR=0.55 (95%CI:0.34-0.89, p=0.016)**	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☐Yes/☐no/☒unclear Unclear how many participants reported on the main outcome 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Kirchhoff et al. Unemployment among adult survivors of childhood cancer: a report from the childhood cancer survivor study. 2010

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** Dx = January 1, 1970 - December 31, 1986 **Years of follow-up:** ≥5 years from dx	**Sample size:** N=6339 survivors CCSS **Diagnoses:** Leukemia: n=1984 CNS malignancies (all) : n=795 Hodgkin lymphoma: n=1013 Non-Hodgkin lymphoma: n=568 Kidney cancer: n=434 Neuroblastoma: n=262 Soft tissue sarcoma: n=624 Malignant bone tumor: n=659 **Age at diagnosis:** ≤4 yr: n= 1703 >4 yr: n=4636 **Age at study:** 2nd follow-up survey 2003 Mean age 34.2 years (SD 6.2 years) **Controls:** N=1967 Siblings (CCSS), mean age 36.1 years (SD 7.2 years)	Any chemotherapy: n=4489 Any radiation: n=4018 Any surgery (Amputation, Limb-sparing, CNS resection) : n=1380	**Risk educational outcomes:** Not reported as main outcome, only Table 1. **Risk employment outcomes:** - 11% of survivors and 14% of siblings (p=0.005) were unemployed by choice and were excluded from subsequent analyses. - Excluding those unemployed by choice, health-related unemployment was reported by 10.4% of survivors and 1.8% of siblings (p<0.001). - Survivors were the most likely to be unemployed but seeking work (5.7% vs. 2.7% of siblings, p<0.001). - In multivariable comparisons adjusted for age, sex, and race, survivors were 6 times more likely to report health-related unemployment than siblings (RR=6.07; 95%CI:4.32– 8.53) - The likelihood of health-related unemployment was significantly increased for all cancer types when compared with siblings, but was highest for CNS tumors (RR=14.84; 95%CI:10.42–21.14). - Survivors were at higher risk of being unemployed but seeking work vs. siblings (RR=1.90, 95%CI:1.43-2.54), adjusted for age, sex, and race. The risk of seeking work was increased for all cancers when compared with siblings except for Hodgkin lymphoma, neuroblastoma and soft tissue sarcoma. - When they included all demographics in the propensity score, survivors continued to be at higher risk (health-related unemployment RR=4.02 (95%CI:2.73–5.94); seeking work RR=1.57 (95%CI:1.13–2.20)).	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of original cohort responded to this survey 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?				
Kirchhoff et al. **Unemployment among adult survivors of childhood cancer: a report from the childhood cancer survivor study. 2010**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** Dx = January 1, 1970 - December 31, 1986 **Years of follow-up:** ≥5 years from dx	**Sample size:** N=6339 survivors CCSS **Diagnoses:** Leukemia: n=1984 CNS malignancies (all) : n=795 Hodgkin lymphoma: n=1013 Non-Hodgkin lymphoma: n=568 Kidney cancer: n=434 Neuroblastoma: n=262 Soft tissue sarcoma: n=624 Malignant bone tumor: n=659 **Age at diagnosis:** ≤4 yr: n= 1703 >4 yr: n=4636 **Age at study:** 2nd follow-up survey 2003 Mean age 34.2 years (SD 6.2 years) **Controls:** N=1967 Siblings (CCSS), mean age 36.1 years (SD 7.2 years)	Any chemotherapy: n=4489 Any radiation: n=4018 Any surgery (Amputation, Limb-sparing, CNS resection) : n=1380	**Risk factors educational outcomes:** N/A **Risk factors health-related unemployment from multivariable logistic regression (n=5298):** • **Current age: 35-44 years (Ref. 25-34 years) OR=1.31 (95%CI:1.07-1.61, p=0.01)** • Current age: 45+ years (Ref. 25-34 years) OR=1.03 (95%CI:0.71-1.49, p=0.87) • **Sex: Female (Ref. Male) OR=1.73 (95%CI:1.43-2.08, p<0.001)** • **Race: Black, non-Hispanic (Ref. White, non-Hispanic) OR=1.89 (95%CI:1.16-3.10, p=0.01)** • **Race: Hispanic (Ref. White, non-Hispanic) OR=1.66 (95%CI:1.05-2.63, p=0.03)** • **Race: Other/mixed (Ref. White, non-Hispanic) OR=1.43 (95%CI:1.03-1.99, p=0.03)** • **Years since diagnosis: 21-30 years (Ref. ≤20 years) OR=1.36 (95%CI:1.06-1.75, p=0.02)** • **Years since diagnosis: >30 years (Ref. ≤20 years) OR=1.89 (95%CI:1.35-2.64, p<0.001)** • Cranial radiation: Scatter low (Ref. None) OR=0.91 (95%CI:0.69-1.20, p=0.51) • Cranial radiation: Scatter high (Ref. None) OR=1.18 (95%CI:0.65-2.13, p=0.59) • Cranial radiation: <18 Gy (Ref. None) OR=0.97 (95%CI:0.63-1.48, p=0.87) • **Cranial radiation: 18-24 Gy (Ref. None) OR=1.45 (95%CI:1.06-1.98, p=0.02)** • **Cranial radiation: ≥25 Gy (Ref. None) OR=3.47 (95%CI:2.54-4.74, p<0.001)** • **Recurrence: Yes (Ref. No) OR=1.35 (95%CI:1.02-1.78, p=0.03)** • **Secondary cancer: Yes (Ref. No) OR=1.50 (95%CI:1.04-2.14, p=0.03)** • **CNS tumor resection: Yes (Ref. No) OR=2.02 (95%CI:1.53-2.66, p<0.001)** • **Amputation: Yes (Ref. No) OR=2.18 (95%CI:1.54-3.10, p<0.001)** • **Limb-saving: Yes (Ref. No) OR=4.23 (95%CI:2.33-7.69, p<0.001)** **Risk factors unemployment but seeking work from multivariable logistic regression (n=5298):** • **Current age: 35-44 years (Ref. 25-34 years) OR=0.62 (95%CI:0.46-0.81, p<0.001)** • Current age: 45+ years (Ref. 25-34 years) OR=0.68 (95%CI:0.39-1.15, p=0.14) • Sex: Female (Ref. Male) OR=1.19 (95%CI:0.94-1.51, p=0.15) • **Race: Black, non-Hispanic (Ref. White, non-Hispanic) OR=2.16 (95%CI:1.21-3.84, p=0.001)** • Race: Hispanic (Ref. White, non-Hispanic) OR=1.51 (95%CI:0.85-2.67, p=0.15) • **Race: Other/mixed (Ref. White, non-Hispanic) OR=1.57 (95%CI:1.06-2.35, p=0.03)** • Years since diagnosis: 21-30 years (Ref. ≤20 years) OR=0.90 (95%CI:0.68-1.18, p=0.43) • Years since diagnosis: >30 years (Ref. ≤20 years) OR=0.64 (95%CI:0.40-1.04, p=0.07) • Cranial radiation: Scatter low (Ref. None) OR=0.78 (95%CI:0.55-1.11, p=0.17) • Cranial radiation: Scatter high (Ref. None) OR=0.90 (95%CI:0.42-1.92, p=0.78) • Cranial radiation: <18 Gy (Ref. None) OR=1.06 (95%CI:0.69-1.64, p=0.78) • Cranial radiation: 18-24 Gy (Ref. None) OR=1.10 (95%CI:0.75-1.63, p=0.62) • **Cranial radiation: ≥25 Gy (Ref. None) OR=1.77 (95%CI:1.15-2.71, p=0.009)** • Recurrence: Yes (Ref. No) OR=1.01 (95%CI:0.69-1.49, p=0.95) • Secondary cancer: Yes (Ref. No) OR=1.28 (95%CI:0.76-2.15, p=0.38) • CNS tumor resection: Yes (Ref. No) OR=1.06 (95%CI:0.72-1.56, p=0.75) • Amputation: Yes (Ref. No) OR=0.90 (95%CI:0.52-1.58, p=0.72) • Limb-saving: Yes (Ref. No) OR=0.28 (95%CI:0.04-2.00, p=0.21)	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of original cohort responded to this survey 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Bonneau et al. **School performance of childhood cancer survivors: mind the teenagers! 2011**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1/2001-12/2005** **Years of follow-up:** **Mean follow-up period since diagnosis was 6.3 years (SD 1.3 years, range 3.6-8.6 years)**	**Sample size:** N=148 **Diagnoses:** N(%) Burkitt/AML n=16 (10.8) ALL/LL n=62 (41.9) HL n=25 (16.9) Cerebral tumor: n=12 (8.1) Solid tumor: n=33 (22.3) **Age at diagnosis:** 8.72 years (SD 5.44 years; range 0.1-18.2 years) **Age at study:** 15 years (SD 5.3 years, range 7.3-25.1 years) **Controls:** N=194 siblings (mean age 17.2 years (range 7-35 years)) and healthy schoolchildren identified from registries: - N=63,550 of one subdivision attending primary school - N=219,021 children of 4 subdivisions attending secondary school	N, %: No chemotherapy 9, 6.1% Systemic chemotherapy 65, 43.9% Systemic and intrathecal chemotherapy 74, 50% Bone marrow transplant 17, 11.5% Surgery 51, 34.5% Cerebral surgery 11, 7.4% Radiotherapy 50, 33.8% Cerebral irradiation 13, 8.8%	**Risk educational outcomes:** The overall repeat rate was 33.1% in our patient population and 28.4% when limited to repeating a grade post-disease. - 8.7% (n=13) repeated a grade before disease onset; 28.4% (n=42) repeated a grade after disease onset The rate of repeating a grade (overall and post-disease) did not differ significantly between the patients and the control population from registries. However, the overall rate of repeating a grade was significantly different between patients and siblings (33.1% versus 21.6%; p=0.02).This difference was mainly caused by the effects of the oldest patients of the cohort. When the analysis was limited to the post-disease rate of repeating a grade, the significant difference with siblings was restricted to the oldest patients (51.1% versus 29.7%, p=0.02). Parent Perspective: - 40.5% (n = 60) school career of child not modified by cancer, treatments, and other consequences of the disease - n = 31 school career of child improved (greater maturity, positive view on life, and/or a more combative attitude) **Risk employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear >75% of eligible responded 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?				
Bonneau et al. **School performance of childhood cancer survivors: mind the teenagers! 2011**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era: 1/2001-12/2005** **Years of follow-up: Mean follow-up period since diagnosis was 6.3 years (SD 1.3 years, range 3.6-8.6 years)**	**Sample size:** N=148 **Diagnoses:** N(%) Burkitt/AML n=16 (10.8) ALL/LL n=62 (41.9) HL n=25 (16.9) Cerebral tumor: n=12 (8.1) Solid tumor: n=33 (22.3) **Age at diagnosis:** 8.72 years (SD 5.44 years; range 0.1-18.2 years) **Age at study:** 15 years (SD 5.3 years, range 7.3-25.1 years) **Controls:** N=194 siblings (mean age 17.2 years (range 7-35 years)) and healthy schoolchildren identified from registries: - N=63,550 of one subdivision attending primary school - N=219,021 children of 4 subdivisions attending secondary school	<u>N, %:</u> No chemotherapy 9, 6.1% Systemic chemotherapy 65, 43.9% Systemic and intrathecal chemotherapy 74, 50% Bone marrow transplant 17, 11.5% Surgery 51, 34.5% Cerebral surgery 11, 7.4% Radiotherapy 50, 33.8% Cerebral irradiation 13, 8.8%	**Risk factors for repeating a grade: univariate analysis (student t-test, Chi², Fisher tests):** Not significant: • Sex, diagnosis, hematologic malignancies, cerebral irradiation, chemotherapy, educational support at hospital, educational support at school, individual education plan Significant differences: • Bone marrow transplant: 52.9% of survivors with BMT had to repeat a grade (vs. 25.2% of survivors without BMT, p=0.017) • Cerebral surgery: 54.5% of survivors with cerebral surgery had to repeat a grade (vs. 26.3% of survivors without cerebral surgery, p=0.045) • Children's education level at time of diagnosis: 14.6% of survivors who were in primary school or below had to repeat a grade vs. 53.8% of survivors who were in secondary school (p<0.0001) • Education level of parents: 44.7% of survivors whose father had level 1 education had to repeat a grade vs. 11.4% of survivors whose father had level 2 education (p<0.0001) • Education level of parents: 43.1% of survivors whose father had level 1 education had to repeat a grade vs. 18.4% of survivors whose father had level 2 education (p=0.001) • Educational support at home: 39.0% of survivors who received help at home had to repeat a grade vs. 11.1% who received institutional and parental help vs. 28.3% who received no help at home (p=0.014) • Physical sequelae: 38.6% of survivors with physical sequelae had to repeat a grade vs. 22.0% of survivors without **Risk factors for repeating a grade: Multivariate regression analysis:** • Diagnosis: Cerebral tumor (Ref. Hematologic malignancy) OR=2.8 (95%CI:0.5-15.3) • Diagnosis: Solid tumor (Ref. Hematologic malignancy) OR=0.5 (95%CI:0.1-1.5) • Bone marrow transplant: Yes (Ref. No) OR=3.2 (95%CI:0.8-12.8) • **Children's education level at time of diagnosis: Secondary (Ref. primary or below) OR=4.4 (95%CI:1.7-11.6)** • **Education level of father: Low (Ref. High) OR=7 (95%CI:2.4-20.6)** • Educational help at home: Parental help at home (Ref. unclear) OR=0.4 (95%CI:0.1-1.7) • **Educational help at school: No (Ref. Yes) OR=4.9 (95%CI:1.5-16)** • Physical sequelae: Yes (Ref. No) OR=2.1 (95%CI:0.8-5.8) **Risk factors employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear >75% of eligible responded 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Holmqvist et al. **Young age at diagnosis is a risk factor for negative late socio-economic effects after acute lymphoblastic leukemia in childhood. 2010**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1999** **Years of follow-up:** **Unclear**	**Sample size:** N=167 **Diagnoses:** Acute lymphoblastic leukemia (ALL) **Age at diagnosis:** Mean age at diagnosis was 6.0 years (SD 4.3 years) **Age at study:** 16-24 years: 35.9% 25-29 years: 25.7% 30-34 years: 22.8% ≥35 years: 15.6% **Controls:** N = 8,350 Swedish Total Population Register (matched by sex, year of birth, and municipality of residence in the year of diagnosis)	Patients >25 years at data collection (n = 107): Chemotherapy alone n=30 Cranial irradiation and chemotherapy n=77 Patients > 30 years at data collection (n = 64): Chemotherapy alone n=7	**Risk educational outcomes:** - Survivors completed secondary school to the same extent: Completed secondary school: survivors (n=137, 92.6%) and controls (n=7111, 95.8%, p=0.055) - Survivors completed high school less often than the controls: Graduated from high school: survivors (n=115, 78.8%) and controls (n=6070, 84.5%, p=0.042) - Those who completed high school had the same graduation grade: High school graduation grade: survivors (mean=13.33, SD=2.65) and controls (mean=13.46, SD=2.76; p=0.485). - Survivors were older at completion of secondary school and at age at graduation from high school: Age at completion of secondary school: survivors (mean 16.07 years, SD=0.25), controls (mean 16.00 years, SD=0.20; p<0.001) Age at graduation from high school: survivors (mean 19.16 years, SD=0.74) and controls (mean 18.98 years, SD=0.60; p=0.005) - Stratified by parents achieved education (at least one parent with a college or university degree), survivors achieved a lower level of education both at 25 years and 30 years, than their controls: survivor/control with a max. education of secondary school (25 years: 19% vs. 5%, 30 years: 25% vs. 3%), high school (25 years: 36% vs. 35%, 30 years: 50% vs. 32%), college/university <2 years (25 years: 3% vs. 19%, 30 years: 0% vs. 10%), college/university ≥2 years (25 years: 42% vs. 41%, 30 years: 25% vs. 55%) (p<0.001; not longitudinally observed!!) **Risk employment outcomes:** - Employment at 25 years was comparable: survivors (67.3% employed) and controls (67.8% employed, p=0.909) - A lower proportion of survivors was employed at the age of 30 than controls (69.8% vs. 82.3%, p=0.011)	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear >75% of eligible participated 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear Main outcome available for >75% of participants 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☐Yes/☒no/ ☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Holmqvist et al. Young age at diagnosis is a risk factor for negative late socio-economic effects after acute lymphoblastic leukemia in childhood. 2010

