Table 1
Estimates of doses for 1%-5% and 25%-50% incidences of clinically detrimental deterministic effects in adults at five years after radiation exposure [a]
[I1, R2]

Organ	*Treatment field*	*Injury at five years*	*Approximate dose (Gy)*	
			Effect in 1%-5% of patients	*Effect in 25%-50% of patients*
Bone marrow	Whole	Hypoplasia	2	5
Ovary	Whole	Permanent sterility	2-3	6-12
Testis	Whole	Permanent sterility	5-15	20
Lens	Whole	Cataract	5	12
Kidney	Whole	Nephrosclerosis	23	28
Liver	Whole	Liver failure	35	45
Lung	lobe	Pneumonitis, fibrosis	40	60
Heart	Whole	Pericarditis, pancarditis	40	>100
Thyroid	Whole	Hypothyroidism	45	150
Pituitary	Whole	Hypopituitarism	45	200-300
Brain	Whole	Necrosis	50	>60
Spinal cord	5 cm^2	Necrosis	50	>60
Breast	Whole	Atrophy, necrosis	>50	>100
Skin	100 cm^2	Ulcer, severe fibrosis	55	70
Eye	Whole	Panophthalmitis	55	100
Oesophagus	75 cm^2	Ulcer, stricture	60	75
Bladder	Whole	Ulcer, contracture	60	80
Bone	10 cm^2	Necrosis, fracture	60	150
Ureter	5-10 cm	Stricture	75	100
Muscle	Whole	Atrophy	>100	

[a] Based on responses of patients conventionally treated with fractionated therapeutic x- or gamma-irradiation.

Table 2
Estimates of doses for 1%-5% and 25%-50% incidences of clinically detrimental deterministic effects in children at five years after radiation exposure [a]
[I1, R2]

Organ	*Treatment field*	*Injury at five years*	*Approximate dose (Gy)*	
			Effect in 1%-5% of patients	*Effect in 25%-50% of patients*
Breast	5 cm^2	No development	10	15
Cartilage		Arrested growth	10	30
Bone	10 cm^2	Arrested growth	20	30
Muscle		Hypoplasia	20-30	40-50

[a] Based on responses of patients conventionally treated with fractionated therapeutic x- or gamma-irradiation.

Table 3
Effects on the brain in children treated for acute leukaemia detected by computed tomography scans

Treatment		*Number of patients*	*Abnormalities*		*Type of brain abnormalities detected*	*Ref.*
Radiotherapy dose to the brain (Gy)	*Chemotherapy* [a]		*Number*	*Per cent*		
24	IT	23	13	56	Intracerebral califications, cortical atrophy	[B6]
24	IT	19	11	56	Intracerebral califications, cortical atrophy	[P5]
24	IT	24	13	54	Intracerebral califications, cortical atrophy	[R5]
24	IT	32	17	53	Intracerebral califications, cortical atrophy	[P7]
24	IT	72	35	49	Intracerebral califications, cortical atrophy	[C14]
24	IT	14	6	43	Intracerebral califications, cortical atrophy	[E1]
24	IT	25	10	40	Intracerebral califications	[M5]
24	IT	30	12	40	Cortical atrophy	[B5]
24	IT	45	11	24	Intracerebral califications, cortical atrophy	[S55]
24	IT	19	3	16	Cortical atrophy	[O3]
24	IT	44	5	11	Intracerebral califications	[O13]
20	IT	27	1	4	Cortical atrophy	[D24]
18	IT	55	5	9	White matter hypodensity, cortical atrophy	[O2]
0	IV+IT	12	3	25	Cortical atrophy	[E1]
0	IV+IT	43	8	19	Cortical atrophy	[O14]
0	IV+IT	23	1	4	Cortical atrophy	[P5]

[a] IT = intrathecal methotrexate and IT + IV = intrathecal and intravenous methotrexate.

Table 4
Effects on the brain of radiotherapy to the central nervous system in children

Effect	*CNS therapy*	*Comments*	*Ref.*
Leukoencephalopathy	>20 Gy in 1.5-2.0 Gy fractions plus systemic methotrexate 10 Gy whole-body irradiation	Young children more sensitive	[M6, P3, R4]
Mineralizing microangiopathy	>15 Gy in 1.5-2.0 Gy fractions	Young children more sensitive	[B4, D5]
Cortical atrophy	>18 Gy in 1.5-2.0 Gy fractions and intrathecal methotrexate	Severest atrophy in young children	[C3, D3, D5, K2]
Cerebral necrosis	>54 Gy in 1.8 Gy fractions		[B35, K2]

Table 5
Average adult heights of individuals exposed in the lower dose groups in Hiroshima and Nagasaki and under 18 years old at the time of bombing
[B14]

Sex	*Age at time of bombing (years)*	*Average adult height (cm) in dose group*			
		0 Gy	*0-0.09 Gy*	*0.10-0.99 Gy*	*> 1.00 Gy*
Hiroshima					
Male	0-5	166.4 [a]	166.1 [a]	165.9 [a]	161.5
	6-11	162.3	164.2	166.3	162.2
	12-17	164.3	163.6	164.3	163.4
Female	0-5	153.3 [b]	153.6 [a]	152.9 [b]	150.4
	6-11	152.5	153.6 [b]	153.6 [b]	150.5
	12-17	152.1	152.3	152.2	151.9
Nagasaki					
Male	0-5	166.2	166.2		166.2
	6-11	164.0	164.1		162.7
	12-17	163.2	163.9		161.8
Female	0-5	152.8	152.9		150.8
	6-11	152.4	151.3		151.5
	12-17	151.8	151.6		151.2

[a] Significantly different ($p < 0.01$) compared with the average of group exposed to > 1.00 Gy.
[b] Significantly different ($p < 0.05$) compared with the average of group exposed to > 1.00 Gy.

Table 6
Average adult heights of children exposed in the higher dose group in Hiroshima and under 18 years old at the time of bombing
[B14]

Sex	*Age at time of bombing (years)*	*Average adult height (cm)* [a]	
		In dose group 1.0-2.49 Gy	*In dose group > 2.5 Gy*
Male	0-5	164.2 (12)	159.8 (18)
	6-11	162.7 (13)	161.5 (10)
	12-17	163.2 (43)	163.5 (46)
Female	0-5	151.8 (11)	149.8 (23)
	6-11	150.4 (17)	150.5 (11)
	12-17	152.1 (58)	151.7 (59)

[a] Number of individuals in parentheses.

Table 7
Average height of individuals followed in the Adult Health Study and under age 10 years at the time of bombing [14]

Sex	Dose range (Gy)	Average adult height (cm) ± standard deviation [a]	
		Hiroshima	Nagasaki
Male	< 0.01	164.9 ± 6.02 (52)	163.3 ± 5.72 (53)
	0.01-0.99	166.4 ± 6.18 (91)	164.4 ± 5.43 (31)
	1.00-2.99	164.4 ± 5.55 (20)	165.1 ± 5.04 (31)
	3.00-6.00	161.0 ± 5.18 (20)	164.3 ± 6.64 (18)
Total		164.9 ± 6.11 (148)	164.1 ± 5.61 (128)
χ^2 statistical test [b]		1.04 ($p > 0.05$)	1.90 ($p > 0.05$)
Female	< 0.01	153.0 ± 5.54 (74)	152.8 ± 4.81 (53)
	0.01-0.99	153.6 ± 5.84 (91)	152.1 ± 4.25 (38)
	1.00-2.99	151.1 ± 5.34 (25)	151.5 ± 5.26 (32)
	3.00-6.00	149.9 ± 6.90 (20)	149.8 ± 5.33 (19)
Total		152.7 ± 5.87 (210)	151.9 ± 4.89 (142)
χ^2 statistical test [b]		2.00 ($p > 0.05$)	2.00 ($p > 0.05$)

[a] Number of individuals in parentheses.
[b] Homogeneity test of variance for four dose groups; df = 3.

Table 8
Thyroid hypofunction in individuals exposed to fallout radiation in the Marshall Islands [C16]

Age at exposure (years)	Incidence of thyroid hypofunction for various estimated doses to the thyroid			
	0 Gy	< 1.00 Gy	1.00-2.00 Gy	≥ 2.00 Gy
<10	1/229 (0.4%)	0/64 (0%)	-	9/29 (31%)
≥10	1/371 (0.3%)	1/100 (1%)	1/12 (8%)	4/45 (9%)

Table 9
Estimates of lowest radiation doses associated with late deterministic effects from exposure in childhood to ionizing radiation, usually in the form of fractionated radiotherapy

Organ	*Effect*	*Dose (Gy)*
Testis	Germ cell depletion Leydig cell dysfunction	0.5 10
Ovary	Amenorrhea Infertility Ablation	> 0.5 4 20
Thyroid gland	Hypothyroidism	> 1
Brain	Cognitive functions Histopathologic changes Neuroendocrine effects	18 18, (10 [a]) > 18, (> 1 [a])
Breast	Hypoplasia	2
Eye	Cataract	2
Lung	Fibrosis	8-11
Liver	Fibrosis	12
Kidney	Reduced creatinine clearance	12
Skeleton	Skeletal changes	10
Cardiovascular system	Cardiomyopathy	40
Bone marrow	Hypofunction	Insufficient data available

[a] Single whole-body exposure.

