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Table 1. Description of the main clinical and epidemiological studies included

FIRST AUTHOR, YEAR OF PUBLICATION	TYPE OF ARTICLE	NUMBER OF SUBJECTS	AGE AT DIAGNOSIS	OBJECTIVES	SOURCE OF DATA	KEY RESULTS
REULEN, 2011[8]	Multicentric retrospectve cohort study	17 981 cancer survivors	< 15 years	(1) to investigate the long term risks of subsequent primary neoplasms in survivors of childhood cancer; (2) to identify subsequent primary neoplasm types that contribute most to the long-term excess risk; (3) to identify subgroups of survivors at substantially increased risk of particular subsequent primary neoplasms who may require specific interventions.	The British Childhood Cancer Survivor Study; 5 years cancer survivors	Cumulative incidence of colorectal cancer for survivors treated with direct abdominopelvic irradiation 1.4% by age 50 years, comparable with the 1.2% risk in individuals with at least 2 first-degree relatives affected by colorectal cancer. The absolute excess risks (AERs) in survivors over 40 years are highest for digestive subsequent primary neoplasms (AER= 5.9, 95% CI: 2.5-9.3 per 10 000 person-years) and genitourinary subsequent primary neoplasms (AER=6.0, 95% CI: 2.3-9.6 per 10 000 person-years); these patients may require specific interventions (prevention, screening).
BAULD, 2005[11]	Comparison study	153 cancer survivors; sample of6 377 healthy peers to match the adolescent survivor age range	13 - 24 years	To investigate smoking, alcohol use, illicit drug use and sexual risk in adolescent survivors of childhood cancer.	Adolescent cancer survivors off treatment for 12 months or more, recruited through the Royal Children's Hospital, Melbourne,Australia, compared with age matched healthy adolescents	Among participants, the most prevalent cancer diagnosis was leukaemia (53%) bone cancer (14%), Wilms tumour (10%) non-Hodgkins lymphoma (7%). Compared to their healthy peers, younger survivors (13 to 17-years) were at a decreased risk of reporting alcohol use (OR=0.44, 95% CI: 0.39-0.49), binge drinking

		of 13 to 17 years, and sample of 465 participants aged 8 - 24 years to match with older survivors.			drawn from one of two Australian population based surveys of adolescent health	(OR=0.20, 95% CI: 0.18-0.23), current tobacco use (OR=0.38, 95% CI: 0.34-0.43), cannabis use (OR=0.25, 95% CI: 0.22-0.29) and other illicit drug use (OR=0.31, 95% CI: 0.27-0.35), but at increased risk of reporting pain reliever use (OR=2.1, 95% CI: 1.8-2.4). Older adolescent survivors (18 to 24-years) were reported increased alcohol use (OR=1.5, 95% CI: 1.0-2.2), lower cannabis use (OR=0.27, 95% CI: 0.20-0.36), other illicit drug use (OR=0.44, 95% CI: 0.35-0.55) and current tobacco use (OR=0.47, 95% CI: 0.37-0.60). Survival analysis showed a later age of onset of smoking for cancer survivors (hazard ratio HR=0.65). No association between health-risk behaviors and disease characteristics, patients' demographics (i.e. age at diagnosis, time on treatment and time off treatment)suggesting that alcohol use, binge drinking, smoking and drug use are mediated by factors outside the illness and treatment.