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** 1970-1999 **Years of follow-up:** Unclear	Sample size: N=167 Diagnoses: Acute lymphoblastic leukemia (ALL) Age at diagnosis: Mean age at diagnosis was 6.0 years (SD 4.3 years) Age at study: 16-24 years: 35.9% 25-29 years: 25.7% 30-34 years: 22.8% ≥35 years: 15.6% Controls: N = 8,350 Swedish Total Population Register (matched by sex, year of birth, and municipality of residence in the year of diagnosis)	Patients >25 years at data collection (n=107): Chemo-therapy alone n=30 Cranial irradiation and chemo-therapy n=77 Patients > 30 years at data collection (n=64): Chemo-therapy alone n=7	**Risk factors educational outcomes:** They did not do systematic risk factor analyses, but compared survivors treated with CRT with controls, and did analyses stratified by age at diagnosis (compared to controls). **Impact of CRT dose on level of education (from logistic regression):** - Cranially irradiated survivors completed secondary school less vs. non-irradiated survivors (87% vs. 100%, p=0.003; data not shown) - Cranially irradiated survivors completed secondary school and graduated from high school less frequently vs. controls (87% vs. 96%, p<0.001 and 74% vs. 84%, p=0.007, respectively) - Within this group of survivors, we found that the higher the dose of irradiation given, the lower the likelihood that the survivor had a college or university education (p=0.017, OR=0.95, 95%CI:0.92–0.99; data not shown) - It is noteworthy that no significant differences were found between the non-irradiated survivors and their controls concerning completion of secondary school or graduation from high school. The non-irradiated survivors were only slightly older when completing secondary school (16.0% vs. 16.1% years, p=0.005). **Influence of age at diagnosis on graduation grade from high school (ANOVA)):** - Survivors diagnosed age of 10–17 completed secondary school to lesser extent vs. controls and those diagnosed at the age of 5–9 (OR=0.16, 95%CI:0.05-0.92) - Survivors diagnosed age of 10–17 with ≥1 parent with a college or university degree graduated to a lesser extent from high school vs. controls (OR=0.11, 95%CI:0.03-0.44) - Survivors diagnosed before the age of 5 less likely to have college or university degree at ages 25 (OR=0.36, 95%CI:0.17-0.77) and 30 (OR=0.07, 95%CI:0.02-0.31) vs. those diagnosed at an older age and controls - At age 30, fewer male survivors (21%) had a college or university degree vs. male controls (39%; OR=0.38, 95%CI:0.14-0.99) - At age 30, fewer female survivors (18%) had a college or university degree vs. female controls (43%; OR=0.22, 95%CI:0.09-0.57) and male controls (39%; OR=0.29, 95%CI:0.11-0.77) **Risk factors employment outcomes:** They did not do systematic risk factor analyses, but compared survivors treated with CRT with controls, and did analyses stratified by age at diagnosis (compared to controls). **Impact of CRT dose on employment (from logistic regression):** - Survivors treated with cranial irradiation employed less vs. controls at age 30 (68% vs. 84%, p=0.002) No differences between non-irradiated survivors and their controls with regard to employment. - Survivors diagnosed at age of 5–9 employed less at age 30 than other survivors and controls (OR=0.29, 95%CI:0.11-0.76, p=0.012) Gender had no significant influence on employment status.	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☐Yes/☒no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Lancashire et al. **Educational attainment among adult survivors of childhood cancer in Great Britain: a population-based cohort study. 2010**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Diagnosed between 1940-1991** **Years of follow-up:** **≥5 year survival**	**Sample size:** N=10183 British Childhood Cancer Survivor Study (BCCSS) Information on highest educational qualification available for 10183 survivors. **Diagnoses:** CNS neoplasm: n=2147 Leukemia: n=2780 Hodgkin disease: n=732 Non-Hodgkin lymphoma: n=525 Neuroblastoma: n=412 Retinoblastoma: n=687 Wilms tumor: n=945 Bone sarcoma: n=390 Soft tissue sarcoma: n=701 Other neoplasm: n=864 **Age at diagnosis:** Range: 0-14 years (mean or median not reported) **Age at study:** Range: 16-50 years (mean or median not reported) **Controls:** N=12575 2002 General Household Survey (GHS)	Surgery: n=4176 Radiotherapy (other): n=2234 Radiotherapy (cranial): n=2883 Chemotherapy: n=3824 *(* Large n tx not known)*	**Risk factors educational outcomes:** At each level of educational attainment survivors perform worse than general population (p<0.001) - Degree: (OR=0.77, 99%-CI: 0.68-0.87) - Teaching qualification: (OR=0.85, 99%-CI: 0.77-0.94) - A'level: (OR=0.85, 99%-CI: 0.78-0.93) - O'level: (OR=0.81, 99%-CI: 0.74-0.90) However, when these overall deficits were considered by childhood cancer type, it became apparent that, at all levels, they were restricted exclusively to CNS tumor and leukemia survivors: In comparison to the general population, deficits were observed for CNS tumor survivors at all educational levels, among both those exposed and unexposed to RT; however, those treated with RT consistently revealed greater deficits. Cranially irradiated leukemia survivors also consistently performed worse than the general population. (for details see CQ2) There was no statistically significant evidence of a deficit among survivors of any other type of childhood cancer. **Risk factors employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear Response rate of 70.7% in survivor group 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear Education data available for 10183/10488 survivors (97.1%) 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear Questionnaire 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear Comparison with control group adjusted for age and sex **Remarks:** 1. Degree = university degree or higher 2. Qualification = Teaching qualification or equivalent 3. A'levels = advanced levels or equivalent; taken > 2 years additional education; age 18 4. O'levels = ordinary levels; obtained > compulsory schooling; age 16

2. What are the risk factors for poor educational/employment outcomes?				
Lancashire et al. **Educational attainment among adult survivors of childhood cancer in Great Britain: a population-based cohort study. 2010**				
Study Design Treatment era Years of follow-up	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment Remarks**
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** Dx. 1940-1991 **Years of follow-up:** ≥5 year survival	**Sample size:** N=10488 British Childhood Cancer Survivor Study (BCCSS) Information on highest educational qualification available for 10183 survivors. **Diagnoses:** CNS neoplasm: n=2147 Leukemia: n=2780 Hodgkin disease: n=732 Non-Hodgkin lymphoma: n=525 Neuroblastoma: n=412 Retinoblastoma: n=687 Wilms tumor: n=945 Bone sarcoma: n=390 Soft tissue sarcoma: n=701 Other neoplasm: n=864 **Age at diagnosis:** 0-14 **Age at study:** 16->50 **Controls:** N=12575 2002 General Household Survey (GHS)	Surgery: n=4176 Radio-therapy (other): n=2234 Radio-therapy (cranial): n=2883 Chemo-therapy: n=3824 *(* Large n tx not known)*	**Risk factors influencing attainment of a Degree (from multivariable logistic regression, adjusted ORs):** • **Sex: Female (Ref. Male) OR=0.77 (95%CI:0.63-0.93)** • Age at study: 25-29 years (Ref. 21-24 years) OR=1.19 (95%CI:0.87-1.62) • Age at study: 30-34 years (Ref. 21-24 years) OR=0.75 (95%CI:0.54-1.05) • **Age at study: 35-39 years (Ref. 21-24 years) OR=0.65 (95%CI:0.44-0.94)** • **Age at study: 40-44 years (Ref. 21-24 years) OR=0.64 (95%CI:0.41-0.99)** • **Age at study: 45-49 years (Ref. 21-24 years) OR=0.57 (95%CI:0.34-0.96)** • **Age at study: ≥50 years (Ref. 21-24 years) OR=0.44 (95%CI:0.25-0.76)** • Cancer type: Leukemia (Ref. CNS neoplasm) OR=1.37 (95%CI:0.83-2.26) • Cancer type: Hodgkin disease (Ref. CNS neoplasm) OR=1.44 (95%CI:0.84-2.48) • Cancer type: Non-Hodgkin lymphoma (Ref. CNS neoplasm) OR=1.54 (95%CI:0.87-2.73) • Cancer type: Neuroblastoma (Ref. CNS neoplasm) OR=1.21 (95%CI:0.62-2.39) • **Cancer type: Retinoblastoma (Ref. CNS neoplasm) OR=1.94 (95%CI:1.07-3.52)** • Cancer type: Wilms tumor (Ref. CNS neoplasm) OR=1.53 (95%CI:0.88-2.65) • Cancer type: Bone sarcoma (Ref. CNS neoplasm) OR=1.71 (95%CI:0.98-2.99) • **Cancer type: Soft tissue sarcomas (Ref. CNS neoplasm) OR=1.73 (95%CI:1.06-2.83)** • **Cancer type: Other neoplasm (Ref. CNS neoplasm) OR=2.08 (95%CI:1.35-3.20)** • Surgery: Yes (Ref. No) OR=1.08 (95%CI:0.78-1.48) • Radiotherapy: Other radiotherapy (noncranial) (Ref. No radiotherapy) OR=1.10 (95%CI:0.85-1.44) • Radiotherapy: Cranial radiotherapy (Ref. No radiotherapy) OR=0.80 (95%CI:0.54-1.17) • Chemotherapy: Yes (Ref. No) OR=1.14 (95%CI:0.86-1.52) • **Age at diagnosis: 1-4 years (Ref. 0 years) OR=0.68 (95%CI:0.44-1.03)** • **Age at diagnosis: 5-9 years (Ref. 0 years) OR=0.92 (95%CI:0.58-1.45)** • **Age at diagnosis: 10-14 years (Ref. 0 years) OR=1.02 (95%CI:0.64-1.63)**** • Second primary tumor: Yes at age ≤21 years (Ref. no second tumor) OR=0.68 (95%CI:0.21-2.18) • Second primary tumor: Yes at age ≥22 years (Ref. no second tumor) OR=0.97 (95%CI:0.64-1.48) • **Epilepsy: Epilepsy or repeated seizures at age ≤21 years (Ref. no epilepsy/seizures) OR=0.59 (95%CI:0.35-0.98)** • Epilepsy: Epilepsy or repeated seizures at age ≥22 years (Ref. no epilepsy/seizures) OR=0.75 (95%CI:0.33-1.68) • Hearing problem: One or more hearing problems at age ≤21 years (Ref. no hearing problems) OR=0.78 (95%CI:0.45-1.34) • Hearing problem: One or more hearing problems at age ≥22 years (Ref. no hearing problems) OR=0.70 (95%CI:0.35-1.40) • Vision problem: One or more vision problems at age ≤21 years (Ref. no vision problems) OR=1.11 (95%CI:0.73-1.68) • Vision problem: One or more vision problems at age ≥22 years (Ref. no vision problems) OR=0.87 (95%CI:0.36-2.15) **Risk factors influencing attainment of a teaching qualification (from multivariable logistic regression, adjusted ORs):** • Sex: Female (Ref. Male) OR=0.90 (95%CI:0.76-1.05) • Age at study: 25-29 years (Ref. 21-24 years) OR=1.20 (95%CI:0.92-1.58) • Age at study: 30-34 years (Ref. 21-24 years) OR=0.83 (95%CI:0.63-1.10) • Age at study: 35-39 years (Ref. 21-24 years) OR=0.83 (95%CI:0.61-1.13) • Age at study: 40-44 years (Ref. 21-24 years) OR=0.78 (95%CI:0.54-1.13) • Age at study: 45-49 years (Ref. 21-24 years) OR=0.77 (95%CI:0.51-1.18) • **Age at study: ≥50 years (Ref. 21-24 years) OR=0.53 (95%CI:0.34-0.83)** • Cancer type: Leukemia (Ref. CNS neoplasm) OR=1.26 (95%CI:0.84-1.90) • Cancer type: Hodgkin disease (Ref. CNS neoplasm) OR=1.34 (95%CI:0.85-2.11) • Cancer type: Non-Hodgkin lymphoma (Ref. CNS neoplasm) OR=1.28 (95%CI:0.79-2.09) • Cancer type: Neuroblastoma (Ref. CNS neoplasm) OR=1.35 (95%CI:0.77-2.35)	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/☐unclear Response rate of 70.7% in survivor group 2. Is the follow-up adequate? ☒Yes/☐no/☐unclear Education data available for 10183/10488 survivors (97.1%) 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear Questionnaire 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/☐unclear Comparison with control group adjusted for age and sex