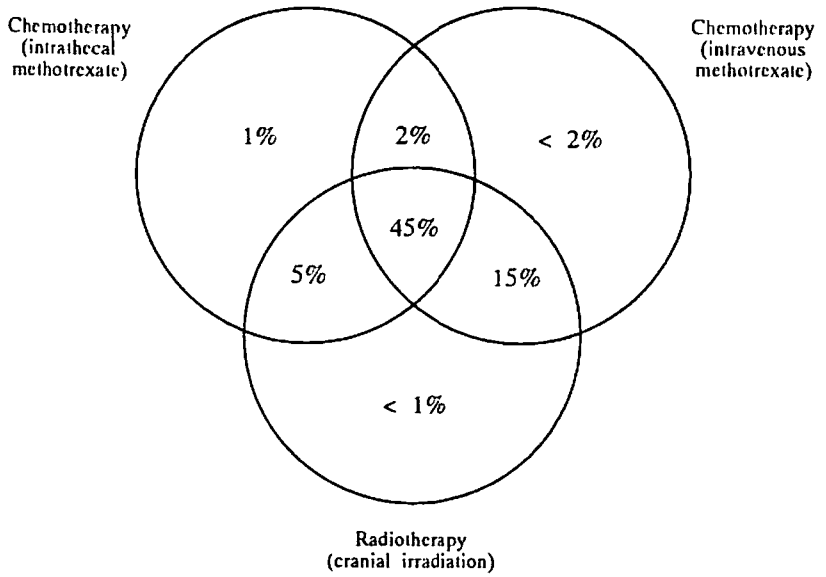


Figure I.
Approximate incidence rates of clinical leukoencephalopathy in patients treated by cranial irradiation, chemotherapy or combination therapies.
[B4]

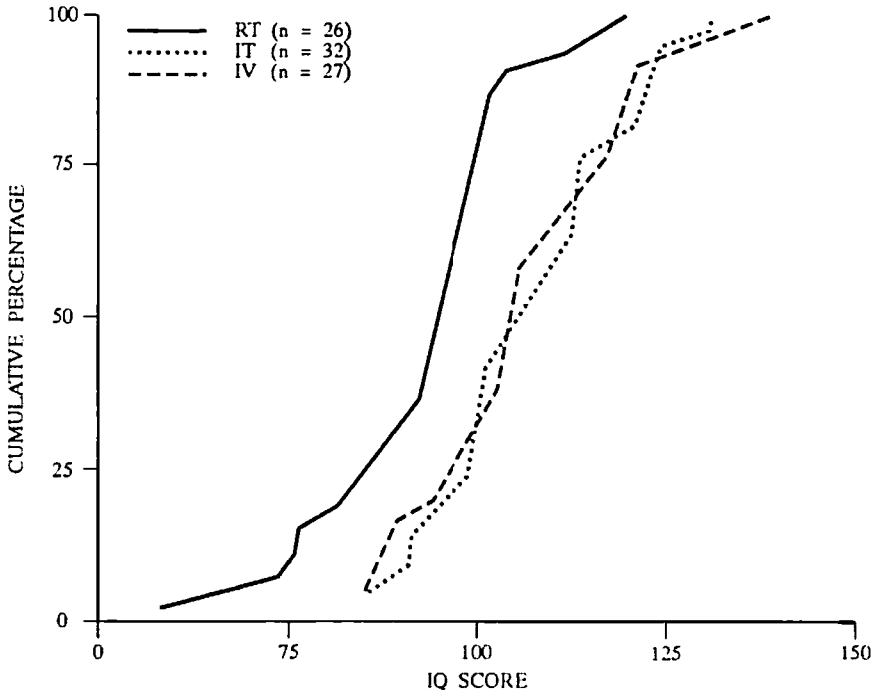


Figure II.
IQ score distribution in children treated for acute lymphocytic leukaemia by cranial radiotherapy (RT), intrathecal methotrexate (IT) or intravenous methotrexate (IV).
[B2]

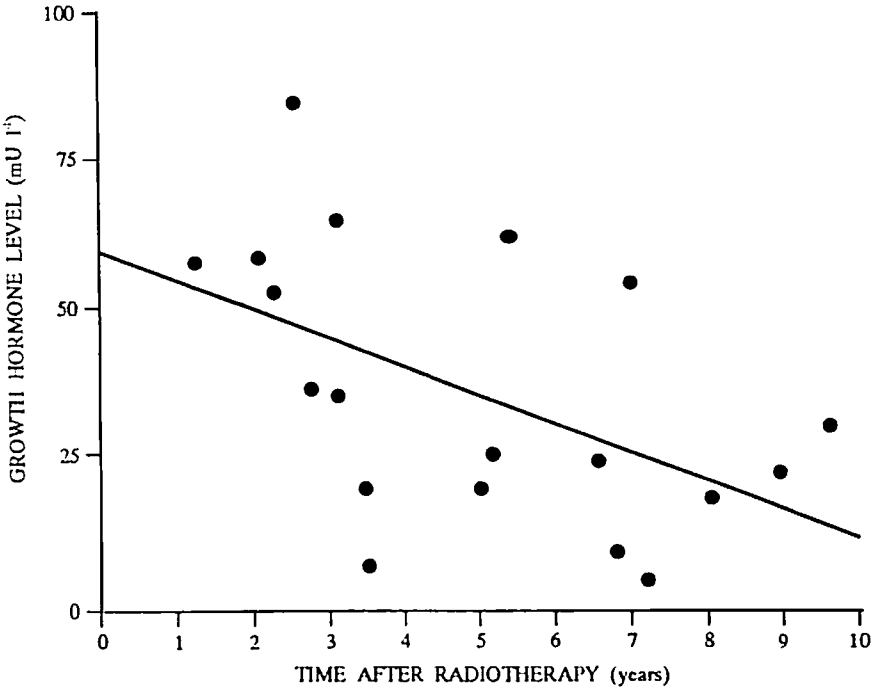


Figure III.
Maximum growth hormone response to growth-hormone-releasing hormone in children treated for brain tumours by radiotherapy.
[L6]

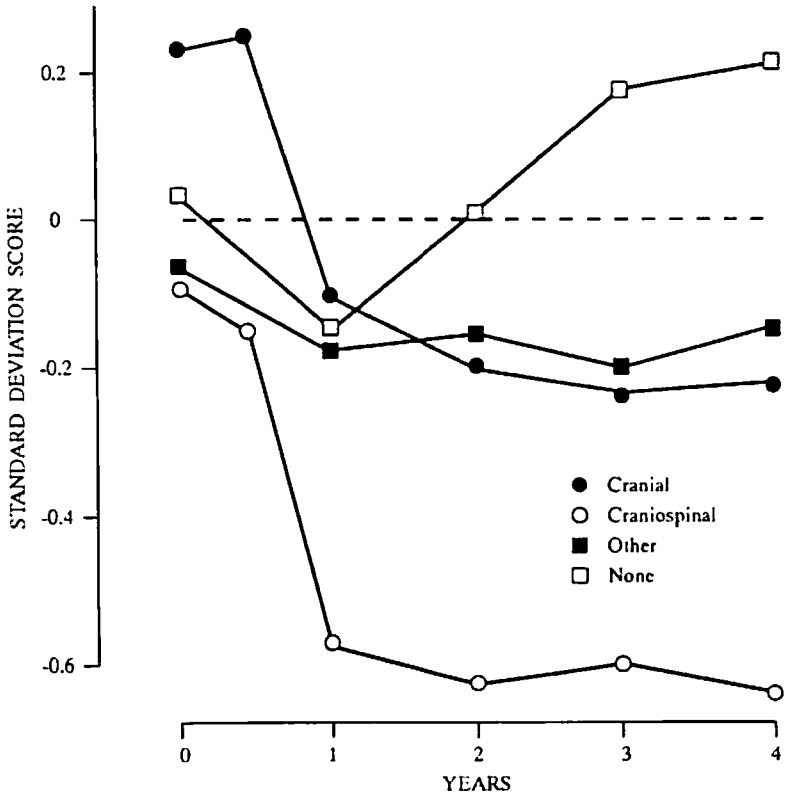


Figure IV.
Mean standard deviation score of height in children treated for malignant disease by radiotherapy to various sites. Results for those receiving cranial and craniospinal treatment were significantly lower ($p < 0.001$) at 1-4 years than at the time of initial treatment.
[G2]