CARSWELL, 2008[12]	Comparative national, multi-centre, population-based study	1263 cancer survivors; 1422 controls from provincial health insurance agencies.	< 20 years	(1) To describe the prevalence of smoking and binge drinking among survivors of childhood and adolescent cancer, comparison with age and gender matched healthy controls. (2) To identify factors associated with these behaviors.	Late Effects study, part of the Canadian Childhood Cancer Surveillance and Control Program. Patient who survived at least 5 years after diagnosis.	Survivors were less likely to be current smokers (OR adj=0.65; 95% CI: 0.54–0.77) and binge drinkers (OR adj=0.66, 95% CI: 0.55–0.78) than controls. Survivors' smoking (23%) and binge drinking (25%) did not vary according to clinical factors.
TERCYAK, 2006[13]	Randomized controlled trial of health promotion intervention	75 cancer survivors	11 – 21 years	To test the efficacy of health education and health behavior counseling (cigarette use, insufficient physical activity, and non-adherence to sun protection recommendations) among adolescent survivors of childhood cancer. Focus on the prevalence and co-occurrence of three behavioral risk factors.	Telephone-based assessment of health behaviors and stress; behavioral record of the past 7 days.	28% of the patients reported one of three risk factors, 12% reported two of three risk factors, and 7% reported all three risk factors. Non-adherence to sun protection was the single most common risk factor; physical inactivity and non-adherent sun protection were the most common co-occurring risk factors. Greater age and stress were significantly associated with the presence of more than one behavioral risk factors.
KAHALLEY, 2012[14]	Multicentric cohort study	307 cancer survivors; 97 healthy siblings	< 21 years ; 14 - 20 years (healthy siblings)	To estimate the rate of smoking and identify factors associated with smoking in adolescent survivors	The Childhood Cancer Survivor Study Cohort*.Participants completed a self-report survey of health, quality of life, and health behaviors	Survivors: 28% ever smokers; 10% recent smokers. Sibling groups: 33% ever smokers; 9% recent smokers.Ever smoking was significantly associated with purging (RR = 2.49, 95% CI:1.60-3.88, p < 0.001), binging (RR = 1.57, 95%

						CI:1.08-2.31 p < 0.05), suicidal behavior (RR = 2.12, 95% CI:1.47-3.07 p < 0.001), peer smoking (RR = 3.21, 95% CI:2.35-4.38 p < 0.001), having smokers in the household (RR = 1.73, 95% CI:1.22-2.46 p <0.01), and having no history of cranial radiation therapy (RR = 1.92, 95% CI:1.05-3.45, p < 0.05). Recent smoking was significantly associated with purging (RR = 4.44, 95% CI:2.08-9.50 p < 0.001), binging (RR = 2.55, 95% CI:1.32-4.90 p < 0.01), suicidal behavior (RR = 3.61, 95% CI:1.89-6.89 p < 0.001), emotional discomfort (RR = 2.75, 95% CI:1.38-5.49 p < 0.01), peer smoking (RR = 7.18, 95% CI:3.85-13.40 p < 0.001), and having smokers in the household (RR = 3.03, 95% CI:1.58-5.82 p < 0.01).
TYC, 2009[15]	Multicentric case-control study	94 (patients undergoing cancer treatment); cancer	8 - 11 years	To compare preadolescents treated for cancer to their healthy peers on a number of tobacco-related risk factors.	The 94 preadolescents undergoing treatment for cancer and a matched comparison sample of 190 participants without cancer completed questionnaires about their smoking habits, intentions to smoke and tobacco-related psychosocial risk factors.	There were no current smokers in the cancer cohort and only 2 current (0.5%) in the original school sample. Healthy preadolescents were more likely to report future intentions to smoke (34.1%) relative to preadolescents with cancer (14.0%, p<0.001). Healthy preadolescents were more likely to have at least one close friend who smoked (16.8%) as compared to those with cancer (7.5%, p=0.030). Compared to those without

						cancer, preadolescents with cancer had higher tobacco-related knowledge (p=0.001), perceived themselves to be more vulnerable to tobacco-related illness (p<0.001), were more optimistic (p<0.001), and attributed more value to overall health (p=0.001). They also perceived themselves to be more vulnerable to general health problems (p<0.001), and had lower levels of rebelliousness/risk taking (p=0.001) as well as perceived instrumental value of smoking (p=0.002). Multivariable analyses suggest that the ages of 8-11 years may be a critical period for a child's development of attitudes about smoking in that every year of age conferred approximately a 50% increase in the odds of intending to smoke.
EMMONS, 2002[16]	Multicentric, retrospective cohort study	9 709 cancer survivors	≥ 18 years	To examine smoking behaviors and to evaluate predictors of cigarette smoking initiation and cessation	The Childhood Cancer Survivor Study*	Ever smoking: 28 %; current smokers: 17%. Factors independently associated with a statistically significant relative risk of smoking initiation included older age at cancer diagnosis, lower household income, less education, not having had pulmonary-related cancer treatment, and not having had brain radiation. Blacks were less likely to start smoking. The frequency of smoking