- **Cancer type: Retinoblastoma (Ref. CNS neoplasm) OR=1.91 (95%CI:1.17-3.13)**
- Cancer type: Wilms tumor (Ref. CNS neoplasm) OR=1.32 (95%CI:0.83-2.10)
- Cancer type: Bone sarcoma (Ref. CNS neoplasm) OR=1.41 (95%CI:0.88-2.28)
- **Cancer type: Soft tissue sarcomas (Ref. CNS neoplasm) OR=1.56 (95%CI:1.03-2.36)**
- **Cancer type: Other neoplasm (Ref. CNS neoplasm) OR=1.77 (95%CI:1.23-2.54)**
- Surgery: Yes (Ref. No) OR=1.05 (95%CI:0.81-1.39)
- Radiotherapy: Other radiotherapy (noncranial) (Ref. No radiotherapy) OR=1.06 (95%CI:0.84-1.34)
- Radiotherapy: Cranial radiotherapy (Ref. No radiotherapy) OR=0.91 (95%CI:0.66-1.23)
- Chemotherapy: Yes (Ref. No) OR=1.13 (95%CI:0.88-1.45)
- **Age at diagnosis: 1-4 years (Ref. 0 years) OR=0.84 (95%CI:0.58-1.22)**
- **Age at diagnosis: 5-9 years (Ref. 0 years) OR=1.14 (95%CI:0.77-1.70)**
- **Age at diagnosis: 10-14 years (Ref. 0 years) OR=1.18 (95%CI:0.78-1.77)****
- Second primary tumor: Yes at age ≤21 years (Ref. no second tumor) OR=0.45 (95%CI:0.15-1.32)
- Second primary tumor: Yes at age ≥22 years (Ref. no second tumor) OR=1.10 (95%CI:0.79-1.55)
- **Epilepsy: Epilepsy or repeated seizures at age ≤21 years (Ref. no epilepsy/seizures) OR=0.56 (95%CI:0.37-0.84)**
- **Epilepsy: Epilepsy or repeated seizures at age ≥22 years (Ref. no epilepsy/seizures) OR=0.44 (95%CI:0.21-0.93)**
- Hearing problem: One or more hearing problems at age ≤21 years (Ref. no hearing problems) OR=0.89 (95%CI:0.58-1.38)
- Hearing problem: One or more hearing problems at age ≥22 years (Ref. no hearing problems) OR=0.82 (95%CI:0.49-1.39)
- Vision problem: One or more vision problems at age ≤21 years (Ref. no vision problems) OR=1.06 (95%CI:0.75-1.50)
- Vision problem: One or more vision problems at age ≥22 years (Ref. no vision problems) OR=0.86 (95%CI:0.42-1.76)

Risk factors influencing achievement of A'levels (from multivariable logistic regression, adjusted ORs):
- **Sex: Female (Ref. Male) OR=0.79 (95%CI:0.68-0.91)**
- Age at study: 20-24 years (Ref. 18-19 years) OR=1.27 (95%CI:0.88-1.83)
- Age at study: 25-29 years (Ref. 18-19 years) OR=1.02 (95%CI:0.71-1.46)
- **Age at study: 30-34 years (Ref. 18-19 years) OR=0.63 (95%CI:0.44-0.92)**
- **Age at study: 35-39 years (Ref. 18-19 years) OR=0.59 (95%CI:0.40-0.88)**
- **Age at study: 40-44 years (Ref. 18-19 years) OR=0.64 (95%CI:0.42-0.98)**
- **Age at study: 45-49 years (Ref. 18-19 years) OR=0.58 (95%CI:0.36-0.93)**
- **Age at study: ≥50 years (Ref. 18-19 years) OR=0.33 (95%CI:0.20-0.53)**
- Cancer type: Leukemia (Ref. CNS neoplasm) OR=1.57 (95%CI:1.09-2.26)
- Cancer type: Hodgkin disease (Ref. CNS neoplasm) OR=1.21 (95%CI:0.80-1.83)
- Cancer type: Non-Hodgkin lymphoma (Ref. CNS neoplasm) OR=1.36 (95%CI:0.88-2.10)
- Cancer type: Neuroblastoma (Ref. CNS neoplasm) OR=1.46 (95%CI:0.91-2.35)
- **Cancer type: Retinoblastoma (Ref. CNS neoplasm) OR=1.83 (95%CI:1.18-2.83)**
- Cancer type: Wilms tumor (Ref. CNS neoplasm) OR=1.27 (95%CI:0.84-1.92)
- Cancer type: Bone sarcoma (Ref. CNS neoplasm) OR=1.36 (95%CI:0.87-2.10)
- **Cancer type: Soft tissue sarcomas (Ref. CNS neoplasm) OR=1.40 (95%CI:0.97-2.02)**
- **Cancer type: Other neoplasm (Ref. CNS neoplasm) OR=1.63 (95%CI:1.18-2.27)**
- Surgery: Yes (Ref. No) OR=1.17 (95%CI:0.91-1.49)
- Radiotherapy: Other radiotherapy (noncranial) (Ref. No radiotherapy) OR=1.16 (95%CI:0.94-1.44)
- **Radiotherapy: Cranial radiotherapy (Ref. No radiotherapy) OR=0.73 (95%CI:0.56-0.96)**
- Chemotherapy: Yes (Ref. No) OR=1.08 (95%CI:0.86-1.35)
- **Age at diagnosis: 1-4 years (Ref. 0 years) OR=0.84 (95%CI:0.61-1.16)**
- **Age at diagnosis: 5-9 years (Ref. 0 years) OR=1.16 (95%CI:0.82-1.65)**
- **Age at diagnosis: 10-14 years (Ref. 0 years) OR=1.27 (95%CI:0.88-1.83)****
- Second primary tumor: Yes at age ≤21 years (Ref. no second tumor) OR=0.56 (95%CI:0.21-1.53)
- Second primary tumor: Yes at age ≥22 years (Ref. no second tumor) OR=1.10 (95%CI:0.82-1.49)
- **Epilepsy: Epilepsy or repeated seizures at age ≤21 years (Ref. no epilepsy/seizures) OR=0.52 (95%CI:0.37-0.73)**
- **Epilepsy: Epilepsy or repeated seizures at age ≥22 years (Ref. no epilepsy/seizures) OR=0.43 (95%CI:0.25-0.73)**
- Hearing problem: One or more hearing problems at age ≤21 years (Ref. no hearing problems) OR=0.98 (95%CI:0.66-1.47)
- Hearing problem: One or more hearing problems at age ≥22 years (Ref. no hearing problems) OR=0.78 (95%CI:0.51-1.19)

Remarks:
1. Degree = university degree or higher
2. Qualification = Teaching qualification or equivalent
3. A'levels = advanced levels or equivalent; taken > 2 years additional education; age 18
4. O'levels = ordinary levels; obtained > compulsory schooling; age 16

**p-value for the association of attainment of a degree with the overall category "age at diagnosis" was p<0.001

- Vision problem: One or more vision problems at age ≤21 years (Ref. no vision problems) OR=1.08 (95%CI:0.80-1.47)
- Vision problem: One or more vision problems at age ≥22 years (Ref. no vision problems) OR=1.09 (95%CI:0.61-1.94)

Risk factors influencing achievement of O'levels (from multivariable logistic regression, adjusted ORs):
- Sex: Female (Ref. Male) OR=0.88 (95%CI:0.75-1.03)
- Age at study: 20-24 years (Ref. 16-19 years) OR=1.36 (95%CI:0.95-1.93)
- Age at study: 25-29 years (Ref. 16-19 years) OR=1.15 (95%CI:0.82-1.63)
- Age at study: 30-34 years (Ref. 16-19 years) OR=0.73 (95%CI:0.52-1.04)
- **Age at study: 35-39 years (Ref. 16-19 years) OR=0.64 (95%CI:0.44-0.93)**
- Age at study: 40-44 years (Ref. 16-19 years) OR=0.74 (95%CI:0.48-1.13)
- **Age at study: 45-49 years (Ref. 16-19 years) OR=0.44 (95%CI:0.28-0.69)**
- **Age at study: ≥50 years (Ref. 16-19 years) OR=0.29 (95%CI:0.18-0.45)**
- Cancer type: Leukemia (Ref. CNS neoplasm) OR=1.47 (95%CI:0.99-2.19)
- Cancer type: Hodgkin disease (Ref. CNS neoplasm) OR=1.02 (95%CI:0.64-1.62)
- Cancer type: Non-Hodgkin lymphoma (Ref. CNS neoplasm) OR=1.54 (95%CI:0.92-2.59)
- Cancer type: Neuroblastoma (Ref. CNS neoplasm) OR=1.43 (95%CI:0.84-2.43)
- **Cancer type: Retinoblastoma (Ref. CNS neoplasm) OR=2.32 (95%CI:1.39-3.87)**
- Cancer type: Wilms tumor (Ref. CNS neoplasm) OR=1.37 (95%CI:0.86-2.19)
- Cancer type: Bone sarcoma (Ref. CNS neoplasm) OR=1.42 (95%CI:0.84-2.39)
- Cancer type: Soft tissue sarcomas (Ref. CNS neoplasm) OR=1.30 (95%CI:0.85-1.97)
- **Cancer type: Other neoplasm (Ref. CNS neoplasm) OR=1.59 (95%CI:1.09-2.33)**
- Surgery: Yes (Ref. No) OR=1.10 (95%CI:0.84-1.45)
- Radiotherapy: Other radiotherapy (noncranial) (Ref. No radiotherapy) OR=1.06 (95%CI:0.82-1.37)
- **Radiotherapy: Cranial radiotherapy (Ref. No radiotherapy) OR=0.58 (95%CI:0.44-0.77)**
- Chemotherapy: Yes (Ref. No) OR=1.05 (95%CI:0.81-1.37)
- Age at diagnosis: 1-4 years (Ref. 0 years) OR=1.04 (95%CI:0.73-1.48)
- **Age at diagnosis: 5-9 years (Ref. 0 years) OR=1.49 (95%CI:1.00-2.21)**
- **Age at diagnosis: 10-14 years (Ref. 0 years) OR=1.78 (95%CI:1.18-2.68)**
- Second primary tumor: Yes at age ≤21 years (Ref. no second tumor) OR=0.72 (95%CI:0.24-2.14)
- Second primary tumor: Yes at age ≥22 years (Ref. no second tumor) OR=0.97 (95%CI:0.70-1.33)
- **Epilepsy: Epilepsy or repeated seizures at age ≤21 years (Ref. no epilepsy/seizures) OR=0.37 (95%CI:0.27-0.52)**
- **Epilepsy: Epilepsy or repeated seizures at age ≥22 years (Ref. no epilepsy/seizures) OR=0.60 (95%CI:0.39-0.93)**
- Hearing problem: One or more hearing problems at age ≤21 years (Ref. no hearing problems) OR=0.76 (95%CI:0.49-1.18)
- Hearing problem: One or more hearing problems at age ≥22 years (Ref. no hearing problems) OR=0.88 (95%CI:0.58-1.33)
- Vision problem: One or more vision problems at age ≤21 years (Ref. no vision problems) OR=1.08 (95%CI:0.77-1.50)
- Vision problem: One or more vision problems at age ≥22 years (Ref. no vision problems) OR=0.77 (95%CI:0.43-1.37)

Risk factors for university degree or higher (from generalized estimating equation logistic regression, taking into account the GHS (general household survey) weighting factor and controlling for age and sex):
- **Leukemia with radiotherapy (Ref. population data from the GHS) OR=0.60 (99%CI:0.49-0.75, p<0.001)**
- Hodgkin's disease (Ref. population data) OR=1.00 (99%CI:0.77-1.29, p=0.97)
- Non-Hodgkin lymphoma (Ref. population data) OR=1.01 (99%CI:0.74-1.38, p=0.93)
- **CNS neoplasm with radiotherapy (Ref. population data) OR=0.31 (99%CI:0.23-0.43, p<0.001)**
- **CNS neoplasm without radiotherapy (Ref. population data) OR=0.58 (99%CI:0.42-0.80, p<0.001)**
- Neuroblastoma (Ref. population data) OR=0.72 (99%CI:0.46-1.14, p=0.07)
- Retinoblastoma (Ref. population data) OR=1.17 (99%CI:0.89-1.55, p=0.14)
- Wilms tumor (Ref. population data) OR=0.87 (99%CI:0.68-1.14, p=0.18)
- Bone sarcomas (Ref. population data) OR=1.22 (99%CI:0.88-1.69, p=0.11)
- Soft tissue sarcomas (Ref. population data) OR=1.02 (99%CI:0.77-1.35, p=0.86)
- Other neoplasm (Ref. population data) OR=1.12 (99%CI:0.87-1.44, p=0.24)