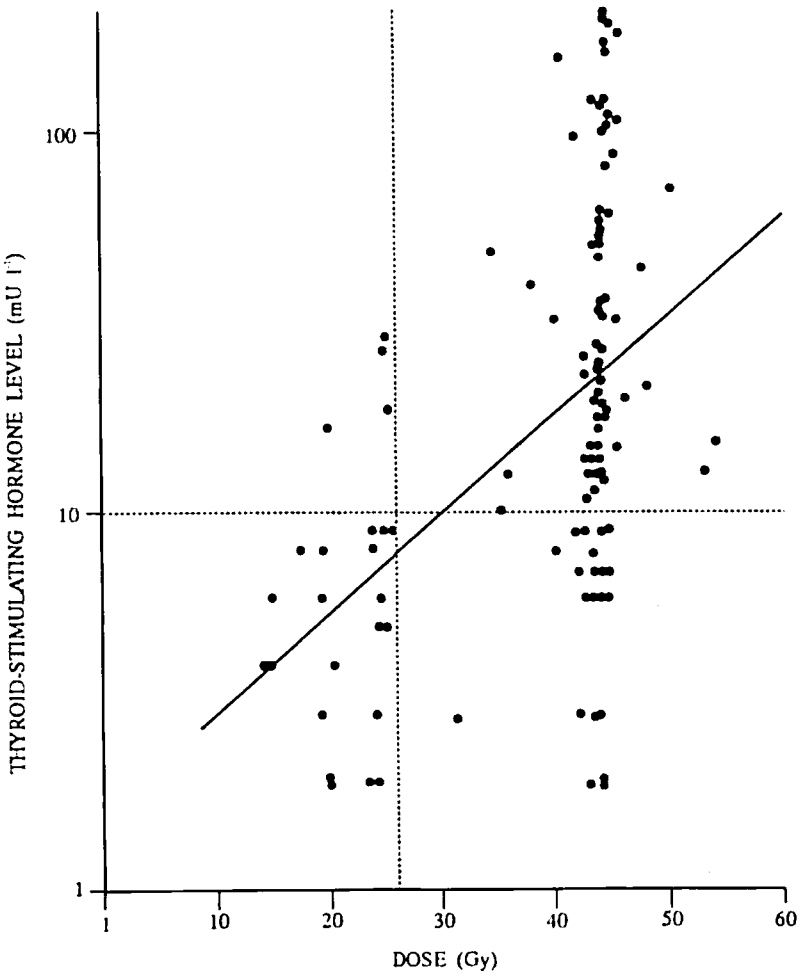


Figure V.
Thyroid-stimulating hormone levels in 116 patients aged 16 years or less treated for Hodgkin's disease by radiotherapy.
[C15]

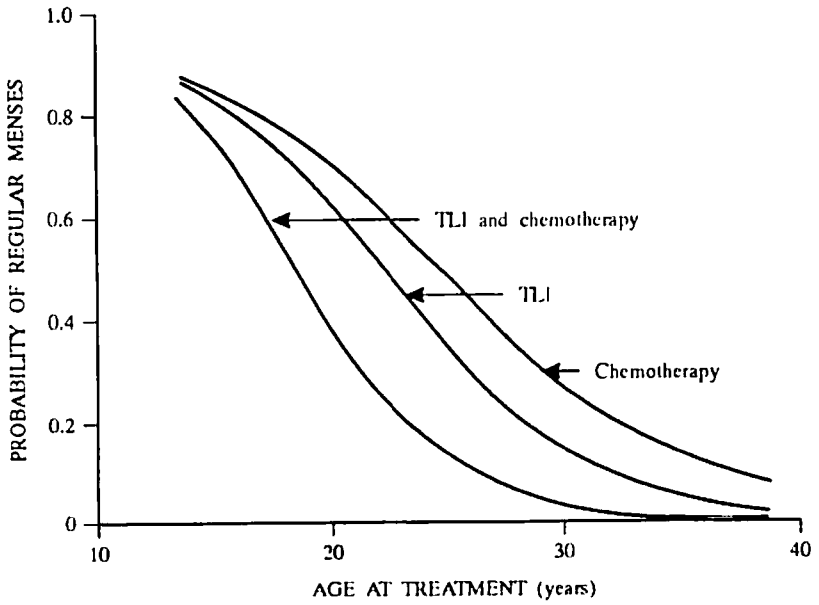
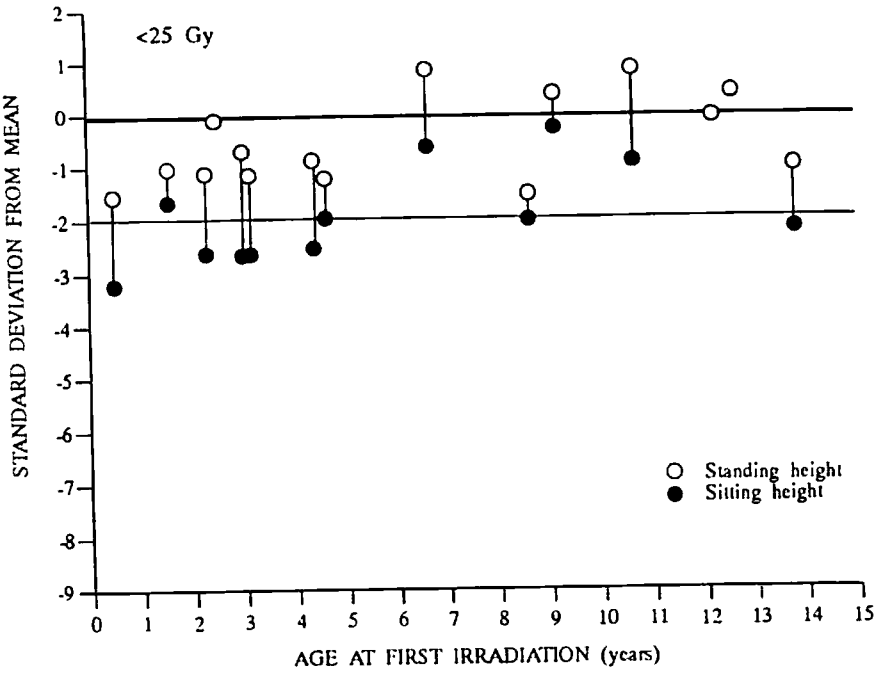


Figure VI.
Probability of regular menses in women treated for Hodgkin's disease by total lymph irradiation (TLI) and/or chemotherapy.
[H12]



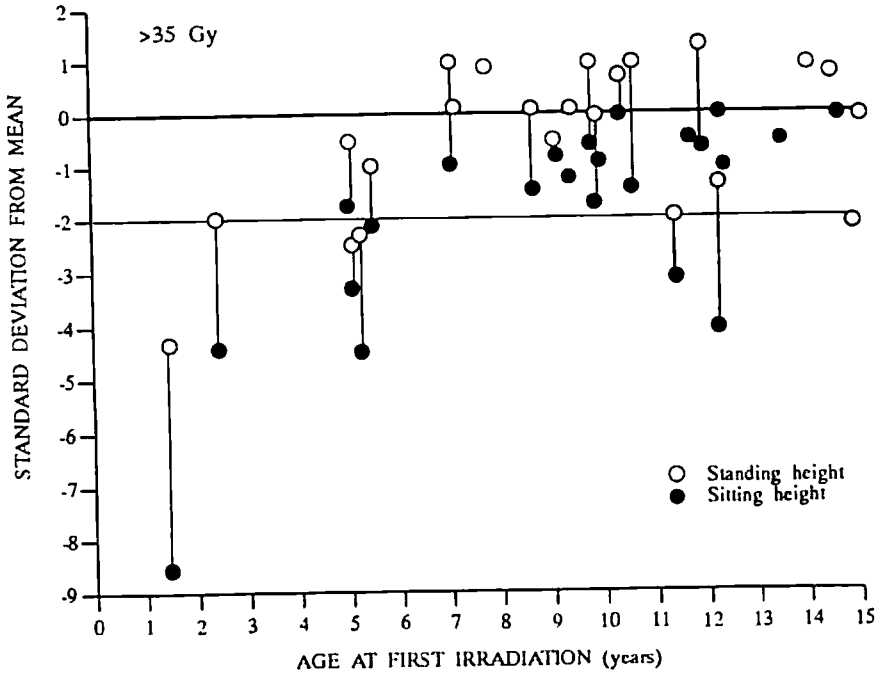


Figure VII.
Deviation from mean standing and sitting heights in children treated by radiotherapy with <25 Gy or >35 Gy.
[P10]

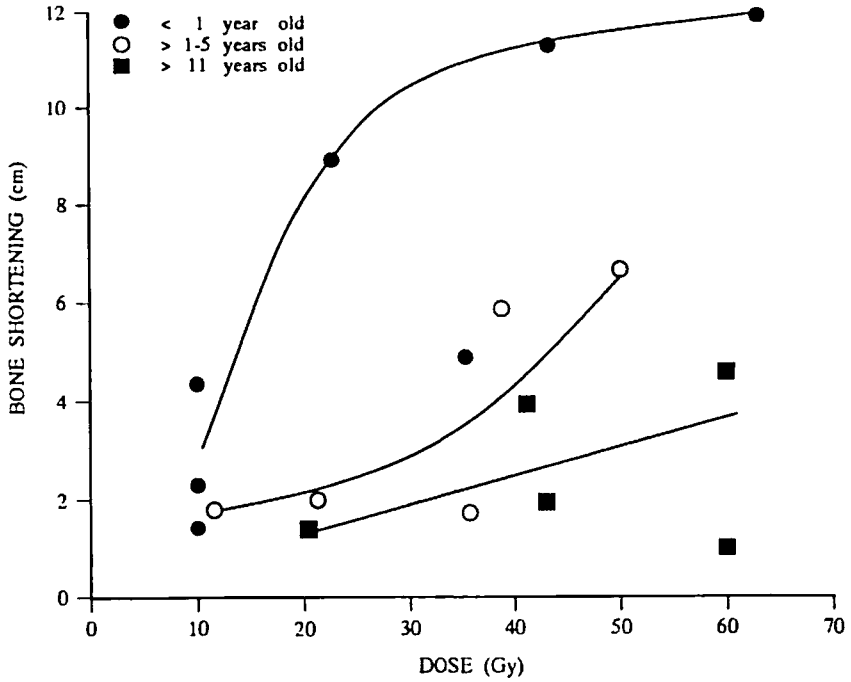


Figure VIII.
Dose-effect relationship for bone shortening in children treated by radiotherapy that included epiphysial plate irradiation.
[G8]