						initiation was significantly lower among survivors.
GREEN, 2012[17]	Multicentric, retrospective cohort study	9 284 cancer survivors	≥ 18 years	To evaluate the potential contribution of demographic, lifestyle, treatment, and intrapersonal factors and self-reported pharmaceutical use to obesity	T The Childhood Cancer Survivor Study*.	The risk of obesity (BMI** > 30 kg/m^2) was increased among those 5 to 9 years of age at diagnosis (RR=1.12; 95% CI: 1.01-1.24; p=0.03), those who received 20 to 30 Gy of hypothalamic/pituitary radiation dose (RR=1.17; 95% CI: 1.05-1.30; p=0.01), and those with abnormal SF-36 physical function (RR=1.19; 95% CI: 1.06-1.33; p=0.001). The risk of obesity was decreased among those who met the US Centers for Disease Control and Prevention guidelines for vigorous physical activity (RR=0.90; 95%CI: 0.82-0. 97; p=0.01) and among those with a medium amount of cancer-related anxiety (RR=0.86; 95% CI: 0.75-0.99; p=0.04). Of the pharmaceuticals evaluated, only paroxetine (antidepressant) was independently associated with an increased risk for obesity (RR=1.29; 95% CI: 1.08-1.54; p=0.01).

ROBIEN, 2008[19]	Clinical study	72 cancer survivors	≤ 20 years	(1) To evaluate the typical dietary intake of adult survivors of childhood acute lymphocytic leukemia (ALL) and to compare these data with major dietary recommendations related to cancer and cardiovascular disease prevention. (2) To evaluate whether adherence with dietary guidelines was associated with BMI and waist circumference among adult survivors of childhood ALL.	The Childhood Cancer Survivor Study Cohort*	Half the participants met minimal goals for fruit and vegetable intake: this is significantly greater than the population median percentage of adults nationwide (23.2%) and in the state of Minnesota (24.5%); and half the participants met minimal goals for dietary fat restrictions. Participants reported dietary sodium and added sugar intake in excess of recommendations, and suboptimal consumption of dietary fiber. 18% of participants met recommendations for 30 minutes of physical activity, 5 days/week.
GURNEY, 2003[20]	Retrospective cohort study	921 childhood brain cancer survivors	≤ 20 years	To compare final height and BMI** between adult survivors of childhood brain cancer and age- sex-matched population norms. To quantify the effects of treatment and cancer-related factors on the risk of final height below the 10th percentile (adult short stature) or having BMI of 30kg/m2 or more (obesity).	The Childhood Cancer Survivor Study Cohort*	40 % of participants were very short of stature: below the 10th percentile for height. The strongest risk factors for adult short stature: young age at diagnosis and radiation treatment involving the hypothalamic-pituitary axis. Obesity risk factor: younger age and cranial radiation in females.

BUCHANAN, 2009[23]	Retrospective cohort study	9 298 childhood cancer survivors; 2 950 sibling controls	≤ 20 years	To determine the current sun protection behaviors of childhood cancer survivors, and to compare these behaviors to a sibling population. Secondary objective: to determine whether survivors who are at higher risk of skin cancer because of previous radiation therapy have improved sun protection behavior.	The Childhood Cancer Survivor Study Cohort*	66% of siblings and 67% of cancer survivors practiced at least some sunscreen use in the past summer. Childhood cancer survivors were less likely to have sunbathed in the past year (none vs. any: RR=0,92, 95%CI: 0,89-0,95) or use artificial tanning methods in the past year (none vs. any: RR=0,76, 95%CI: 0,70-0,83). Factors associated with survivor's sunscreen use in the previous year: exposure to therapeutic radiation, being female, having lighter skin complexions, having previously examined for skin cancer, and higher predisposition to sunburn. Variables associated with increased sunbathing in the previous year among survivors: no previous radiation, being female, younger age (≤45 years), the number of years post diagnosis (≤30 years), darker skin color, and lower predisposition to sunburn. Subject with a prior skin cancer were more likely to use sunscreen (RR=1,12, 95%IC: 1,06-1,18) and less likely to sunbathe (RR=0,87, 95%IC: 0,79-0,96).
KEATS, 2006[24]	Cross-sectional survey	97 adolescent cancer survivors	11 - 19 years	To investigate the impact of a cancer diagnosis on adolescent physical activity behaviors across the cancer experience (ie. prediagnosis, during	A Participants residing in western Canada (15-20 years old at the time of initial study recruitment) completed a mailed, self-	Three most common diagnoses included some form of lymphoma or Hodgkin disease (29,9%), leukemia (27,8%) and tumors of central nervous system (14,4%).

				treatment, and post-treatment).	administered questionnaire (measures of physical activity at 3 time points).	Based on the 27 MET (metabolic equivalent) criterion (selected as criterion for 'active'): 84.5% were active prediagnosis, 26.4% were active during treatment, 73.6% were active post-treatment. The decline in physical activity persisted following the completion of treatment. No systematic differences or relationships between the measured demographic/medical characteristics and physical activity behaviors during or post-treatment.