Risk factors employment outcomes: N/A

1. What is the risk of poor educational/employment outcomes?

Boman et al. Long-term outcomes of childhood cancer survivors in Sweden: a population-based study of education, employment, and income. 2010

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Born 1963-1976** **Years of follow-up:** **Study = 2002**	**Sample size:** N=1716 Swedish national registers held by: National Board of Health and Welfare and Statistics Sweden **Diagnoses:** Leukemia: n=289 Lymphoma: n=200 CNS: n=537 Bone: n=81 Other: n=609 **Age at diagnosis:** < 16 years **Age at study:** Mean = 31.6 years **Controls:** N=1,456,089 Swedish national registers, survivors of adult cancers were excluded	Not reported	**Risk educational outcomes:** Highest attained education: Survivors General population Basic (≤9 years) 10.8% 8.8% Secondary 54.6% 54.4% Postsecondary (≥14 years) 34.7% 36.8% No p-values reported. **Risk employment outcomes:** Survivors General population Employment: 84.0% 77.0% No p-values reported.	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear Registry-based national cohort study 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear Registry-based data 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear Model 1 adjusted for year of birth and sex. Model 2 adjusted for year of birth, residency, socioeconomic status, and maternal country of birth. **Remarks:** Swedish Education: 1. Basic = ≤ 9 years of primary school 2. Secondary 3. Postsecondary = ≥14 years; ≥ 1 educational level completed after secondary school

2. What are the risk factors for poor educational/employment outcomes?				
Boman et al. Long-term outcomes of childhood cancer survivors in Sweden: a population-based study of education, employment, and income. 2010				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Born 1963-1976** **Years of follow-up:** **Study = 2002**	**Sample size:** N=1716 Swedish national registers held by: National Board of Health and Welfare and Statistics Sweden **Diagnoses:** Leukemia: n=289 Lymphoma: n=200 CNS: n=537 Bone: n=81 Other: n=609 **Age at diagnosis:** < 16 years **Age at study:** Mean = 31.6 years **Controls:** N=1,456,089 Swedish national registers, survivors of adult cancers were excluded	Not reported	Risk factors for Basic education only (≤9 years) (from logistic regression on the log scale of education), adjusted for year of birth, residency, socioeconomic status, and maternal country of birth: • Diagnosis: Leukemia/Lymphoma (Ref. Cancer-free population) OR=1.07 (95%CI:0.79-1.45) • **Diagnosis: CNS tumors (Ref. Cancer-free population) OR=1.80 (95%CI:1.45-2.23)** • Diagnosis: Other cancer (Ref. Cancer-free population) OR=1.05 (95%CI:0.82-1.36) Risk factors for Postsecondary education (≥14 years) (from logistic regression on the log scale of education), adjusted for year of birth, residency, socioeconomic status, and maternal country of birth: • Diagnosis: Leukemia/Lymphoma (Ref. Cancer-free population) OR=0.92 (95%CI:0.79-1.07) • **Diagnosis: CNS tumors (Ref. Cancer-free population) OR=0.69 (95%CI:0.58-0.81)** • Diagnosis: Other cancer (Ref. Cancer-free population) OR=1.09 (95%CI:0.97-1.22) Risk factors for Employment (excluding students; from logistic regression on the log scale of employment), adjusted for year of birth, residency, socioeconomic status, and maternal country of birth: • Diagnosis: Leukemia/Lymphoma (Ref. Cancer-free population) OR=0.98 (95%CI:0.89-1.08) • **Diagnosis: CNS tumors (Ref. Cancer-free population) OR=0.85 (95%CI:0.77-0.94)** • Diagnosis: Other cancer (Ref. Cancer-free population) OR=0.95 (95%CI:0.87-1.03) When the analysis was restricted to survivors without disability compensation, the risk ratios of employment became very similar to the general population: • Diagnosis: Leukemia/Lymphoma (Ref. Cancer-free population) OR=1.03 (95%CI:0.93-1.13) • Diagnosis: CNS tumors (Ref. Cancer-free population) OR=0.98 (95%CI:0.88-1.09) • Diagnosis: Other cancer (Ref. Cancer-free population) OR=0.99 (95%CI:0.90-1.08)	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear Registry-based national cohort study 2. Is the follow-up adequate? ☒Yes/☐no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear Registry-based data 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:** Swedish Education: 1. Basic = ≤ 9 years of primary school 2. Secondary 3. Postsecondary = ≥14 years; ≥ 1 educational level completed after secondary school

1. What is the risk of poor educational/employment outcomes?

Johannsdottir et al. Social outcomes in young adult survivors of low incidence childhood cancers. 2010

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1985-2001** **Years of follow-up:** **Time since diagnosis: mean 16 years (SD=3.7)**	**Sample size:** N=247 **Diagnoses:** Acute myeloid leukemia (AML): n=56 Infratentorial Astrocytoma (IA): n=88 Wilms tumor (WT): n=103 **Age at diagnosis:** Mean of 8 years (SD=4.1) **Age at study:** Mean of 23 years (SD=3.3) 19-23y: n=131 (53.0%) 24-28y: n=94 (38.1%) 29-34y: n=22 (8.9%) **Controls:** Age-equivalent group from Norwegian Census Study: n = 1814 Mean age at study: 27 years (SD=4.6)	Chemotherapy: n=20 Chemotherapy, surgery: n=48 Chemotherapy, radiation, surgery: n=52 Radiation, surgery: n=12 Surgery: n=66 Stem cell transplantation: n=39 Unknown: n=7 Other combinations: n=3	**Risk educational outcomes:** - After adjusting for age and gender, academic education (≥4 years at university) was completed by3 2% of survivors and 28% of controls (OR=1.33, p=0.1). - No significant differences across different diagnoses - Females were significantly more likely to have an academic education than males in both survivors and controls **Risk employment outcomes:** - The percentage being employed was significantly lower among survivors than controls: 59% of survivors and 77% of controls (OR=0.45, p<0.01) - The employment rate showed a linear increase by age in the control group but not among the survivors (significantly different trend for age, p=0.01) - No gender differences in employment in survivor group, only in controls (male controls have higher employment rate than female controls, p<0.01) - No significant differences for employment and social benefits across different diagnoses - Recipients of social benefits: 6.7% of survivors and 3.1% of controls (OR=2.31, p<0.01)	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear 74% of eligible responded 2. Is the follow-up adequate? ☐Yes/☐no/ ☒unclear Unclear how many participants reported on the main outcomes 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☐Yes/☒no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Van Dijk et al. **Restrictions in daily life after retinoblastoma from the perspective of the survivors. 2010**

Study Design / Treatment era / Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment / Remarks

Study Design:
☒ Cross-sectional study
☐ Case-control study
☐ Cohort study
☐ Qualitative study
☐ Systematic review
☐ RCT
☐ Other: (specify)
 	
Treatment era:
National retinoblastoma registry from 1945 - present
 	
Years of follow-up: Not reported
	Sample size:
	N=156
	
	Diagnoses:
	Retinoblastoma: n=156
	
	Age at diagnosis:
	mean = 1.7 (SD=1.8)
	
	Age at study:
	mean = 20.8 years (SD=8.1)
	8-17y: n=64
	18-35y: n=92
	
	Controls:
	Norms from the general population in the Netherlands
		Enucleation: n=91 (59%)
		
		External beam radiation therapy (EBRT): n=24 (15%)
		
		Enucleation, EBRT: n=38 (24%)
		
		Other therapies: n=3 (2%)
			Risk educational outcomes:
			- the highest level of education achieved by the survivors was significantly lower than that of the general population (p<0.01)
			- Highest level of education completed:
			  ▪ <u>Low</u>: 50 (47%) of survivors vs. 1445 (35%) of controls
			  ▪ <u>Intermediate</u>: 41 (38%) of survivors vs. 1733 (43%) of controls
			  ▪ <u>High</u>: 16 (15%) of survivors vs. 884 (22%) of controls
			- Non-attendance mainstream education:
			Given the average of 3.6% in the general Dutch population, the 37% of young RB survivors (8-17 years) who did not attend mainstream education (p<0.01) was considered high. Because of Dutch educational policies, 50% of these children were able to attend mainstream primary schools where they received special counseling from visual rehabilitation centers or associated schools. In the remaining 50%, the learning restrictions were so severe that survivors had to attend special education for visually impaired children.
			The percentage of adult RB survivors (18-35 years) who did not attend mainstream education (15%) was significantly higher than in the general Dutch population (p<0.01). Of these survivors, 57% attended a special school for visually impaired children and 21% of these finally completed vocational training.
			
			Risk employment outcomes:
			- Employment rates comparable to general Dutch population (data not shown)
			However, survivors reported mild (9%), moderate (9%), or severe (4%) vision-related difficulties at work
			- 4% reported to be unable to work to Retinoblastoma-related consequences
			- 26% reported influence on choice of profession due to Retinoblastoma
				Quality assessment:
				1. Is the study group representative?
				☐Yes/☒no/☐unclear
				<75% of eligible responded
				2. Is the follow-up adequate?
				☐Yes/☒no/☐unclear
				<75% of eligible responded
				3. Are the outcome assessors blinded?
				☐Yes/☐no/☒n.a./☐unclear
				4. Are the analyses adjusted for important confounding factors?
				☐Yes/☒no/☐unclear
				
				Remarks:
				Levels of education; <u>Low</u>, primary education, technical and vocational training or lower and intermediate general secondary education; <u>Intermediate</u>, intermediate vocational education, higher general secondary education or pre-university education; <u>High</u>, higher vocational education or university

1. What is the risk of poor educational/employment outcomes?				
Armstrong et al. Long-term outcomes among adult survivors of childhood central nervous system malignancies in the Childhood Cancer Survivor Study. 2009				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **1970-1986** **Years of follow-up:** **Baseline survey: 1994-1996**	**Sample size:** N=1877 **Diagnoses:** CNS tumor: n=1877 **Age at diagnosis:** median = 7.5 (range 0-20) 0-3y: n=500 (26.6%) 4-9y: n=699 (37.2%) 10-14y: n=462 (24.6%) 15-20y: n=216 (11.5%) **Age at study:** 0-14y: n=252 (13.4%) 15-19y: n=374 (19.9%) 20-24y: n=442 (23.5%) 25-29y: n=404 (21.5%) 30-34y: n=275 (14.7%) ≥35y: n=130 (6.9%) **Controls:** Siblings: n = 3899 Age at study: 0-14y: n=431 (11.1%) 15-19y: n=655 (16.8%) 20-24y: n=673 (17.3%) 25-29y: n=708 (18.2%) 30-34y: n=655 (16.8%) ≥35y: n=777 (19.9%)	Surgery only: n=431 (26.0%) Surgery, RT: n=689 (41.6%) Surgery, RT, chemo: n=447 (27.0%) Other: n=88 (5.3%) - additional information on cranial RT dose and RT location available	**Risk educational outcomes:** - Siblings were more likely than survivors to report college graduation (RR=1.4, 95%CI:1.3-1.5) **Risk employment outcomes:** - Siblings were more likely than survivors to report current employment (RR=1.4, 95%CI:1.3-1.5)	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☐Yes/☐no/ ☒unclear Unclear what percentage of participants reported on main outcome 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?				
Armstrong et al. **Long-term outcomes among adult survivors of childhood central nervous system malignancies in the Childhood Cancer Survivor Study. 2009**				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1986** **Years of follow-up:** **Baseline survey: 1994-1996**	**Sample size:** N=1877 **Diagnoses:** CNS tumor: n=1877 **Age at diagnosis:** median = 7.5 (range 0-20) 0-3y: n=500 (26.6%) 4-9y: n=699 (37.2%) 10-14y: n=462 (24.6%) 15-20y: n=216 (11.5%) **Age at study:** 0-14y: n=252 (13.4%) 15-19y: n=374 (19.9%) 20-24y: n=442 (23.5%) 25-29y: n=404 (21.5%) 30-34y: n=275 (14.7%) ≥35y: n=130 (6.9%) **Controls:** Siblings: n = 3899 Age at study: 0-14y: n=431 (11.1%) 15-19y: n=655 (16.8%) 20-24y: n=673 (17.3%) 25-29y: n=708 (18.2%) 30-34y: n=655 (16.8%) ≥35y: n=777 (19.9%)	Surgery only: n=431 (26.0%) Surgery, RT: n=689 (41.6%) Surgery, RT, chemo: n=447 (27.0%) Other: n=88 (5.3%) - additional information on cranial RT dose and RT location available	**Risk factors education below college graduate (from log-binomial generalized linear models, adjusted for sex, age at diagnosis, and the maximum radiation dose to any of the other three segments):** Region-specific cranial radiotherapy dose (all n.s.): • Posterior fossa: <30Gy (Ref. None) RR=1.0 (95%CI:0.8-1.3) • Posterior fossa: 30-49Gy (Ref. None) RR=1.0 (95%CI:0.8-1.3) • Posterior fossa: ≥50Gy (Ref. None) RR=1.0 (95%CI:0.8-1.3) • Temporal lobe: <30Gy (Ref. None) RR=0.9 (95%CI:0.7-1.2) • Temporal lobe: 30-49Gy (Ref. None) RR=1.2 (95%CI:0.9-1.5) • Temporal lobe: ≥50Gy (Ref. None) RR=1.2 (95%CI:1.0-1.5) • Frontal lobe: <30Gy (Ref. None) RR=1.0 (95%CI:0.8-1.2) • Frontal lobe: 30-49Gy (Ref. None) RR=1.1 (95%CI:0.8-1.4) • Frontal lobe: ≥50Gy (Ref. None) RR=1.2 (95%CI:0.9-1.6) • Occipital lobe: <30Gy (Ref. None) RR=0.9 (95%CI:0.8-1.2) • Occipital lobe: 30-49Gy (Ref. None) RR=0.9 (95%CI:0.8-1.2) • Occipital lobe: ≥50Gy (Ref. None) RR=1.0 (95%CI:0.8-1.3) **Risk factors for unemployment (from log-binomial generalized linear models, adjusted for sex, age at diagnosis, and the maximum radiation dose to any of the other three segments):** Region-specific cranial radiotherapy dose (all n.s.): • Posterior fossa: <30Gy (Ref. None) RR=1.1 (95%CI:0.6-1.8) • Posterior fossa: 30-49Gy (Ref. None) RR=1.3 (95%CI:0.8-2.4) • Posterior fossa: ≥50Gy (Ref. None) RR=1.2 (95%CI:0.7-1.9) • Temporal lobe: <30Gy (Ref. None) RR=1.1 (95%CI:0.7-1.9) • Temporal lobe: 30-49Gy (Ref. None) RR=1.5 (95%CI:1.0-2.4) • Temporal lobe: ≥50Gy (Ref. None) RR=1.7 (95%CI:1.1-2.6) • Frontal lobe: <30Gy (Ref. None) RR=1.2 (95%CI:0.7-2.3) • Frontal lobe: 30-49Gy (Ref. None) RR=1.6 (95%CI:0.9-3.0) • Frontal lobe: ≥50Gy (Ref. None) RR=2.1 (95%CI:1.1-4.a) • Occipital lobe: <30Gy (Ref. None) RR=1.1 (95%CI:0.6-1.9) • Occipital lobe: 30-49Gy (Ref. None) RR=1.2 (95%CI:0.7-2.2) • Occipital lobe: ≥50Gy (Ref. None) RR=1.5 (95%CI:0.8-2.7)	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☐Yes/☐no/ ☒unclear Unclear what percentage of participants reported on main outcome 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Lorenzi et al. Educational outcomes among survivors of childhood cancer in British Columbia, Canada: report of the Childhood/Adolescent/Young Adult Cancer Survivors (CAYACS) Program. 2009