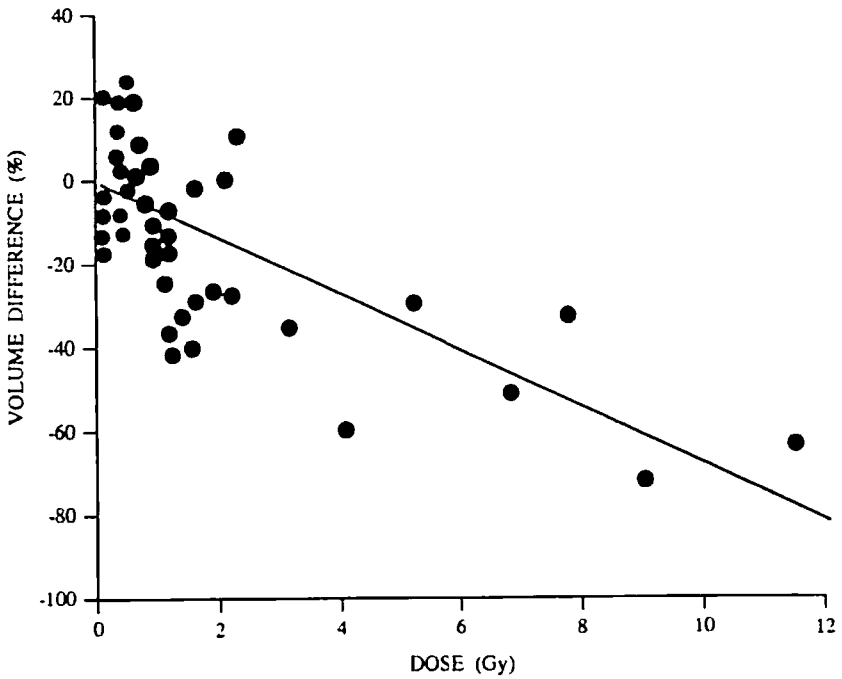


Figure IX.
Difference in breast volume in 53 women treated in childhood for haemangioma by radiotherapy of the breast region.
[F9]

References

A1 Allen, J.C. The effects of cancer therapy on the nervous system. J. Pediatr. 93: 903-909 (1978).

A2 Aur, R.J.A., J.V. Simone, H.O. Hustu et al. Central nervous system therapy and combination chemotherapy of childhood lymphocytic leukemia. Blood 37: 272-281 (1971).

A3 Aur, R.J.A., J.V. Simone, H.O. Hustu et al. A comparative study of central nervous system irradiation and intensive chemotherapy early in remission of childhood acute lymphocytic leukemia. Cancer 29: 381-391 (1972).

A4 Atkinson, K., H. Clink, S. Lawler et al. Encephalopathy following bone marrow transplantation. Eur. J. Cancer 13: 623-625 (1977).

A5 Abbatucci, J.S., T. Delozier, R. Quint et al. Radiation myelopathy of the cervical spinal cord: time, dose and volume factors. Int. J. Radiat. Oncol. Biol. Phys. 4: 239-248 (1978).

A6 Atlas, S.W., R.I. Grossman, R.J. Packer et al. Magnetic resonance imaging diagnosis of disseminated necrotizing leukoencephalopathy. J. Comput. Assist. Tomogr. 11: 39-43 (1987).

A7 Atkinson, R.L., R.C. Atkinson and E.R. Hilgard. (eds.). Mental abilities and their measurement. p. 349-381 in: Introduction to Psychology, Eighth Edition. Harcout Brace Jovanovich, Inc., New York, 1983.

A8 Ahmed, S.R. and S.M. Shalet. Hypothalamic growth hormone releasing factor deficiency following cranial irradiation. Clin. Endocrinol. 21: 483-488 (1984).

A9 Abayomi, O.K. and A. Sadeghi-Nejad. The incidence of late endocrine dysfunction following irradiation for childhood medulloblastoma. Int. J. Radiat. Oncol. Biol. Phys. 12: 945-948 (1986).

A10 Ahmed, S.R., S.M. Shalet and C.G. Beardwell. The effects of cranial irradiation on growth hormone secretion. Acta Paediatr. Scand. 75: 255-260 (1986).

A11 Albertsson-Wikland, K., B. Lannering, I. Márky et al. A longitudinal study on growth and spontaneous growth hormone (GH) secretion in children with irradiated brain tumors. Acta Paediatr. Scand. 76: 966-973 (1987).

A12 Ash, P. The influence of radiation on fertility in man. Br. J. Radiol. 53: 271-278 (1980).

A13 Ahmed, S.R., S.M. Shalet, R.H.A. Campbell et al. Primary gonadal damage following treatment of brain tumors in childhood. J. Pediatr. 103: 562-565 (1983).

A14 Applebaum, F.R. and E.D. Thomas. Treatment of acute leukemia in adults with chemoradiotherapy and bone marrow transplantation. Cancer 55: 2202-2209 (1985).

A15 Applefeld, M.M. and P.H. Wiernik. Cardiac disease after radiation therapy for Hodgkin's disease: analysis of 48 patients. Am. J. Cardiol. 51: 1679-1681 (1983).

A16 Alvarado, C.S., T.F. Boat and A.J. Newman. Late-onset pulmonary fibrosis and chest deformity in two children treated with cyclophosphamide. J. Pediatr. 92: 443-446 (1978).

A17 Arneil, G.C., F. Harris, I.G. Emmanuel et al. Nephritis in two children after irradiation and chemotherapy for nephroblastoma. Lancet 1: 960-963 (1974).

A18 Andreeva, A.P., E.G. Kazanets, N.A. Karamjan et al. Erythropoiesis of children exposed to low radiation doses in the contaminated areas. Sov. Med. Rev. Hematol. (1993). (in Russian)

B1 Bloomer, W.D. and S. Hellman. Normal tissue responses to radiation therapy. N. Engl. J. Med. 293: 80-83 (1975).

B2 Bleyer, W.A. and D.G. Poplack. Prophylaxis and treatment of leukemia in the central nervous system and other sanctuaries. Semin. Oncol. 12: 131-148 (1985).

B3 Bloom, H.J.G., E.N.K. Wallace and J.M. Henk. The treatment and prognosis of medulloblastoma in children. Am. J. Roentgenol. 105: 43-62 (1969).

B4 Bleyer, W.A. and T.W. Griffin. White matter necrosis, mineralizing microangiopathy, and intellectual abilities in survivors of childhood leukemia: associations with central nervous system irradiation and methotrexate therapy. p. 155-174 in: Radiation Damage to the Nervous System. (H.A. Gilbert and A.R. Kagan, eds.) Raven Press, New York, 1980.

B5 Brecher, M.L., P. Berger, A.I. Freeman et al. Computerized tomography scan findings in children with acute lymphocytic leukemia treated with three different methods of central nervous system prophylaxis. Cancer 56: 2439-2433 (1985).

B6 Brouwers, P., R. Riccardi, P. Fedio et al. Long-term neuropsychological sequelae of childhood leukemia: correlation with CT brain scan abnormalities. J. Pediatr. 106: 723-728 (1985).

B7 Bordeaux, J., R. Dowell, D. Copeland et al. Intellectual functioning of children who survive brain tumors. Abstract. p. 2 in: Childhood Cancer Survivors: Living Beyond Cure. Tenth Annual Mental Health Conference, Houston, Texas, 1985.

B8 Bamford, F.N., P.H. Morris Jones, D. Pearson et al. Residual disabilities in children treated for intracranial space-occupying lesions. Cancer 37: 1149-1151 (1976).

B9 Bleyer, W.A. Neurologic sequelae of methotrexate and ionizing radiation: a new classification. Cancer Treat. Rep. 65 (Suppl. 1): 89-98 (1981).

B10 Bajorunas, D.R., F. Ghavimi, B. Jereb et al. Endocrine sequelae of antineoplastic therapy in childhood head and neck malignancies. J. Clin. Endocrinol. Metab. 50: 329-335 (1980).

B11 Berry, D.H., M.J. Elders, W. Crist et al. Growth in children with acute lymphocytic leukemia: a Pediatric Oncology Group study. Med. Pediatr. Oncol. 11: 39-45 (1983).

B12 Bode, U., A. Oliff, B.B. Bercu et al. Absence of CT brain scan and endocrine abnormalities with less intensive CNS prophylaxis. Am. J. Pediatr. Hematol./Oncol. 2: 21-24 (1980).

B13 Barrett, A., J. Nicholls and B. Gibson. Late effects of total body irradiation. Radiother. Oncol. 9: 131-135 (1987).

B14 Belsky, J.L. and W.J. Blot. Adults stature in relation to childhood exposure to the atomic bombs of Hiroshima and Nagasaki. Am. J. Public Health 65: 489-494 (1975).