UPADHYAYA, 2004[26]	Open-label pilot study	16 ado-lescents without history of cancer	12 - 19 years	To examine the feasibility and preliminary tolerability of bupropion SR in adolescents with nicotine dependence.	Adolescents who were titrated over 1 week to bupropion SR 150 mg b.i.d and maintained at this dosage for 6 weeks. Participants also received two 30-minutes individual smoking cessation counseling sessions.	Nine participants received at least 4 weeks of medication: significant decrease in the average number of cigarettes smoked and carbon monoxide levels. 31.25 % of the adolescents were abstinent after 4 weeks of taking bupropion SR. Bupropion SR along with counseling may be safe and potentially efficacious for this population.Lack of weight gain among participants during the smoking cessation effort. Possibility that bupropion might have a harm reduction effect due to reduction of the number of cigarettes smoked.
KILLEN, 2004[27]	Smoking cessation randomized clinical trial	211 ado-lescents smokers, whitout history of cancer	15 - 18 years	To examine the efficacy of a treatment for adolescent smokers that combines nicotine patches with bupropion.	Randomization to 1 of 2 groups: i) nicotine patch + bupropion SR ii) nicotine patch + placebo. Participants met weekly in 45 minutes session (group skills training).	Percentage abstinent assessed by time and treatment group: - Nicotine patch + placebo: 28 % week 10, 7 % week 26 - Nicotine patch + bupropion SR: 23% week 10, 8% week 26 Bupropion might failed to improve abstinence rates because of the dosage used in this study (150 mg per day whereas the recommendation dosage for adult smokers is 300 mg per day). The medications appeared to be safe and were well tolerated. The large majority of adolescents in both treatment groups reduced their

						consumption to a few cigarettes per day or less.
HOLLEN, 1999[28]	Prospective clinical trial	64 cancer survivors	13 - 21 years	To test the hypothesis that teen survivors who receive education to enhance decision-making skills will report increased quality decision making, maintained or lowered risk-behavior status (in smoking, alcohol use, or illicit drug use) 1-, 6-, and 12-months post-intervention more than the comparison group.	Intervention group with 21 participants who attend a workshop, and comparison group with 43 survivors who did not attend the workshop. The intervention included three components: five one-hour educational units administered in one day, three short videocassettes (one on decision making, two on alcohol use), and four weekly home assignments given during the first post-intervention month.	Effect of the intervention for improving decision-making knowledge, and decision making was significant at 1-month post-intervention, and highly significant at 12-months post-intervention. The intervention did not affect smoking risk motivation at any of the three time points. The intervention had a significant effect on motivation for engaging in alcohol use at 1-month post-intervention, and a marginally significant effect at 6 months, but no effect at 12-months. Home assignments for remediation with cancer-surviving adolescents most likely need to be expanded over a longer follow-up period to obtain a lasting effect for risk behaviors.

TYC, 2003[30]	Randomized controlled trial	103 cancer survivors	10 - 18 years	To evaluate the efficacy of a tobacco risk counseling intervention on knowledge, perceived vulnerability and future intentions to smoke among preadolescents and adolescents cancer survivors, compared with a standard care control condition.	Participants from St Jude Children's Research Hospital, who were randomized in 2 groups: standard care control group (standard advice about the risks of tobacco use), and tobacco intervention group (with more intensive late effects risk counselling in addition to an educational video, goal setting, written physician feedback, smoking literature, follow-up telephone counseling).	Compared with the standard care control group, intervention group's participants had significantly higher knowledge scores, higher perceived vulnerability scores, and lower intention scores at 12 months following the intervention. No significant differences between the two groups at 6 months, across all measures, were found. Participants whose parents used tobacco had significantly higher intentions scores at 12 months compared with scores obtained at 6 months and baseline. Participants whose parents were non-tobacco users and who received the intervention reported significantly lower intention scores than the control group patients. Informing adolescent cancer survivors about their personal susceptibility to negative health outcomes can play a role in promoting tobacco abstinence in this vulnerable population. Modifying young survivors' perceptions of risk and intentions to use tobacco may reflect a process that evolves over time.
SMITH, 1996[33]	Non-randomized open-label clinical trial	22 ado-lescents smokers	13 - 17 years	To evaluate the safety, tolerance, and efficacy of 24-hour nicotine patch therapy in adolescent	The intervention was a daily nicotine patch therapy for 8 weeks (22mg/d for 6 weeks	82% experienced at least one adverse event during the 8-week patch phase; 68% reported some kind of skin reaction; 55%