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Childhood/Adolescent/ Young Adult Cancer Survivors (CAYACS) Program (in BC)** **Treatment era:** **First primary diagnosis between 1975 and 1995** **Years of follow-up:** **Inclusion criteria specify that only survivors are included that had survived for ≥5 years since diagnosis.**	**Sample size:** N=782 **Diagnoses:** Leukemia n=270 Lymphoma n=58 CNS n=166 Neuroblastoma n=48 Others n=240 **Age at diagnosis:** Mean = 4.6 years **Age at study:** N/A **Controls:** N=8386 randomly selected BC school children	Chemotherapy n=536 (68.5%) IT Chemotherapy n=292 (37.3%) IT MTX n=273 (34.9%) RT n=227 (29%) CRT n=149 (19.1%) Chemo + RT n=181 (23.1%)	**Risk educational outcomes:** "Study groups had similar levels of grade repetitions (21.5% among survivors and 22% among controls) and Foundational Skills Assessments (FSAs) participation rates (at least 95% of enrollees for all 9 examinations)." "In total, 254 (33%) of the 782 survivors had been designated to receive special education, including 150 survivors (19%) who were designated for special education because of a physical disability. Survivors were 3 times more likely to have a special education designation than the student sample (OR_{adj} 3.05; 95% CI:2.6-3.6). Survivors had more physical, visual, and hearing disability designations (OR_{adj} 21.47 [95%CI, 16.3-28.2], OR_{adj} 16.18 [95%CI 10.1-25.9] and OR_{adj} 9.69 [95% CI, 5.4-17.5]. respectively. There were no significant differences in the rates of learning disability or gifted designations." **Risk employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/ ☐unclear <75% of participants were linked successfully 2. Is the follow-up adequate? ☐Yes/☐no/ ☒unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Lorenzi et al. **Educational outcomes among survivors of childhood cancer in British Columbia, Canada: report of the Childhood/Adolescent/Young Adult Cancer Survivors (CAYACS) Program. 2009**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1975-1995** **Years of follow-up:** **Not reported**	**Sample size:** 782 **Diagnoses:** Leukemia n = 270 Lymphoma n = 58 CNS n = 166 Neuroblastoma n = 48 Others n = 240 **Age at diagnosis:** Mean = 4.6 years **Age at study:** Not reported **Controls:** Randomly selected comparison group of 8386 BC school children	Chemo = 536 (68.5%) IT Chemo = 292 (37.3%) IT MTX = 273 (34.9%) RT = 227 (29%) CRT = 149 (19.1%) Chemo + RT = 181 (23.1%)	**Risk factors for special education from multivariable logistic regression, adjusted for sex, urban/rural status, and socioeconomic status quintile:** • **Diagnosis: Leukemias (Ref. Controls) OR=3.06 (95%CI:2.34-3.99)** • **Diagnosis: CNS tumors (Ref. Controls) OR=6.11 (95%CI:4.40-8.49)** • **Diagnosis: Neuroblastomas (Ref. Controls) OR=2.29 (95%CI:1.21-4.32)** • **Diagnosis: Others (Ref. Controls) OR=2.06 (95%CI:1.56-2.72)** • Treatment: Intrathecal methotrexate (Ref. No IT MTX) OR=0.66 (95%CI:0.34-1.31) • Treatment: Radiotherapy (Ref. No radiotherapy) OR=1.03 (95%CI:0.72-1.48) • Treatment: Cranial radiotherapy (Ref. No cranial radiotherapy) OR=1.09 (95%CI:0.71-1.69) **Risk factors employment outcomes:** N/A	**Quality assessment:** 1. Is the study group representative? ☒Yes/☐no/ ☐unclear 2. Is the follow-up adequate? ☐Yes/☒no/ ☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/ ☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/ ☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Mader et al. **Education, employment and marriage in long-term survivors of teenage and young adult cancer compared with healthy controls. 2017**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1990-2005** **Years of follow-up:** **Time since diagnosis:** **Mean 11.9 years (SD 4.7)** **5-10 years: n=59 (36.9%)** **11-15 years: n=51 (31.9%)** **≥16 years: n=50 (31.3%)**	**Sample size:** N=160 **Diagnoses:** Leukemia n=13 (8.1%) Lymphoma n=60 (37.5%) CNS tumor n=15 (9.4%) Neuroblastoma n=2 (1.3%) Renal tumor n=3 (1.9%) Hepatic tumor n=0 (0.0%) Bone tumor n=6 (3.8%) Soft tissue sarcoma n=15 (9.4%) Germ cell tumor n=46 (28.8%) **Age at diagnosis:** Mean 21.1 years (SD 2.9) 16-20 years: n=90 (56.3%) 21-25 years: n=70 (43.8%) **Age at study:** Mean 33.5 years (SD 5.9) 20-29 years: n=43 (26.9%) 30-39 years: n=85 (53.1%) ≥40 years: n=32 (20.0%) **Controls:** Controls from the Swiss general population N=999 Age at study: Mean 36.9 years (SD 7.9) 20-29 years: n=210 (21.0%) 30-39 years: n=365 (36.5%) ≥40 years: n=424 (42.4%)	Surgery only n=57 (44.5%) Chemotherapy n=31 (24.2%) Radiotherapy n=40 (31.3%) Other: n=88 (5.3%)	**Risk educational outcomes**, controls were standardized on age, sex, and migration background according to TYA cancer survivors: Educational achievement of survivors differed significantly from that of controls (p=0.012): Educational achievement: / Survivors / Controls Basic education / 8.2% / 4.8% Vocational training/apprenticeship / 46.5% / 47.2% Upper secondary education / 33.3% / 26.7% University education / 11.9% / 21.3% **Risk employment outcomes**, controls were standardized on age, sex, and migration background according to TYA cancer survivors: We found no significant differences for employment (p=0.515): Employment status: / Survivors / Controls No / 8.8% / 10.5% Yes / 91.2% / 89.5%	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☒Yes/☐no/☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/☐unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?

Mader et al. **Education, employment and marriage in long-term survivors of teenage and young adult cancer compared with healthy controls. 2017**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ Cross-sectional study ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** 1990-2005 **Years of follow-up:** **Time since diagnosis:** **Mean 11.9 years (SD 4.7)** **5-10 years: n=59 (36.9%)** **11-15 years: n=51 (31.9%)** **≥16 years: n=50 (31.3%)**	**Sample size:** N=160 **Diagnoses:** Leukemia n=13 (8.1%) Lymphoma n=60 (37.5%) CNS tumor n=15 (9.4%) Neuroblastoma n=2 (1.3%) Renal tumor n=3 (1.9%) Hepatic tumor n=0 (0.0%) Bone tumor n=6 (3.8%) Soft tissue sarcoma n=15 (9.4%) Germ cell tumor n=46 (28.8%) **Age at diagnosis:** Mean 21.1 years (SD 2.9) 16-20 years: n=90 (56.3%) 21-25 years: n=70 (43.8%) **Age at study:** Mean 33.5 years (SD 5.9) 20-29 years: n=43 (26.9%) 30-39 years: n=85 (53.1%) ≥40 years: n=32 (20.0%) **Controls:** Controls from the Swiss general population N=999 Age at study: Mean 36.9 years (SD 7.9) 20-29 years: n=210 (21.0%) 30-39 years: n=365 (36.5%) ≥40 years: n=424 (42.4%)	Surgery only n=57 (44.5%) Chemotherapy n=31 (24.2%) Radiotherapy n=40 (31.3%) Other: n=88 (5.3%)	**Risk factors for having basic education only (from multivariable logistic regression)**, controls standardized on age, sex, and migration background according to TYA cancer survivors**:** • Population: Survivors (Ref. Controls) OR=1.93 (95%CI:0.95-3.91) • Sex: n.s. in univariable logistic regression • Age at study: n.s. in univariable logistic regression • **Migration background: Yes (Ref. No) OR=10.23 (95%CI:4.64-22.55)** In univariable logistic regression, diagnosis, treatment, age at diagnosis time since diagnosis, self-reported relapse and self-reported late effects were not statistically significantly associated with having basic education only. **Risk factors for unemployment (from multivariable logistic regression)**, controls standardized on age, sex, and migration background according to TYA cancer survivors**:** • Population: Survivors (Ref. Controls) n.s. in univariable logistic regression • **Sex: Female (Ref. Male) OR=2.52 (95%CI:1.36-4.68)** • Age at study: n.s. in univariable logistic regression • Migration background: n.s. in univariable logistic regression • **Educational achievement: Basic education (Ref. higher education) OR=2.78 (95%CI:1.01-7.65)** • **Marital status: Not married (Ref. married) OR=0.53 (95%CI:0.29-0.98)** • **Age at diagnosis: 16-20 years (Ref. 21-25 years) OR=5.29 (95%CI:1.32-30.79)** • **Self-reported late effects: Yes (Ref. No) OR=4.70 (95%CI:1.26-16.49)** In univariable logistic regression, diagnosis, treatment, time since diagnosis and self-reported relapse were not statistically significantly associated with unemployment.	**Quality assessment:** 1. Is the study group representative? ☐Yes/☒no/☐unclear <75% of eligible participated 2. Is the follow-up adequate? ☒Yes/☐no/☐unclear 3. Are the outcome assessors blinded? ☐Yes/☐no/☒n.a./☐unclear 4. Are the analyses adjusted for important confounding factors? ☒Yes/☐no/☐unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Hayek et al. Association of Exercise Intolerance With Emotional Distress, Attainment of Social Roles, and Health-Related Quality of Life Among Adult Survivors of Childhood Cancer. 2020				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Treated between 1962 and 2007** **Years of follow-up:** **Had survived 10 years or longer** **Country:** **USA, St. Jude Lifetime Cohort**	**Sample size:** N=1041 **Diagnoses:** n.a.* **Age at diagnosis:** n.a.* **Age at study:** n.a.* **Controls:** Community-based comparison group* *The characteristics of the study participants (survivors and controls) are summarized in Supplemental Tables and Figures, but this Supplemental Material cannot be found through the provided link: https://jamanetwork.com/journals/jamaoncology/article-abstract/2767392	n.a.*	**Risk educational outcomes:** Survivors were less likely than controls to report college graduation: Survivors: n=406 (44.1%) vs. Controls: n=141 (60.5%), p<0.001 **Risk employment outcomes:** Survivors were less likely than controls to report employment: Survivors: n=684 (77.4%) vs. Controls: n=192 (84.6%), p<0.001	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Wilson et al. Clinically Ascertained Health Outcomes, Quality of Life, and Social Attainment Among Adult Survivors of Neuroblastoma: A Report From the St. Jude Lifetime Cohort. 2020

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Before 1980: n=43 (32%)** **1980-1995: n=83 (61%)** **After 1995: n=10 (7%)** **Years of follow-up:** **≥10 years since diagnosis** **Country:** **USA, St. Jude Lifetime Cohort**	**Sample size:** N=136 **Diagnoses:** Neuroblastoma **Age at diagnosis:** Median age at diagnosis was 0.9 years (range 0-14.4 years) **Age at study:** Median 31.9 years (range 18.6-55.2 years) **Controls:** Community-based comparison group n=272, frequency-matched on age, sex, and race/ethnicity	Chemotherapy (any): n=101 (74%) Radiotherapy (any): n=30 (22%)	**Risk educational outcomes:** Survivors were more likely than controls to report "less than college graduation" (vs. some college/college graduate or better), but differences were not statistically significant: Survivors: 37.5% vs. Controls: 19.5% - Less than college degree: Survivors (Ref. Controls) PR=1.2 (95%CI:0.8-1.8), p=0.31 (adjusted for age at follow-up, sex, employment, household income) **Risk employment outcomes:** Survivors were more likely than controls to report "not currently working", but differences were not statistically significant: Survivors: 23.5% vs. Controls: 16.0% - Not currently working: Survivors (Ref. Controls) PR=1.3 (95%CI:0.8-2.1), p=0.26 (adjusted for age at follow-up, sex, education, household income)	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Lönnerblad et al. A nationwide, population-based study of school grades, delayed graduation, and qualification for school years 10-12, in children with brain tumors in Sweden. 2020