B15 Bantle, J.P., C.K.K. Lee and S.H. Levitt. Thyroxine administration during radiation therapy to the neck does not prevent subsequent thyroid dysfunction. Int. J. Radiat. Oncol. Biol. Phys. 11: 1999-2002 (1985).

B16 Becker, D.V., W.M. McConahey, B.M. Dobyns et al. The results of radioiodine treatment of hyperthyroidism. A preliminary report of the thyrotoxicosis therapy follow-up study. p. 603-609 in: Further Advances in Thyroid Research. Vol. 1. (K. Fellinger and R. Höfer, eds.) Verlag der Wiener Medizinischen Akademie, Wien, 1971.

B17 Becker, D.V. Medical radiation: comparison of iodine-131 therapy and alternative treatments of hyperthyroidism. p. 57-67 in: Radiation and the Thyroid. (S. Nagataki, ed.) Excerpta Medica, Amsterdam, 1989.

B18 Brauner, R., R. Rappaport, P. Czernichow et al. Effects of hypothalamic and gonadal irradiation on pubertal development in children with cranial, cervical and abdominal tumors and acute leukemia. p. 163-173 in: Pathophysiology of Puberty. (E. Cacciari and A. Prader, eds.) Academic Press, London, 1980.

B19 Brauner, R., P. Czernichow and R. Rappaport. Precocious puberty after hypothalamic and pituitary irradiation in young children. N. Engl. J. Med. 310: 920 (1984).

B20 Brauner, R., P. Czernichow, P. Cramer et al. Leydig-cell function in children after direct testicular irradiation for acute lymphoblastic leukemia. N. Engl. J. Med. 309: 25-28 (1983).

B21 Blatt, J., D.G. Poplack and R.J. Sherins. Testicular function in boys after chemotherapy for acute lymphoblastic leukemia. N. Engl. J. Med. 304: 1121-1124 (1981).

B22 Blatt, J., R.J. Sherins, D. Niebrugge et al. Leydig cell function in boys following treatment for testicular relapse of acute lymphoblastic leukemia. J. Clin. Oncol. 3: 1227-1231 (1985).

B23 Butler, M.S., W.W. Robertson, W. Rate et al. Skeletal sequelae of radiation therapy for malignant childhood tumors. Clin. Orthop. 251: 235-240 (1990).

B24 Broadbent, V.A., N.D. Barnes and T.K. Wheeler. Medulloblastoma in childhood: long-term results of treatment. Cancer 48: 26-30 (1981).

B25 Bleher, E.A. and H. Tschäppeler. Spätveränderungen an der Wirbelsäule nach Strahlentherapie und kombinierter Behandlung bei Morbus Hodgkin im Kindes- und Adoleszentenalter. Strahlentherapie 155: 817-828 (1979).

B26 Barrett, I.R. Slipped capital femoral epiphysis following radiotherapy. J. Pediatr. Orthop. 5: 268-273 (1985).

B27 Burke, F.J.T. and J.W. Frame. The effect of irradiation on developing teeth. Oral Surg., Oral Med., Oral Pathol. 47: 11-13 (1979).

B28 Britten, M.J.A., K.E. Halnan and W.J. Meredith. Radiation cataract: new evidence on radiation damage to the lens. Br. J. Radiol. 39: 612-617 (1966).

B29 Brosius, F.C., B.F. Waller and W.C. Roberts. Radiation heart disease. Analysis of 16 young (aged 15 to 33 years) necropsy patients who received over 3,500 rads to the heart. Am. J. Med. 70: 519-530 (1981).

B30 Burns, R.J., B.-Z. Bar-Schlomo, M.N. Druck et al. Detection of radiation cardiomyopathy by gated radionuclide angiography. Am. J. Med. 74: 297-302 (1983).

B31 Billinghamn, M.E., J.W. Mason, M.R. Bristow et al. Anthracycline carciomyopathy monitored by morphologic changes. Cancer Treat. Rep. 62: 865-872 (1978).

B32 Benoist, M.R., J. Lemerle, R. Jean et al. Effects on pulmonary function of whole lung irradiation for Wilms' tumor in children. Thorax 37: 175-180 (1982).

B33 Barrera, M., L.P. Roy and M. Stevens. Long-term follow-up after unilateral nephrectomy and radio-therapy for Wilms' tumour. Pediatr. Nephrol. 3: 430-432 (1989).

B34 Blomgren, H., S. Hayder, I. Lax et al. Studies on the lymphatic system in long-term survivors treated for Wilms' tumour or non-Hodgkin's lymphoma during childhood. Clin. Oncol. 6: 3-13 (1980).

B35 Bloom, H.J.G. Intracranial tumors: response and resistance to therapeutic endeavors, 1970-1980. Int. J. Radiat. Oncol. Biol. Phys. 8: 1083-1113 (1982).

B36 Baisogolov, G.D. and I.P. Shiskin. Spätfolgen nach Bestrahlung (a) Fellzusammensetzung in bestrahlten Knochenmarkabschnitten. Radiobiol. Radiother. 22 (4): 377-381 (1981).

B37 Baisogolov, G.D. and I.P. Shiskin. Zustand des Strohmas in bestrahlten und intakten Abschnitten des menschlichen Knochenmarks. Radiobiol. Radiother. 23 (1): 31-35 (1982).

B38 Baisogolov, G.D. and I.P. Shiskin. Blutbildung in bestrahlten und unbestrahlten Knochenmarksbereichen. Radiobiol. Radiother. 24 (N1): (1983).

B39 Breur, K., P. Cohen, O. Schweisguth et al. Irradiation of the lungs as an adjuvant therapy in the treatment of osteosarcoma of the limbs. Eur. J. Cancer 14: 461-471 (1978).

B40 Blot, W.J., I.M. Moriyama and R.W. Miller. Reproductive potential of males exposed in utero or prepubertally to atomic radiation. ABCC TR/39-72 (1972).

C1 Committee for Radiation Oncology Studies. Normal tissue tolerance and damage. Cancer 37 (Suppl.): 2046-2055 (1976).

C2 Casarett, G. Basic mechanisms for permanent and delayed radiation pathology. Cancer 37 (Suppl. 2): 1002-1010 (1976).

C3 Crosley, C.J., L.B. Rorke, A. Evans et al. Central nervous system lesions in childhood leukemia. Neurology 28: 678-685 (1978).

C4 Constine, L., A. Konski, S. Ekholm et al. Adverse effects of brain irradiation correlated with MR and CT imaging. Abstract. Int. J. Radiat. Oncol. Biol. Phys. 13 (Suppl. 1): 88 (1987).

C5 Cap, J., Z. Misikova, A. Foltinova et al. Consequences of intensive therapy of acute lymphoblastic leukemia in children in initial complete remission lasting more than five years. Czech. Med. 8: 35-44 (1985).

C6 Copeland, D.R., J.M. Fletcher, B. Pfefferbaum-Levine et al. Neuropsychological sequelae of childhood cancer in long-term survivors. Pediatrics 75: 745-753 (1985).

C7 Copeland, D.R., R.E. Dowell, J.M. Fletcher et al. Neuropsychological effects of childhood cancer treatment. J. Child Neurol. 3: 53-62 (1988).

C8 Calissendorff, B., P. Bolme and M. el-Azazi. The development of cataract in children as a late side-effect of bone marrow transplantation. Bone Marrow Transplant. 7: 427-429 (1991).

C9 Chin, H.W. and Y. Maruyama. Age at treatment and long-term performance results in medulloblastoma. Cancer 53: 1952-1958 (1984).

C10 Czernichow, P., O. Cachin, R. Rappaport et al. Sequelles endocriniennes des irradiations de la tete et du cou pour tumeurs extracraniennes. Arch. Fr. Pédiatr. 34 (Suppl. 7): 154-164 (1977).

C11 Clayton, P.E., S.M. Shalet, P.H. Morris-Jones et al. Growth in children treated for acute lymphoblastic leukemia. Lancet 1: 460-462 (1988).

C12 Clayton, P.E. and S.M. Shalet. Dose dependency of time of onset of radiation-induced growth hormone deficiency. J. Pediatr. 118: 226-228 (1991).

C13 Cramer, P., G. Schaison and J.M. Andrieu. Maladie de Hodgkin de l'enfant résultants à long terme du traitement. Bull. Cancer (FR) 68: 456-464 (1981).

C14 Carli, M., G. Perilongo, A.M. Lavarda et al. Risk factors for cerebral calcifications in patients treated with conventional CNS prophylaxis. in: Third International Symposium on Therapy of Acute Leukemias, Rome, 1982.

C15 Constine, L.S., S.S. Donaldson, I.R. McDougall et al. Thyroid dysfunction after radiotherapy in children with Hodgkin's disease. Cancer 53: 878-883 (1984).

C16 Conard, R.A. Late radiation effects in Marshall Islanders exposed to fallout 28 years ago. p. 57-71 in: Radiation Carcinogenesis: Epidemiology and Biological Significance. (J.D. Boice Jr. and J.F. Fraumeni Jr., eds.) Raven Press, New York, 1984.

C17 Clayton, P.E., S.M. Shalet, D.A. Price et al. Ovarian function following chemotherapy for childhood brain tumours. Med. Pediatr. Oncol. 17: 92-96 (1989).

C18 Clayton, P.E., S.M. Shalet, D.A. Price et al. Testicular damage after chemotherapy for childhood brain tumors. J. Pediatr. 112: 922-926 (1988).