				smokers with current smoking rate of 20 or more cigarettes/day, who were trying to stop smoking.	followed by 11mg/d for 2 weeks). Weekly individual behavioral counseling and group support continued for 8 weeks with follow up visits at 3 & 6 months; and a mailed survey at 1 year.	reported erythema only; 32% reported no skin reactions (common adverse events also reported with patch use adult smokers in the literature). 14% of the participants reported not smoking during week 8. Patch is safe to use in this population, and well tolerated as an adjunct to a smoking cessation program.
MOOLCHAN, 2005[34]	Double-blind, double dummy, randomized 3-arm trial	120 ado-lescents without history of cancer	13 - 17 years	To determine the safety and efficacy of the nicotine patch and gum for adolescents who smoked ≥ 10 cigarettes per day and who want to quit smoking.	Participants received twelve weeks of nicotine patch or gum therapy with cognitive-behavioral therapy, with a follow-up visit at 6 months. They were randomized in 3 groups : nicotine patch 21 mg (34 participants), nicotine gum 2 and 4 mg (46 participants), placebo patch and gum (40 participants).	Mean compliance across groups was higher for the patch than for the gum. Both patch and gum were well tolerated, and adverse events were similar to those reported in adult trials. No significant effect of patch versus gum placebo on cessation outcomes. Significant difference between the active patch and placebo arms with prolonged abstinence rates: 18% for the active patch group, 2.5% for the placebo group. The nicotine patch was significantly more effective than placebo in helping dependent adolescent smoking receiving cognitive-behavioral therapy quit smoking (prolonged abstinence).

HUDSON, 2002[35]	Behavioral health promotion study	266 cancer survivors	12 - 18 years	To assess the impact of an intervention which is a multi-component behavioral intervention on changing health knowledge, health perceptions (perceived susceptibility, perceived seriousness, perceived benefits, perceived barriers), and health behavior practices	From a childhood cancer survivor cohort attenting the St. Jude Children's Research Hospital after completion of therapy clinic for annual evaluation, in remission 2 or more years after completion of cancer therapy; randomly assigned to a control-arm (standard care, n=135) or treatment-arm (standard care plus the multi-behavioral intervention, n=131). 251 participants were evaluable at the both time points for the calculation of change scores.	Baseline evaluation: no significant differences in health practices, perceptions or knowledge. 52% reported to be unaware of the potential risk of 2nd cancer which was the most concerning potential treatment sequelae in 48% of participants. No significant differences in the change scores between the standard care group and the intervention group at 1 year follow-up. Perceptions of seriousness for risks factors secondary to the cancer treatment of adolescent cancer patients were increased as a result of the intervention. On selected patient subgroups: significant differences between males and females in change scores for health knowledge; females in the cohort demonstrating greater improvement in knowledge at 12-months among females randomized to the intervention group.

* The Childhood Cancer Survivor Study (CCSS) is a retrospective cohort study of 14359 survivors of childhood cancer diagnosed prior to 21 years of age between January 1, 1970 and December 31, 1986, with a longitudinal follow-up of 5-year survivors of childhood cancer treated in 26 institutions in the United-states and Canada. Eligible cancer diagnoses included leukemia, central nervous system malignancy, Hodgkin lymphoma, non-Hodgkin lymphoma, Wilms tumor, neuroblastoma, soft tissue sarcoma, and bone tumors. **Body Mass Index (BMI) is a measure of body fat based on height and weight that applies to men and women. AERs: Absolute Excess Risks; ALL: Acute Lymphoblastic Leukemia; CI: Confidence Interval; HR: Hazard Ratio; RR: Relative Risk; SIR: Standardized Incidence Ratio