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **n.a.** **Years of follow-up:** **60% of all the children were at least 5-6 years after cancer diagnosis (information directly from the authors)** **Country:** **Sweden**	**Sample size:** N=475 **Diagnoses:** Brain tumor **Age at diagnosis:** 0-5 years: n=169 (35.6%) 6-9 years: n=117 (24.6%) 10-14 years: n=189 (39.8%) **Age at study:** n.a. **Controls:** N=2197 controls, available through Statistics Sweden	n.a.	**Risk educational outcomes:** **Qualifying for school years 10-12 (equivalent to upper secondary school or high school):** Survivors were less likely than controls to qualify for school years 10-12: Survivors: 77.3% vs. Controls: 90.6% - Qualification for school years 10-12: Controls (Ref. Survivors) OR=2.8 (95%CI:2.2-3.7), p<0.001 **Delayed graduation:** Survivors were more likely than controls to graduate with a delay: Survivors: 11.4% vs. Controls: 2.3% - Delayed graduation: Controls (Ref. Survivors) OR=5.4 (95%CI:3.6-8.0), p<0.001 **Risk employment outcomes:** n.a.	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Effinger et al. Long-term health and social function in adult survivors of pediatric astrocytoma: A report from the Childhood Cancer Survivor Study. 2019

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970–1975: n=273 (25.5%)** **1976–1980: n=307 (28.7%)** **1981–1986: n=490 (45.8%)** **Years of follow-up:** **Median time from diagnosis to last follow-up was 23.4 years (range 7.3–38.9)** **Country:** **USA, Canada; Childhood Cancer Survivor Study**	**Sample size:** N=1182 **Diagnoses:** Astrocytoma **Age at diagnosis:** 0-4 years: n=430 (36.4%) 5-9 years: n=330 (27.9%) 10-20 years: n=422 (35.7%) **Age at study:** <18 years: n=76 (6.4%) 18-24 years: n=200 (16.9%) 25-29 years: n=250 (21.2%) 30-34 years: n=241 (20.4%) 35-39 years: n=205 (17.3%) 40 years: n=210 (17.8%) **Controls:** N=4023 siblings <18 years: n=233 (5.8%) 18-24 years: n=539 (13.4%) 25-29 years: n=652 (16.2%) 30-34 years: n=667 (16.6%) 35-39 years: n=718 (17.9%) 40 years: n=1214 (30.2%)	No chemotherapy or radiation: n=375 (35.9%) Chemotherapy without radiation: n=17 (1.6%) Radiation without chemotherapy: n=454 (43.5%) Chemotherapy plus radiation: n=200 (19.1%) Radiation Therapy: Yes n=654 (62.5%) No n=393 (37.5%)	**Risk educational outcomes:** Survivors were less likely than siblings to earn a college degree or higher: Survivors: 40% vs. Siblings: 55% - College degree: Survivors (Ref. Siblings) RR=0.77 (95%CI:0.70-0.84), adjusted for age, sex, race, and chronic conditions **Risk employment outcomes:** Survivors were less likely than siblings to be employed: Survivors: 63% vs. Siblings: 84% - Currently employed: Survivors (Ref. Controls) RR=0.80 (95%CI:0.77-0.84), adjusted for age, sex, race, and chronic conditions	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Bonneau et al. Adolescence and Socioeconomic Factors: Key Factors in the Long-Term Impact of Leukemia on Scholastic Performance—A LEA Study. 2019				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Since 1980** **Years of follow-up:** **Mean 10.2 years (SD 6.2 years)** **Country:** **France, LEA (Leucémie de l'Enfant et de l'Adolescent/French Childhood Cancer Survivor Study for Leukemia) cohort**	**Sample size:** N=855 **Diagnoses:** ALL: n=737 (86.2%) AML: n=118 (13.8%) **Age at diagnosis:** Mean 6.0 years (SD 4.3 years) **Age at study:** Mean 16.2 years (SD 7.0 years) **Controls:** N=1304 siblings, reported by participants (or parents); mean age 18.5 years (SD 8.9 years) at study	HSCT: No: n=702 (82.1%) Yes: n=153 (17.9%) CNS irradiation (except TBI): No: n=795 (93.2%) Yes: n=58 (6.8%)	**Risk educational outcomes:** Prevalence of repeating a grade (survivors vs. siblings): At any time: 28.5% vs. 21.9% The risk of repeating a grade was higher for survivors than siblings: OR=1.87 (95%CI:1.48-2.35; p<0.001). **Risk employment outcomes:** n.a.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

2. What are the risk factors for poor educational/employment outcomes?				
Bonneau et al. **Adolescence and Socioeconomic Factors: Key Factors in the Long-Term Impact of Leukemia on Scholastic Performance—A LEA Study. 2019**				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Since 1980** **Years of follow-up:** **Mean 10.2 years (SD 6.2 years)** **Country:** **France, LEA (Leucémie de l'Enfant et de l'Adolescent/French Childhood Cancer Survivor Study for Leukemia) cohort**	**Sample size:** N=855 **Diagnoses:** ALL: n=737 (86.2%) AML: n=118 (13.8%) **Age at diagnosis:** Mean 6.0 years (SD 4.3 years) **Age at study:** Mean 16.2 years (SD 7.0 years) **Controls:** N=1304 siblings, reported by participants (or parents)	HSCT: No: n=702 (82.1%) Yes: n=153 (17.9%) CNS irradiation (except TBI): No: n=795 (93.2%) Yes: n=58 (6.8%)	**Risk factors for "repeating a grade" from multilevel logistic regression** (adjusting for sex, age at diagnosis, parental education level, household financial difficulties, history of repeating a grade, CNS irradiation, relapse, HSCT, time since diagnosis, and living in a traditional family unit at diagnosis)**:** • **Sex: Male (Ref. Female) OR=1.78 (95%CI:1.21-2.60; p=0.003)** • **Age at diagnosis: 11-17 years (Ref. <11 years) OR=2.70 (95%CI:1.63-4.48; p<0.001)** • **Educational support at home/hospital during treatment: Yes (Ref. No) OR=3.79 (95%CI:2.45-5.88; p<0.001)** • **Parental educational level: No diploma (Ref. More than high school) OR=4.60 (95%CI:2.27-9.31)** • **Parental educational level: Less than high school (Ref. More than high school) OR=2.50 (95%CI:1.66-3.75; p<0.001)** • **Financial difficulties at diagnosis: Yes (Ref. No) OR=2.62 (95%CI:1.61-4.28; p<0.001)** • History of repeating a grade:* n.s. • CNS irradiation:* n.s. • Relapse:* n.s. • HSCT:* n.s.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** *results only presented in Figure 2

1. What is the risk of poor educational/employment outcomes?

Wilhelmsson et al. **Long-term health outcomes in survivors of childhood AML treated with allogeneic HSCT: a NOPHO–AML Study. 2019**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **From July 1984, alive June 2012** **Years of follow-up:** **Median 13 years (range 3.5-28.5 years)** **Country:** **Sweden, Finland, Denmark, Norway;** **NOPHO-AML study**	**Sample size:** N=95 **Diagnoses:** Acute myeloid leukemia **Age at diagnosis:** Age at HSCT: 0-1 years: n=10 (11%) 2-9 years: n=46 (48%) 10+ years: n=39 (41%) **Age at study:** Median 22 years (range 5-35 years) **Controls:** N=35 siblings	Allogeneic hematopoietic stem cell transplantation: n=95 (100%)	**Risk educational outcomes:** Survivors were more likely to attend a learning disability program: Survivors n=22 (34%) vs. Siblings n=7 (14%) OR*=3.0 (95%CI:1.0-9.2), p=0.05 There were no statistically significant differences in education (age ≥20 years): Survivors n=44 (77%) vs. Siblings n=22 (65%) OR*=1.7 (95%CI:0.2-16), p>0.05 **Risk employment outcomes:** There were no statistically significant differences in employment status (age ≥20 years), "working full-time": Survivors n=23 (40%) vs. Siblings n=22 (65%) OR*=0.7 (95%CI:0.1-4.2), p>0.05 *OR from conditional regression analysis, adjusted for sex and age	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Zheng et al. Long-Term Psychological and Educational Outcomes for Survivors of Neuroblastoma: A Report From the Childhood Cancer Survivor Study. 2018

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ Case-control study ☐ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1970-1999** **Years of follow-up:** **≥5 years** **Country:** **USA, Canada; Childhood Cancer Survivor Study**	**Sample size:** N=859 **Diagnoses:** Neuroblastoma **Age at diagnosis:** <1 years: n=534 (62.2%) 1-1.99 years: n=184 (21.4%) 2-4.99 years: n=123 (14.3%) ≥5 years: n=18 (2.1%) **Age at study:** 8-11 years: n=157 (18.3%) 12-13 years: n=206 (24.0%) 14-15 years: n=250 (29.1%) 16-17 years: n=246 (28.6%) **Controls:** N=872 siblings; Siblings' age at study: 8-11 years: n=145 (16.6%) 12-13 years: n=172 (19.7%) 14-15 years: n=261 (30.0%) 16-17 years: n=294 (33.7%)	Overall treatment, No. (%) Surgery only: 259 (32.8) Surgery and chemotherapy: 292 (37.0) Surgery and radiation: 59 (7.5) Surgery, chemotherapy, and radiation: 163 (20.6) None/other combinations: 17 (2.1)	**Risk educational outcomes:** Survivors were more likely to use special education services: OR*=2.25 (95%CI:1.8-2.7), p<0.001 Survivors were more likely to have educational attainment less than college: OR*=1.71 (95%CI:1.2-2.5), p=0.007 **Risk employment outcomes:** There were no statistically significant differences in unemployment in last 12 months: OR*=1.42 (95%CI:0.8-2.5), p=0.24 *OR from log-binomial models, adjusted for sex and age	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Sato et al. Employment status and termination among survivors of pediatric brain tumors: a cross‑sectional survey. 2018				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **n.a.** **Years of follow-up:** **≥1 years since treatment completion** **Country:** **Japan**	**Sample size:** N=38 **Diagnoses*:** Brain tumors Germinoma n=34 (44%) Other germ cell tumor: n=9 (12%) Medulloblastoma/PNET n=7 (9%) Low-grade glioma n=16 (21%) High-grade glioma n=4 (5%) Other n=8 (10%) **Age at diagnosis:** Median age at diagnosis: 12 years (IQR=11-15; range 3-18 years) **Age at study:** Median age at study: 27 years (IQR=23-32; range 19-51 years) **Controls:** N=4091 controls from historical, population-based control group	Treatment information* Neurosurgery: n=71 (91%) Radiation: n=64 (82%) Chemotherapy: n=54 (69%) Stem cell transplantation: n=1 (1%) ***reported for the non-final sample of survivors only (n=78; before exclusion of survivors who were still in high school (aged 15-17 years) or in higher education (age ≥18 years))**	**Risk educational outcomes:** n.a. **Risk employment outcomes:** Survivors were more likely to be currently unemployed as compared to controls. Currently unemployed: Survivors: n=12 (31.6%; 95%CI:18%-49%) vs. Controls: 7.2%	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Nugent et al. Cognitive and Occupational Function in Survivors of Adolescent Cancer. 2018				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Not specified** **Years of follow-up:** **2+ years** **Country:** **USA**	**Sample size:** N = 23 **Diagnoses:** ALL (n=4, 17.4%) AML (n=1, 4.3%) Osteosarcoma (n=2, 8.7%) Chondrosarcoma (n=1, 4.3%) Ewing's sarcoma (n=2, 8.2%) Germ cell tumor (n=2, 8.7%) Hodgkin lymphoma (n=10, 43.4%) Non-Hodgkin lymphoma (n=1, 4.3%) **Age at diagnosis:** *M* = 17.4 yrs, *SD* = 1.9 yrs **Age at study:** *M* = 23.8 yrs, *SD* = 4.0 yrs **Controls:** "Healthy friend/sibling" of the same sex and within 2 years of the survivor's age N = 14 Age at study: *M* = 22.9 yrs, *SD* = 3.8 yrs	Not specified	**Risk educational outcomes:** N/A **Risk employment outcomes:** Occupation survivors n (%) vs. healthy comparisons n (%) Full-time student, not working 4 (17.4) vs. 3 (21.4) Student and part-time work 5 (21.7) vs. 4 (28.6) Student and full-time work 1 (4.3) vs. 0 (0.0) Part-time work only 3 (13.0) vs. 0 (0.0) Full-time work only 10 (43.4) vs. 7 (50) Survivors were less likely to be "full-time student, not working", "student and part-time work", and "full-time work only". Differences were not statistically tested. Survivors were more likely to be "student and full-time work" and "part-time work only". Differences were not statistically tested.	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☐ no/ ☒ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Frobisher et al. Employment status and occupational level of adult survivors of childhood cancer in Great Britain: The British Childhood Cancer Survivor Study. 2017