C19 Castillo, L.A., A.W. Craft, J. Kernahan et al. Gonadal function after 12 Gy testicular irradiation in childhood acute lymphoblastic leukemia. Med. Pediatr. Oncol. 18: 185-189 (1990).

C20 Committee on Biological Effects of Ionizing Radiations (BEIR III). The Effects on Populations of Exposure to Low Levels of Ionizing Radiation: 1980. United States National Academy of Sciences, National Research Council. National Academy Press, Washington, 1980.

C21 Choshi, K., I. Takaku, H. Mishima et al. Ophtalmologic changes related to radiation exposure and age in the adult health study sample, Hiroshima and Nagasaki. Radiat. Res. 96: 560-579 (1983).

C22 Carmel, R.J. and H.S. Kaplan. Mantle irradiation in Hodgkin's disease. An analysis of technique, tumor eradication and complications. Cancer 37: 2813-2825 (1976).

C23 Cicognani, A., E. Cacciari, V. Vecci et al. Differential effects of 18- and 24-Gy cranial irradiation on growth rate and growth hormone release in children with prolonged survival after acute lymphocytic leukemia. Am. J. Dis. Child. 142: 1199-1202 (1988).

C24 Caceres, E. and M. Zaharia. Massive preoperative radiation therapy in the treatment of osteogenic sarcoma. Cancer 30 (3): 634-638 (1972).

C25 Chmelevsky, D., C.W. Mays, H. Spiess et al. An epidemiological assessment of lens opacifications that impaired vision in patients injected with radium-224. Radiat. Res. 115: 238-257 (1988).

C26 Constine, L.S., P.D. Woolf, D. Cann et al. Hypothalamic-pituitary dysfunction after radiation for brain tumors. N. Engl. J. Med. 328: 87-94 (1993).

D1 Duffner, P.K., M.E. Cohen, P.R.M. Thomas et al. The long-term effects of cranial irradiation on the central nervous system. Cancer 56 (Suppl.): 1841-1846 (1985).

D2 Deeg, H.J., R. Storb and E.D. Thomas. Bone marrow transplantation: a review of delayed complications. Br. J. Haematol. 57: 185-208 (1984).

D3 Deck, M.D.F. Imaging techniques in the diagnosis of radiation damage to the central nervous system. p. 107-127 in: Radiation Damage to the Nervous System. (H.A. Gilbert and A.R. Kagan, eds.) Raven Press, New York, 1980.

D4 Di Chiro, G., E. Oldfield, D.C. Wright et al. Cerebral necrosis after radiotherapy and/or intraarterial chemotherapy for brain tumors: PET and neuro-pathologic studies. Am. J. Roentgenol. 150: 189-197 (1988).

D5 Davis, P.C., J.C. Hoffman, G.S. Pearl et al. CT evaluation of effects of cranial radiation therapy in children. Am. J. Roentgenol. 147: 587-592 (1986).

D6 Duffner, P.K., M.E. Cohen, S.W. Anderson et al. Long-term effects of treatment on endocrine function in children with brain tumors. Ann. Neurol. 14: 528-532 (1983).

D7 Deutsch, M. Radiotherapy for primary brain tumors in very young children. Cancer 50: 2785-2789 (1982).

D8 Duffner, P.K., M.E. Cohen and P. Thomas. Late effects of treatment in the intelligence of children with posterior fossa tumors. Cancer 51: 233-237 (1983).

D9 Danoff, B.F., F.S. Cowchock, C. Marquette et al. Assessment of the long-term effects of primary radiation therapy for brain tumors in children. Cancer 49: 1580-1586 (1982).

D10 Danoff, B.F., F.S. Cowchock and S. Kramer. Childhood craniopharyngioma: survival, local control, endocrine and neurologic function following radiotherapy. Int. J. Radiat. Oncol. Biol. Phys. 9: 171-175 (1983).

D11 Duffner, P.K., M.E. Cohen, P.R.M. Thomas et al. The long-term effects of cranial irradiation on the central nervous system. Cancer 56: 1841-1846 (1985).

D12 Duffner, P.K., M.E. Cohen, M.L. Voorhess et al. Long-term effects of cranial irradiation on endocrine function in children with brain tumors. Cancer 56: 2189-2193 (1985).

D13 Duffner, P.K. and M.E. Cohen. Recent developments in pediatric neuro-oncology. Cancer 58: 561-568 (1986).

D14 Dickinson, W.P., D.H. Berry, L. Dickinson et al. Differential effects of cranial radiation on growth hormone response to arginine and insulin infusion. J. Pediatr. 92: 754-757 (1978).

D15 Drinnan, C.R., J.D. Miller, H.J. Guyda et al. Growth and development of long-term survivors of childhood acute lymphoblastic leukemia treated with and without prophylactic radiation of the central nervous system. Clin. Invest. Med. 8: 307-314 (1985).

D16 Devney, R.B., C.A. Sklar, M.E. Nesbit et al. Serial thyroid function measurements in children with Hodgkin's disease. J. Pediatr. 105: 223-227 (1984).

D17 Donaldson, S.S. and H.S. Kaplan. Complications of treatment of Hodgkin's disease in children. Cancer Treat. Rep. 66: 977-989 (1982).

D18 Danowski, T.S. Thyroid. p. 255-256 in: Clinical Endocrinology. Volume II. The Williams & Wilkins Company, Baltimore, 1962.

D19 Dawson, W.B. Growth impairment following radiotherapy in childhood. Clin. Radiol. 19: 241-256 (1968).

D20 Dahllöf, G., M. Barr, P. Bolme et al. Disturbances in dental development after total body irradiation in bone marrow transplant recipients. Oral Surg. Oral Med. Oral Pathol. 65: 41-44 (1988).

D21 Deeg, H.J., N. Flournoy, K.M. Sullivan et al. Cataracts after total body irradiation and marrow transplantation: a sparing effect of dose fractionation. Int. J. Radiat. Oncol. Biol. Phys. 10: 957-964 (1984).

D22 do Pico, G.A., A.L. Wiley, P. Rao et al. Pulmonary reaction to upper mantle radiation therapy for Hodgkin's disease. Chest 75: 688-692 (1979).

D23 Donaldson, S.S., S. Jundt, C. Ricour et al. Radiation enteritis in children. Cancer 35: 1167-1178 (1975).

D24 Day, R.E., J. Kingston, J.A. Bullimore et al. CAT brain scans after central nervous system prophylaxis for acute lymphoblastic leukaemia. Br. Med. J. 2: 1752-1753 (1978).

D25 Dacou-Voutetakis, C., A. Xypolyta, S. Haidas et al. Irradiation of the head. Immediate effect on growth hormone secretion in children. J. Clin. Endocrinol. Metab. 44: 791-794 (1977).

D26 DeAngelis, L.M. and W.R. Shapiro. Drug/radiation interactions and central nervous system injury. p. 361-381 in: Radiation Injury to the Nervous System. (P.H. Gutin, S.A. Leibel and G.E. Sheline, eds.) Raven Press Ltd., New York, 1991.

E1 Esseltine, D.W., C.R. Freeman, L.M. Chevalier et al. Computed tomography brain scans in long-term survivors of childhood acute lymphoblastic leukemia. Med. Pediatr. Oncol. 9: 429-438 (1981).

E2 Ellenberg, L., J.G. McComb, S.E. Siegel et al. Factors affecting intellectual outcome in pediatric brain tumor patients. Neurosurgery 21: 638-644 (1987).

E3 Eiser, C. Intellectual abilities among survivors of childhood leukaemia as a function of CNS irradiation. Arch. Dis. Childhood 53: 391-395 (1978).

E4 Eiser, C. and R. Lansdown. Retrospective study of intellectual development in children treated for acute lymphoblastic leukemia. Arch. Dis. Childhood 52: 525-529 (1977).

E5 Eiser, C. Effects of chronic illness on intellectual development. Arch. Dis. Childhood 55: 766-770 (1980).

E6 Edeiken, B.S., H.I. Libshitz and M.A. Cohen. Slipped proximal humoral epiphysis: a complication of radiotherapy to the shoulder in children. Skelet. Radiol. 9: 123-125 (1982).

E7 Egawa S., I. Tsukiyama, Y. Akine et al. Suppression of bony growth of the orbit after radiotherapy for retinoblastoma. Radiat. Med. 5: 207-211 (1987).

F1 Field, S.B. and A.C. Upton. Non-stochastic effects: compatibility with present ICRP recommendations. Int. J. Radiat. Oncol. Biol. Phys. 48: 81-94 (1985).

F2 Fusner, J.E., D.G. Poplack, P.A. Pizzo et al. Leukoencephalopathy following chemotherapy for rhabdomyosarcoma: reversibility of cerebral changes demonstrated by computed tomography. J. Pediatr. 91: 77-79 (1977).

F3 Freeman, C.R., J. Krischer, R.A. Sanford et al. Hyperfractionated radiotherapy in brain stem tumors: results of a pediatric oncology group study. Int. J. Radiat. Oncol. Biol. Phys. 15: 311-318 (1988).

F4 Fuks, Z., E. Glatstein, G.W. Marsa et al. Long-term effects of external radiation on the pituitary and thyroid glands. Cancer 37: 1152-1161 (1976).

F5 Fleming, I.D., T.L. Black, E.I. Thompson et al. Thyroid dysfunction and neoplasia in children receiving neck irradiation for cancer. Cancer 55: 1190-1194 (1985).

F6 Freitas, J.E., D.P. Swanson, M.D. Gross et al. Iodine-131: optimal therapy for hyperthyroidism in children and adolescents? J. Nucl. Med. 20: 847-850 (1979).

F7 Fromm, M., P. Littman, R.B. Raney et al. Late effects after treatment of twenty children with soft tissue sarcomas of the head and neck. Experience at a single institution with a review of the literature. Cancer 57: 2070-2076 (1986).

F8 François, P. Etude dosimetrique retrospective chez des enfants ayant fait une seconde tumeur après radiotherapie. Thèse N.D.'ordre: 132. L'Université Paul Sabatier de Toulouse, 1987.

F9 Fürst, C.J., M. Lundell, S.-O. Ahlbäck et al. Breast hypoplasia following irradiation of the female breast in infancy and early childhood. Acta Oncol. 28: 519-523 (1989).

F10 Fajardo, L.F. and T.V. Colby. Pathogenesis of veno-occlusive liver disease after radiation. Arch. Pathol. Lab. Med. 104: 584-588 (1980).

F11 Freedman, L.R. and R.K. Keehen. Urinary findings of children who were in utero during the atomic bombings of Hiroshima and Nagasaki. Yale J. Biol. Med. 39: 196-206 (1966).

F12 Finch, S.C. and C.A. Finch. Summary of the studies at ABCC-RERF concerning the late hematologic effects of atomic bomb exposure in Hiroshima and Nagasaki. RERF TR/23-88 (1988).

G1 Gamis, A.S. and M.E. Nesbit. Neuropsychologic (cognitive) disabilities in long-term survivors of childhood cancer. Pediatrics 18: 11-19 (1991).

G2 Griffin, N.K. and J. Wadsworth. Effect of treatment of malignant disease on growth in children. Arch. Dis. Childhood 55: 600-603 (1980).

G3 Growth Hormone Treatment of Short Stature. State-of-the-Art in 1989. Acta Paediatr. Scand. (Suppl.) 362: 1-75 (1989).

G4 Glatstein, E., S. McHardy-Young, N. Brast et al. Alternation in serum thyrotropin (TSH) and thyroid function following radiotherapy in patients with malignant lymphoma. J. Clin. Endocrinol. 32: 833-841 (1971).

G5 Green, D.M., M.L. Brecher, D. Yakar et al. Thyroid function in pediatric patients after neck irradiation for Hodgkin's disease. Med. Pediatr. Oncol. 8: 127-136 (1980).

G6 Goolden, A.W. and J.B. Davey. The ablation of normal thyroid tissue with iodine-131. Br. J. Radiol. 36: 340-345 (1963).

G7 Green, D.M., M.L. Brecher, A.N. Lindsay et al. Gonadal function in pediatric patients following treatment for Hodgkin's disease. Med. Pediatr. Oncol. 9: 235-244 (1981).

G8 Gonzalez, D.G. and K. Breur. Clinical data from irradiated growing long bones in children. Int. J. Radiat. Oncol. Biol. Phys. 9: 841-846 (1983).

G9 Gauverky, F. Über die Strahlenschädigung des wachsenden Knochens. Strahlentherapie 113: 325-350 (1960).

G10 Guyuron, B., A.P. Dagys and I.R. Munro. Long-term effects of orbital irradiation. Head Neck Surg. 10: 85-87 (1987).

G11 Gottdiener, J.S., M.J. Katin, J.S. Borer et al. Late cardiac effects of therapeutic mediastinal irradiation. Assessment by echocardiography and radionuclide angiography. N. Engl. J. Med. 308: 569-572 (1983).

G12 Greenwood, R.D., A. Rosenthal, R. Cassady et al. Constrictive pericarditis in childhood due to mediastinal irradiation. Circulation 50: 1033-1039 (1974).

G13 Green, D.M., R.L. Gingell, J. Pearce et al. The effect of mediastinal irradiation on cardiac function of patients treated during childhood and adolescence for Hodgkin's disease. J. Clin. Oncol. 5: 239-245 (1987).

G14 Gilladoga, A.C., C. Manuel, C.T.C. Tan et al. The cardiotoxicity of adriamycin and daunomycin in children. Cancer 37: 1070-1078 (1976).

G15 Gregl, A. and J.W. Weiss. Mammohypoplasie nach Röntgenbestrahlung von Hämangiomen im Säuglingsalter. Fortschr. Geb. Röntgenstr. Nuklearmed. 96: 272-277 (1962).

H1 Hauer-Jensen, M. Late radiation injury of the small intestine. Clinical, pathophysiologic and radiobiologic aspects. A review. Acta Oncol. 29: 401-415 (1989).

H2 Hirsch, J.F., D. Renier, A. Pierre-Kahn et al. Les médulloblastomes de l'enfant. Survie et résultats fonctionnels. Neurochirurgie 24: 391-397 (1978).

H3 Harten, G., U. Stephani, G. Henze et al. Slight impairment of psychomotor skills in children after treatment of acute lymphoblastic leukemia. Eur. J. Pediatr. 142: 189-197 (1984).

H4 Hanefeld, F. and H. Riehm. Therapy of acute lymphoblastic leukemia in childhood: effects on the nervous system. Neuropediatrics 11: 3-16 (1980).

H5 Herber, S.M., R. Kay, R. May et al. Growth of long-term survivors of childhood malignancy. Acta Paediatr. Scand. 74: 438-441 (1985).

H6 Hirsch, J.F., D. Renier, P. Czernichow et al. Medulloblastoma in childhood. Survival and functional results. Acta Neurochir. 48: 1-15 (1979).

H7 Heidemann, P.H., P. Stubbe and W. Beck. Transient secondary hypothyroidism and thyroxine binding globulin deficiency in leukemic children during polychemotherapy: an effect of L-asparaginase. Eur. J. Pediatr. 136: 291-295 (1981).

H8 Hempelmann, L.H. Neoplasms in youthful populations following X-ray treatment in infancy. Environ. Res. 1: 338-358 (1967).

H9 Holm, L.-E., G. Lundell, A. Israelsson et al. Incidence of hypothyroidism occurring long after iodine-131 therapy for hyperthyroidism. J. Nucl. Med. 23: 103-107 (1982).

H10 Holm, L.-E. and I. Ålinder. Relapses after thionamide therapy for Graves' disease. Acta Med. Scand. 211: 489-492 (1982).

H11 Hayek, A., F.M. Chapman and J.D. Crawford. Long-term results of treatment of thyrotoxicosis in children and adolescents with radioactive iodine. N. Engl. J. Med. 283: 949-953 (1970).

H12 Horning, S.J., R.T. Hoppe, H.S. Kaplan et al. Female reproductive potential after treatment for Hodgkin's disease. N. Engl. J. Med. 304: 1377-1382 (1981).

H13 Himmelstein-Braw, R., H. Peters and M. Faber. Influence of irradiation and chemotherapy on the ovaries of children with abdominal tumours. Br. J. Cancer 36: 269-275 (1977).

H14 Hamre, M.R., L.L. Robison, M.E. Nesbit et al. Gonadal function in survivors of childhood acute lymphoblastic leukemia (ALL). Abstract. Proc. Am. Soc. Clin. Oncol. 4: 166 (1985).

H15 Hueck, H. and W. Spiebs. Zur Frage der Wachstumsstörungen bei Röntgen bestrahlten Knochen und Gelenktuberculosen. Strahlentherapie 32: 322-342 (1929).

H16 Heaston, D.K., H.I. Libshitz and R.C. Cahn. Skeletal effects of H2. megavoltage irradiation in survivors of Wilms' tumor. Am. J. Roentgenol. 133: 398-395 (1979).

H17 Heyn, R., A. Ragab, R.B. Raney et al. Late effects of therapy in orbital rhabdomyosarcoma in children. A report from the Intergroup Rhabdomyosarcoma Study. Cancer 57: 1738-1743 (1986).

H18 Hazra, T.A. and B. Shipman. Dental problems in pediatric patients with head and neck tumors undergoing multiple modality therapy. Med. Pediatr. Oncol. 10: 91-95 (1982).

H19 Holbeck, S. and N. Ehlers. Long-term visual results in eyes cured for retinoblastoma by radiation. Acta Ophthalmol. 67: 560-566 (1989).

H20 Haas, J.M. Symptomatic constrictive pericarditis developing 45 years after radiation therapy to the mediastinum. A review of radiation pericarditis. Am. Heart J. 77: 89-95 (1969).

H21 Höst, H. and J.R. Vale. Lung function after mantle field irradiation in Hodgkin's disease. Cancer 32: 328-332 (1973).

H22 Harms, C. Entwicklungshemmung der weiblichen Brustdrüse durch Röntgenbestrahlung. Strahlentherapie 19: 586-588 (1925).

I1 International Commission on Radiological Protection. Non-stochastic Effects of Ionizing Radiation. ICRP Publication 41. Annals of the ICRP 14(3). Pergamon Press, Oxford, 1984.

I2 International Commission on Radiological Protection. 1990 Recommendations of the International Commission on Radiological Protection. ICRP Publication 60. Annals of the ICRP 21(1-3). Pergamon Press, Oxford, 1991.