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **1940-1991** **Years of follow-up:** **5+ years** **Country:** **Great Britain; British Childhood Cancer Survivor Study**	**Sample size:** N = 10,257 **Diagnoses:** CNS neoplasm (n = 2153) Leukemia (n = 2819) Hodgkin lymphoma (n = 724) Non-Hodgkin lymphoma (n = 530) Neuroblastoma (n = 420) Retinoblastoma (n = 692) Wilms' tumor (n = 954) Bone sarcoma (n = 389) Soft tissue sarcoma (n = 706) Other (n = 870) **Age at diagnosis:** 0: 834 1-4: 3900 5-9: 2719 10-14: 2804 **Age at study:** 16-19: 1991 20-24: 1712 25-29: 1877 30-34: 1668 35-39: 1255 40-44: 744 45-49: 485 50-54: 333 55+: 192 **Controls:** N = 15,730 General Household Survey	Surgery: No = 3355 Yes = 4185 Not known = 2717 Radiotherapy: No = 2176 Non-cranial = 2231 Cranial = 2909 Not known = 2941 Chemotherapy: No = 3268 Yes = 3834 Not known = 3155	**Risk educational outcomes:** N/A **Risk employment outcomes:** Compared to the general population, survivors were less likely to be employed (OR = 0.89, 99% CI: 0.81-0.98) or caring for home/family (OR = 0.63, 99% CI: 0.53-0.74). Survivors were more likely to be unable to work due to illness/disability (OR = 4.99, 99% CI: 4.06-6.13). There was no significant difference from the general population for being a student (OR = 1.13, 99% CI: 0.97-1.32) or unemployed and looking for work (OR = 0.89, 99% CI: 0.72-1.09). Compared to the general population, survivors were less likely to be classified in a managerial/professional occupational level (OR = 0.85, 99% CI: 0.77-0.94). There was no There was no significant difference from the general population for being classified in a non-manual occupational level (OR = 1.03, 99% CI: 0.93-1.13).	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** 10,257 analyzed of 14,836 eligible (69%)

2. What are the risk factors for poor educational/employment outcomes?				
Frobisher et al. Employment status and occupational level of adult survivors of childhood cancer in Great Britain: The British Childhood Cancer Survivor Study. 2017				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**

Study Design:
 ☐ **Cross-sectional study**
 ☐ **Case-control study**
 ☒ **Cohort study**
 ☐ **Qualitative study**
 ☐ **Systematic review**
 ☐ **RCT**
 ☐ **Other: (specify)**
 	
 Treatment era:
 1940-1991
 	
 Years of follow-up:
 5+
 	
 Country:
 Great Britain; British Childhood Cancer Survivor Study
	Sample size:
	 N = 10,257
	
	 Diagnoses:
	 CNS neoplasm (n = 2153)
	 Leukemia (n = 2819)
	 Hodgkin lymphoma (n = 724)
	 Non-Hodgkin lymphoma (n = 530)
	 Neuroblastoma (n = 420)
	 Retinoblastoma (n = 692)
	 Wilms' tumor (n = 954)
	 Bone sarcoma (n = 389)
	 Soft tissue sarcoma (n = 706)
	 Other (n = 870)
	
	 Age at diagnosis:
	 0: 834
	 1-4: 3900
	 5-9: 2719
	 10-14: 2804
	
	 Age at study:
	 16-19: 1991
	 20-24: 1712
	 25-29: 1877
	 30-34: 1668
	 35-39: 1255
	 40-44: 744
	 45-49: 485
	 50-54: 333
	 55+: 192
	
	 Controls:
	 N = 15,730
	 General Household Survey
		Surgery:
		  No = 3355
		  Yes = 4185
		  Not known = 2717
		
		 Radiotherapy:
		  No = 2176
		  Non-cranial = 2231
		  Cranial = 2909
		  Not known = 2941
		
		 Chemotherapy:
		  No = 3268
		  Yes = 3834
		  Not known = 3155
			Risk factors for "employed" from multivariable logistic regression:
			 • Sex: Females less likely to be employed, OR(99%CI) = 0.58 (0.51-0.66)
			 • Current age: Likelihood increased with age but declined after 45-49 years
			 • Cancer diagnosis: All diagnoses except bone sarcoma more likely to be employed than CNS neoplasm
			 • Surgery: Survivors treated with surgery less likely to be employed than those treated without surgery, OR(99%CI) = 0.79 (0.64-0.96)
			 • Radiotherapy: Survivors treated with cranial radiotherapy were less likely to be employed than those who did not receive radiotherapy, OR(99%CI) = 0.62 (0.50-0.77)
			 • Age at diagnosis: Likelihood increased with age at diagnosis.
			 • Diagnosis of a SPT: Survivors diagnosed with SPT were less likely to be employed, OR(99%CI) = 0.68 (0.52-0.88)
			 • Epilepsy: Survivors with epilepsy were less likely to be employed, OR(99%CI) = 0.33 (0.27-0.42)
			 • Hearing problems: Survivors with hearing problems were less likely to be employed, OR(99%CI) = 0.75 (0.61-0.93)
			 • Visual problems: Survivors with visual problems were less likely to be employed, OR(99%CI) = 0.44 (0.36-0.54)
			 • Recurrence: Survivors with recurrence were less likely to be employed, OR(99%CI) = 0.69 (0.58-0.84)
			
			 Risk factors for "unable to work due to illness/disability" from multivariable logistic regression:
			 • Sex: Females more likely to be unable to work, OR(99%CI) = 1.33 (1.09-1.62)
			 • Current age: Likelihood increased with age but plateaus after 40-44 years
			 • Cancer diagnosis: All diagnoses except bone sarcoma less likely to be employed than CNS neoplasm
			 • Surgery: Survivors treated with surgery more likely to be unable to work than those treated without surgery, OR(99%CI) = 1.46 (1.09-1.94)
			 • Radiotherapy: Survivors treated with cranial radiotherapy were less likely to be employed than those who did not receive radiotherapy, OR(99%CI) = .51 (1.84-3.41)
			 • Age at diagnosis: Likelihood decreased with age at diagnosis.
			 • Diagnosis of a SPT: Survivors diagnosed with SPT were more likely to be unable to work, OR(99%CI) = 1.63 (1.17-2.27)
			 • Epilepsy: Survivors with epilepsy were more likely to be unable to work, OR(99%CI) = 4.89 (3.84-6.23)
			 • Hearing problems: Survivors with hearing problems were more likely to be unable to work, OR(99%CI) = 1.75 (1.35-2.32)
			 • Visual problems: Survivors with visual problems were more likely to be unable to work, OR(99%CI) = 3.00 (2.33-3.86)
			 • Recurrence: Survivors with recurrence were more likely to be unable to work, OR(99%CI) = 1.72 (1.33-2.22)
				Quality assessment:
				 1. Is the study group representative?
				 ☐ Yes/ ☒ no/ ☐ unclear
				
				 2. Is the follow-up adequate?
				 ☒ Yes/ ☐ no/ ☐ unclear
				
				 3. Are the outcome assessors blinded?
				 ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear
				 4. Are the analyses adjusted for important confounding factors?
				 ☒ Yes/ ☐ no/ ☐ unclear
				
				 Remarks:
				 10,257 analyzed of 14,836 eligible (69%)

1. What is the risk of poor educational/employment outcomes?

Fernandez-Pineda et al. Long-term functional outcomes and quality of life in adult survivors of childhood extremity sarcomas: a report from the St. Jude Lifetime Cohort Study. 2017

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** n.a. **Years of follow-up:** **>10 years from diagnosis to be included in the SJLIFE cohort** **Country:** **USA; St. Jude Lifetime cohort (SJLIFE)**	**Sample size:** N=206 **Diagnoses:** Bone sarcoma: Osteosarcoma n=105 (66.9%) Ewing sarcoma n=52 (33.1%) Soft tissue sarcoma (STS): Rhabdomyosarcoma n=9 (18.4%) Other soft tissue n=40 (81.6%) **Age at diagnosis:** Bone sarcoma: Median 13.7 years (range 2.9-23.6 years) Soft tissue sarcoma: Median 12.0 years (range 0-20.9 years) **Age at study:** Bone sarcoma: Median 38.2 years (range 21.3-65.1 years) Soft tissue sarcoma: Median 33.4 years (range 19.4-61.5 years) **Controls:** N=206 recruited from among parents, friends, and relatives; age at assessment median 33.3 years (range 19.3-50.8 years)	Surgery: bone sarcoma n (%) / STS n (%) Local control 129 (82.8) / 44 (89.8) Limb sparing 52 (33.1) / 7 (14.3) Excision of mass 9 (5.7) / 30 (68.2) Hip disarticulation/ hemipelvectomy 8 (5.1) / 2 (4.6) Above knee amputation 48 (30.6) / 2 (4.6) Below knee amputation 3 (1.9) / – Forequarter amputation 6 (3.8) / 1 (2.3) Above elbow amputation 2 (1.3) / – Below elbow amputation 2 (1.3) / 2 (4.6) Radiation: bone sarcoma n / STS n Chest 6 / 6 Limb 26 / 20 Chemotherapy: bone sarcoma n / STS n Anthracycline 146 / 19 Alkylating agents 150 / 24 Platinum 73 / 5	**Risk educational outcomes:** Survivors and controls had similar percentages for college attendance (63.6 vs. 68.5 %, P=0.06). **Risk employment outcomes:** Survivors and controls had similar percentages for employment (70.9 vs. 75.7 %, P=0.14).	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Andersen et al. Ninth grade school performance in Danish childhood cancer survivors. 2017

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **n.a.** **Years of follow-up:** **n.a.** **Country:** **Denmark (Danish Cancer Registry data)**	**Sample size:** N=1320 **Diagnoses:** Leukaemia n=417 (31.6%) Lymphomas n=158 (12.0%) CNS tumour n=269 (20.4%) Neuroblastoma n=54 (4.1%) Retinoblastoma n=55 (4.2%) Renal tumour n=75 (5.7%) Hepatic tumour n=14 (1.1%) Bone tumour n=62 (4.7%) Soft tissue sarcoma n=70 (5.3%) Germ-cell tumour n=38 (2.9%) Malignant epithelial tumour n=93 (7.0%) Other malignant neoplasm n=15 (1.1%) **Age at diagnosis:** 0-2 years: n=199 (15.1%) 2-5 years: n=326 (37.7%) 5-10 years: n=332 (25.2%) 10-15 years: n=463 (35.1%) **Age at study:** Mean 15.2 years (SD 0.44) **Controls:** N=792,012 comparisons from the general population (Danish civil registration data). Age at study: Mean 15.32 years (SD 0.48)	n.a.	**Risk educational outcomes:** More survivors than comparisons completed school with a delay (7.9% vs. 5.0%; OR=1.63 (95%CI:1.34-2.00). Survivors of CNS tumours (9.7%, lymphomas (9.5%), retinoblastoma (9.3%) and leukaemia (8.8%) were those who most often experienced a delay in passing the ninth-grade exam. **Risk employment outcomes:** n.a.	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Ahomäki et al. **Non-graduation after comprehensive school, and early retirement but not unemployment are prominent in childhood cancer survivors—a Finnish registry-based study. 2017**

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Years of follow-up:** **Brain tumors: Median 18.7 years (range 1.1-42.3)** **Leukemia and NHL: Median 19.3 years (range 1.4-39.2)** **Solid tumors: Median 18.7 years (range 1.0-44.3)** **Country:** **Finland (Finnish Cancer Registry)**	**Sample size:** N=3242 **Diagnoses:** Brain tumors: n=792 Leukemia and Non-hodgkin lymphoma (NHL): n=1001 Solid tumors: n=1450 **Age at diagnosis:** 0-16 years **Age at study:** Brain tumors: Median 27.1 years (range 17.0-49.8) Leukemia and NHL: Median 26.7 years (range 17.0-49.1) Solid tumors: Median 28.0 years (range 17.0-49.9) **Controls:** For each cancer survivor, five age, sex, and place of residence matched controls as well as the parents of all survivors and controls were identified from the Finnish Population Register Centre (PRC).	Proportion irradiated: Brain tumors: 32% Leukemia and NHL: 38% Solid tumors: 37%	**Risk educational outcomes:** Brain tumor survivors n (%) vs. comparisons n (%), p<0.001: No graduation 265 (33.5) vs. 910 (23.0) Upper secondary 391 (49.4) vs. 2022 (51.1) Lowest level tertiary 39 (4.9) vs. 227 (5.7) Lower-degree level tertiary 65 (8.2) vs. 462 (11.7) Higher-degree level tertiary 31 (3.9) vs. 319 (8.1) Doctorate 1 (0.1) vs. 20 (0.5) Solid tumor survivors n (%) vs. comparisons n (%), p=0.02: No graduation 362 (25.0) vs. 1550 (21.4) Upper secondary 686 (47.3) vs. 3662 (50.5) Lowest level tertiary 91 (6.3) vs. 465 (6.4) Lower-degree level tertiary 164 (11.3) vs. 862 (11.9) Higher-degree level tertiary 141 (9.7) vs. 672 (9.3) Doctorate 6 (0.4) vs. 38 (0.5) Leukemia/NHL survivors n (%) vs. comparisons n (%), p<0.001: No graduation 292 (29.2) vs. 1154 (23.1) Upper secondary 506 (50.6) vs. 2536 (50.7) Lowest level tertiary 40 (4.0) vs. 235 (4.7) Lower-degree level tertiary 109 (10.9) vs. 634 (12.7) Higher-degree level tertiary 50 (5.0) vs. 416 (8.3) Doctorate 4 (0.4) vs. 30 (0.6) **Risk employment outcomes:** Brain tumor survivors n (%) vs. comparisons n (%): Unemployment: 72 (10.1) vs. 352 (9.1); OR=1.2 (95%CI:0.9-1.5, p=0.27) Early retirement: 140 (19.7) vs. 64 (1.7); OR=14.8 (95%CI:10.4-21.0, p<0.001) Solid tumor survivors n (%) vs. comparisons n (%): Unemployment: 110 (8.2) vs. 570 (8.1); OR=1.0 (95%CI:0.8-1.3, p=0.85) Early retirement: 55 (4.1) vs. 140 (2.0); OR=2.2 (95%CI:1.5-3.0, p<0.001) Leukemia/NHL tumor survivors n (%) vs. comparisons n (%): Unemployment: 84 (9.1) vs. 382 (7.8); OR=1.2 (95%CI:0.9-1.5, p=0.26) Early retirement: 57 (6.1) vs. 84 (1.7); OR=4.0 (95%CI:2.8-5.8, p<0.001)	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Ehrhardt et al. Neurocognitive, Psychosocial, and Quality of life outcomes in adult survivors of childhood non-hodgkin lymphoma. 2018

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **n.a.** **Years of follow-up:** **Median 25.5 years from diagnosis (range, 10.5-47.7)** **Country:** **USA, St. Jude Lifetime Cohort Study (SJLIFE)**	**Sample size:** N = 187 **Diagnoses:** Non-hodgkin lymphoma **Age at diagnosis:** Median age 10.4 years (range, 1.8-20.8 years) **Age at study:** 35.1 years (unclear whether this is mean or median) **Controls:** N = 181 recruited from acquaintances of St. Jude patients, survivors, and employees.	CRT (23%) High-dose methotrexate (37%) High-dose cytarabine (21%) Anthracyclines (79%) Intrathecal chemotherapy (81%)	**Risk educational outcomes:** There was no significant difference between survivors and controls in educational attainment (≥ college graduate vs. < college graduate, p=0.08) Survivors vs. community controls: ≥ college: 39% vs. 49% < college: 61% vs. 51% **Risk employment outcomes:** There was no significant difference between survivors and controls in full-time employment (p=0.44). Survivors vs. community controls: Full-time: 71% vs. 74% Less than full-time: 29% vs. 26%	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?

Gunnes et al. Economic Independence in Survivors of Cancer Diagnosed at a Young Age: A Norwegian National Cohort Study. 2016

Study Design / Treatment era / Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment / Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** **Cohort included all individuals born between 1965 and 1985. Follow-up was through 2007.** **Years of follow-up:** n.a. **Country:** **Norway**	**Sample size:** N = 5440 cancer survivors **Diagnoses:** All diagnoses with the largest groups being CNS tumors (20%), leukemia (16%), testicular cancer (14%) and lymphoma (13%). **Age at diagnosis:** 0-14 years n = 2139 15-24 years n = 3301 **Age at study:** Not reported **Controls:** Survivors were compared to 595,089 non-cancer controls	Not specified	**Risk educational outcomes:** n.a. **Risk employment outcomes:** Cancer survivors had a 34% increased risk of not being employed (HR, 1.3; 95% CI, 1.2-1.5) compared with those in the noncancer group. There was a significantly increased risk of unemployment among survivors of lymphoma (women), CNS tumors (both sexes), testicular cancer, and bone and soft tissue cancer (men), regardless of age at diagnosis.	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**

1. What is the risk of poor educational/employment outcomes?				
Guy et al. Annual economic burden of productivity losses among adult survivors of childhood cancers.. 2016				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Not specified** **Years of follow-up:** **N/A** **Country:** **USA; 2004-2014 National Health Interview Survey NHIS) Sample**	**Sample size:** N = 239 **Diagnoses:** Leukemia/blood – 21% Brain – 14% Lymphoma – 9% Remaining not specified **Age at diagnosis:** 0-14 not further specified; 72% were 20+ years from diagnosis **Age at study:** 18-34: 92 (42%) 35-50: 72 (33%) 51-64: 32 (12%) ≥65: 43 (13%) **Controls:** N = 304,265 adults with no history of cancer from NHIS Age: 18-34: 90,267 (32%) 35-50: 90,474 (31%) 51-64: 67,692 (22%) ≥65: 55,832 (15%)	Not specified	**Risk educational outcomes:** N/A **Risk employment outcomes:** Adult survivors of childhood cancers were less likely to be employed (54.3% vs 69.6%; P < .001) and more likely to report being unable to work because of health (18.7% vs 7.1%; P < .001) during the past year.	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** Random sample through NHIS; adjusted for age, sex, race/ethnicity, education, number of comorbid conditions, and survey year

1. What is the risk of poor educational/employment outcomes?

King et al. Long-term neurologic health and psychosocial function of adult survivors of childhood medulloblastoma/PNET: a report from the Childhood Cancer Survivor Study. 2017

Study Design Treatment era Years of follow-up	Participants	Treatment	Main outcomes	Quality assessment Remarks
Study Design: ☐ Cross-sectional study ☐ Case-control study ☒ Cohort study ☐ Qualitative study ☐ Systematic review ☐ RCT ☐ Other: (specify) **Treatment era:** 1970-1986 **Years of follow-up:** 5+ **Country:** **USA; Childhood Cancer Survivor Study**	**Sample size:** N = 380 **Diagnoses:** Medulloblastoma **Age at diagnosis:** 0-4: 127 (33%) 5-9: 150 (40%) 10-14: 76 (20%) >14: 27 (7%) **Age at study:** Median = 30 years IQ range: 24-36 **Controls:** N = 4031 siblings	Radiotherapy: None = 8 (2%) Cranial = 11 (3%) Craniospinal = 312 (94%) Unknown = 49 Chemotherapy: No = 140 (41%) Yes = 202 (59%) Not known = 39	**Risk educational outcomes:** Survivors were less likely than siblings to earn a college degree (relative risk [RR]: 0.49, 95% CI: 0.39–0.60). **Risk employment outcomes:** Survivors were less likely than siblings to be employed ≥30 hours/week (RR: 0.59, 95% CI: 0.50–0.69).	**Quality assessment:** 1. Is the study group representative? ☐ Yes/ ☒ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☐ Yes/ ☒ no/ ☐ unclear **Remarks:** 380/564 eligible = 67%; outcomes assessed at baseline

1. What is the risk of poor educational/employment outcomes?				
Maule et al. Surviving a childhood cancer: impact on education and employment. 2017				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Diagnosed with cancer after 1971-2001.** **Years of follow-up:** **Country:** **Italy**	**Sample size:** N = 637 **Diagnoses:** Tumours of the lymphohaemopoietic system (n = 252; 46.5%) Tumours of the central nervous system (n = 116; 22.3%) All other malignancies (n=162; 31.2%) **Age at diagnosis:** 0 n=35 1-4 n=151 5-9 n=149 10-14. n=185 **Age at study:** N/A **Controls:** The general population of Turin.	Not described.	**Risk educational outcomes:** Individuals cured of a tumour during childhood are less likely to obtain educational qualifications (OR 0.67, 95% CI 0.40–1.11) for compulsory school; 0.81, 95% CI 0.61–1.07 for higher education) than the general population, but differences were not statistically significant. Survivors of lymphohaemopoietic system tumors were less likely than controls to complete compulsory school (OR=0.71; 95%CI:0.33–1.54) higher education (OR=0.73; 95%CI:0.48–1.09), but differences were not statistically significant. Survivors of CNS tumors were less likely than controls to complete compulsory school (OR=0.44; 95%CI:0.19–1.02) and higher education (OR=0.56; 95%CI:0.31–1.01), but differences were not statistically significant. **Risk employment outcomes:** Individuals cured of a tumour during childhood are less likely to gain employment (OR 0.66, 95% CI 0.45–0.98) than the general population. Survivors of lymphohaemopoietic system tumors were equally likely than controls to be employed (OR=1.16; 95%CI:0.60–2.23). Survivors of CNS tumors were less likely than controls to be employed (OR=0.28; 95%CI:0.13–0.58).	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** CNS=central nervous system

2. What are the risk factors for poor educational/employment outcomes?				
Maule et al. **Surviving a childhood cancer: impact on education and employment. 2017**				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☐ **Cross-sectional study** ☐ **Case-control study** ☒ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Diagnosed with cancer after 1971-2001.** **Years of follow-up:** **Country:** **Italy**	**Sample size:** N = 637 **Diagnoses:** Tumours of the lymphohaemopoietic system (n = 252; 46.5%) Tumours of the central nervous system (n = 116; 22.3%) All other malignancies (n=162; 31.2%) **Age at diagnosis:** 0 n=35 1-4 n=151 5-9 n=149 10-14. n=185 **Age at study:** N/A **Controls:** The general population of Turin.	Not described.	**Risk factors for "compulsory school" from multivariable logistic regression** (only survivors aged ≥14 years included; adjusted for tumor type, sex, age at diagnosis, period of diagnosis, parents' education): • Tumor type: CNS[a] (Ref. Lymph.-hem. system[b]) OR=0.88 (95%CI:0.27-2.84) • Tumor type: Other (Ref. Lymph.-hem. system[b]) OR=1.31 (95%CI:0.31-5.45) • Sex: Male (Ref. Female) OR=0.43 (95%CI:0.13-1.44) • Age at diagnosis: 0-4 years (Ref. 10-14 years) OR=3.32 (95%CI:0.46-33.35) • Age at diagnosis: 5-9 years (Ref. 10-14 years) OR=1.08 (95%CI:0.35-3.32) • Period of diagnosis: 1981-1990 (Ref. 1971-1980) OR=0.25 (95%CI:0.05-1.27) • **Period of diagnosis: 1991-2000 (Ref. 1971-1980) OR=0.16 (95%CI:0.03-0.89)** • Parents' education: Lower/upper secondary level (Ref. None/primary school) OR=1.47 (95%CI:0.35-6.07) • Parents' education: University degree (Ref. None/primary school) OR=1.18 (95%CI:0.21-6.79) **Risk factors for "higher education" from multivariable logistic regression** (only survivors aged ≥19 years included; adjusted for tumor type, sex, age at diagnosis, period of diagnosis, parents' education): • Tumor type: CNS[a] (Ref. Lymph.-hem. system[b]) OR=0.74 (95%CI:0.35-1.54) • Tumor type: Other (Ref. Lymph.-hem. system[b]) OR=2.10 (95%CI:1.07-4.15) • Sex: Male (Ref. Female) OR=0.72 (95%CI:0.40-1.29) • **Age at diagnosis: 0-4 years (Ref. 10-14 years) OR=0.34 (95%CI:0.16-0.72)** • Age at diagnosis: 5-9 years (Ref. 10-14 years) OR=0.62 (95%CI:0.31-1.25) • Period of diagnosis: 1981-1990 (Ref. 1971-1980) OR=1.12 (95%CI:0.61-2.05) • Period of diagnosis: 1991-2000 (Ref. 1971-1980) OR=0.32 (95%CI:0.09-1.12) • **Parents' education: Lower/upper secondary level (Ref. None/primary school) OR=2.08 (95%CI:1.03-4.23)** • **Parents' education: University degree (Ref. None/primary school) OR=9.54 (95%CI:2.60-35.02)** **Risk factors for "employment" from multivariable logistic regression** (only survivors aged ≥26 years included; adjusted adjusted for tumor type, sex, age at diagnosis, period of diagnosis, parents' education): • **Tumor type: CNS[a] (Ref. Lymph.-hem. system[b]) OR=0.19 (95%CI:0.06-0.57)** • Tumor type: Other (Ref. Lymph.-hem. system[b]) OR=0.57 (95%CI:0.19-1.68) • Sex: Male (Ref. Female) OR=2.18 (95%CI:0.90-5.28) • Age at diagnosis: 0-4 years (Ref. 10-14 years) OR=0.35 (95%CI:0.09-1.32) • Age at diagnosis: 5-9 years (Ref. 10-14 years) OR=0.34 (95%CI:0.11-1.00) • **Period of diagnosis: 1981-1990 (Ref. 1971-1980) OR=0.25 (95%CI:0.09-0.70)** • Period of diagnosis: 1991-2000 (Ref. 1971-1980) not available because of limited data • **Parents' education: Lower/upper secondary level (Ref. None/primary school) OR=3.11 (95%CI:1.18-8.25)** • Parents' education: University degree (Ref. None/primary school) OR=1.02 (95%CI:0.21-4.85)	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☒ Yes/ ☐ no/ ☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:** [a]Central nervous system [b]Lymphohaemopoietic system

1. What is the risk of poor educational/employment outcomes?				
Berbis et al. Employment in French young adult survivors of childhood leukemia: an LEA study (for Leucemies de l'Enfant et de l'Adolescent—childhood and adolescent leukemia). 2016				
Study Design **Treatment era** **Years of follow-up**	**Participants**	**Treatment**	**Main outcomes**	**Quality assessment** **Remarks**
Study Design: ☒ **Cross-sectional study** ☐ **Case-control study** ☐ **Cohort study** ☐ **Qualitative study** ☐ **Systematic review** ☐ **RCT** ☐ **Other: (specify)** **Treatment era:** **Since 1980** **Years of follow-up:** **Time since diagnosis:** **mean 14.3 years (SD 6.3 years)** **Country:** **France, French LEA Cohort**	**Sample size:** N=845 **Diagnoses:** Leukemia: ALL: n=726 (85.9%) **Age at diagnosis:** <18 years at diagnosis **Age at study:** Mean 22.3 years (SD 5.4 years) **Controls:** General French population from the French National Institute for Statistics and Economic Studies	Hematopoietic stem cell transplantation: n=231 (27.3%) Irradiation: n=313 (37.0%)	**Risk educational outcomes:** n.a. **Risk employment outcomes:** n=425 were students at time of study n=325 were currently employed (="active") n=36 were seeking a job (="active") n=59 were not working Compared with the French population, more survivors were currently employed than expected (age class 15-19 years: n=37 observed/ 26.87 expected, p=0.001; 20-24 years: n=103 observed/ 92.93 expected, p=0.04; 25-39 years: n=184 observed/ 170.85 expected, p=0.01). The number of survivors seeking a job was significantly lower than in the general French population in all age ranges (age class 15-19 years: n=3 observed/ 13.13 expected, p=0.001; 20-24 years: n=21 observed/ 31.07 expected, p=0.04; 25-39 years: n=12 observed/ 25.15 expected, p=0.01).	**Quality assessment:** 1. Is the study group representative? ☒ Yes/ ☐ no/ ☐ unclear 2. Is the follow-up adequate? ☐ Yes/ ☐ no/ ☒ n.a. /☐ unclear 3. Are the outcome assessors blinded? ☐ Yes/ ☐ no/ ☒ n.a./ ☐ unclear 4. Are the analyses adjusted for important confounding factors? ☒ Yes/ ☐ no/ ☐ unclear **Remarks:**