I3 Inati, A., S.E. Sallan, J.R. Cassady et al. Efficacy and morbidity of central nervous system "prophylaxis" in childhood acute lymphoblastic leukemia: eight years' experience with cranial irradiation and intrathecal methotrexate. Blood 61: 297-303 (1983).

I4 Ishimaru, T., T. Amano and S. Kawamoto. Relationship of stature to gamma and neutron exposure among atomic bomb survivors aged less than 10 at the time of the bomb, Hiroshima and Nagasaki. RERF TR/18-81 (1981).

I5 International Commission on Radiological Protection. Recommendations of the International Commission on Radiological Protection. ICRP Publication 26. Annals of the ICRP 1(3). Pergamon Press, Oxford, 1977.

I6 Ingold, J.A., G.B. Reed, H.S. Kaplan et al. Radiation hepatitis. Am. J. Roentgenol. 93: 200-208 (1965).

I7 Inoue, S., Y. Shibata, H. Hirayu et al. Thyroid diseases among A-bomb survivor in Nagasaki. RERF TR/12-92 (1992).

I8 International Chernobyl Project. Assessment of radiological consequences and evaluation of protective measures. Technical Report. International Advisory Committee, IAEA (1991).

J1 Johnson, F.L., E.D. Thomas, B.S. Clark et al. A comparison of marrow transplantation with chemotherapy for children with acute lymphoblastic leukemia in second or subsequent remission. N. Engl. J. Med. 305: 846-851 (1981).

J2 Jannoun, L. and H.J.G. Bloom. Long-term psychological effects in children treated for intracranial tumors. Int. J. Radiat. Oncol. Biol. Phys. 18: 747-753 (1990).

J3 Jannoun, L. Are cognitive and educational development affected by age at which prophylactic therapy is given in acute lymphoblastic leukaemia? Arch. Dis. Childhood 58: 953-958 (1983).

J4 Jaffe, N., M.P. Sullivan, H. Ried et al. Male reproductive function in long-term survivors of childhood cancer. Med. Pediatr. Oncol. 16: 241-247 (1988).

J5 Jaffe, N., M. McNeese, J.K. Mayfield et al. Childhood urologic cancer therapy related sequelae and their impact on management. Cancer 45: 1815-1822 (1980).

J6 Jaffe, N., B.B. Toth, R.E. Hoar et al. Dental and maxillofacial abnormalities in long-term survivors of childhood cancer: effects of treatment with chemotherapy and radiation to the head and neck. Pediatrics 73: 816-823 (1984).

J7 Johnson, F.L. and F.M. Balis. Hepatopathy following irradiation and chemotherapy for Wilms' tumor. Am. J. Pediatr. Hematol./Oncol. 4: 271-221 (1983).

K1 Kramer, S., M.E. Southard and C.M. Mansfield. Radiation effect and tolerance of the central nervous system. p. 332-345 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

K2 Kingsley, D.P. and B.E. Kendall. CT of the adverse effects of therapeutic radiation of the central nervous system. Am. J. Neuroradiol. 2: 453-460 (1981).

K3 Kramer, J. and M. Moore. Late effects of cancer therapy on the central nervous system. Semin. Oncol. Nurs. 5: 22-28 (1989).

K4 Kay, H.E.M., P.J. Knapton, J.P. O'Sullivan et al. Encephalopathy in acute leukaemia associated with methotrexate therapy. Arch. Dis. Childhood 47: 344-354 (1972).

K5 Kramer, J.H., D. Norman, M. Brant-Zawadzki et al. Absence of white matter changes on magnetic resonance imaging in children treated with CNS prophylaxis therapy for leukemia. Cancer 61: 928-930 (1988).

K6 Kun, L.E., R.K. Mulhern and J.J. Crisco. Quality of life in children treated for brain tumors. Intellectual, emotional, and academic function. J. Neurosurg. 58: 1-6 (1983).

K7 Kirk, J.A., P. Raghupathy, M.M. Stevens et al. Growth failure and growth-hormone deficiency after treatment for acute lymphoblastic leukaemia. Lancet 1: 190-193 (1987).

K8 Kaplan, M.M., M.B. Garnick, R. Gelber et al. Risk factors for thyroid abnormalities after neck irradiation for childhood cancer. Am. J. Med. 74: 272-280 (1983).

K9 Katsanis, E., R.S. Shapiro, L.L. Robison et al. Thyroid dysfunction following bone marrow transplantation: long-term follow-up of 80 pediatric patients. Bone Marrow Transpl. 5: 335-340 (1990).

K10 Kline, R.W., M.T. Gillin and L.E. Kun. Cranial irradiation in acute leukemia: dose estimate in the lens. Int. J. Radiat. Oncol. Biol. Phys. 5: 117-121 (1979).

K11 Kopelson, G. and K.J. Herwig. The etiologies of coronary artery disease in cancer patients. Int. J. Radiat. Oncol. Biol. Phys. 4: 895-906 (1978).

K12 Kadota, R.P., E.O. Burgert, D.J. Driscoll et al. Cardiopulmonary function in long term survivors of childhood Hodgkin's lymphoma: a pilot study. Abstract. Proc. Am. Soc. Clin. Oncol. 5: 198 (1986).

K13 Kolár, J., V. Bek and R. Vrabec. Hypoplasia of the growing breast after contact x-ray therapy for cutaneous angiomas. Arch. Dermatol. 96: 427-430 (1967).

K14 Kraut, J.E., M.A. Bagshaw and E. Glatstein. Hepatic effects of irradiation. p. 182-195 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

K15 Kun, L.E. and B.M. Camita. Hepatopathy following irradiation and adriamycin. Cancer 42: 81-84 (1978).

K16 Koskimies, O. Arterial hypertension developing 10 years after radiotherapy for Wilms' tumour. Br. Med. J. 285: 996-998 (1982).

K17 Kazanets, E.G., A.P. Andreeva, N.A. Karamjan et al. Pathogenesis of anemia in children of the Brjansk region. in: Molecular and Genetic Mechanisms of Influence of Low Radiation Doses. Moscow, 1993. (in Russian)

K18 Karamjan, N.A., S.S. Loria, S.G. Pobpova et al. Hypochronic erythrocytes and secondary erythrocytosis in children from contaminated areas exposed to low radiation doses. in: Molecular and Genetic Mechanisms of Influence of Low Radiation Doses. Moscow, 1993. (in Russian)

L1 Li, F.P. and R. Stone. Survivors of cancer in childhood. Ann. Intern. Med. 84: 551-553 (1976).

L2 Li, F.P., K.R. Winston and K. Gimbrere. Follow-up of children with brain tumors. Cancer 54: 135-138 (1984).

L3 Livrea, P., I.L. Simone, G.B. Zimatore et al. Acute changes in blood-CSF barrier permselectivity to serum proteins after intrathecal methotrexate and CNS irradiation. J. Neurol. 231: 336-339 (1985).

L4 Lannering, B., I. Márky, A. Lundberg et al. Long-term sequelae after pediatric brain tumors: their effect on disability and quality of life. Med. Pediatr. Oncol. 18: 304-310 (1990).

L5 Longeway, K., R. Mulhern, J. Crisco et al. Treatment of meningeal relapse in childhood acute lymphoblastic leukemia: II. A prospective study of intellectual loss specific to CNS relapse and therapy. Am. J. Pediatr. Hematol./Oncol. 12: 45-50 (1990).

L6 Lannering, B. and K. Albertsson-Wikland. Growth hormone release in children after cranial irradiation. Horm. Res. 27: 13-22 (1987).

L7 Livesey, E.A. and C.G.D. Brook. Thyroid dysfunction after radiotherapy and chemotherapy of brain tumours. Arch. Dis. Childhood 64: 593-595 (1989).

L8 Larsen, P.R., R.A. Conard, K.D. Knudsen et al. Thyroid hypofunction after exposure to fallout from a hydrogen bomb explosion. J. Am. Med. Assoc. 247: 1571-1575 (1982).

L9 Lessard, E., R. Miltenberger, R. Conard et al. Thyroid absorbed dose for people at Rongelap, Utirik and Sifo on March 1, 1954. BNL-51882 (1985).

L10 Livesey, E.A. and C.G.D. Brook. Gonadal dysfunction after treatment of intracranial tumours. Arch. Dis. Childhood 63: 495-500 (1988).

L11 Li, F.P., K. Gimbrere, R.D. Gelber et al. Adverse pregnancy outcome after radiotherapy for childhood Wilms' tumor. Abstract. Proc. Am. Soc. Clin. Oncol. 5: 202 (1986).

L12 Leiper, A.D., R. Stanhope, P. Kitching et al. Precocious and premature puberty associated with treatment of acute lymphoblastic leukemia. Arch. Dis. Childhood 62: 1107-1112 (1987).

L13 Lushbaugh, C.C. and R.C. Ricks. Some cytokinetic and histopathologic considerations of irradiated male and female gonadal tissues. p. 228-248 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

L14 Lushbaugh, C.C. and G.W. Casarett. The effects of gonadal irradiation in clinical radiation therapy: a review. Cancer 37: 1111-1120 (1976).

L15 Leiper, A.D., D.B. Grant and J.M. Chessells. The effect of testicular irradiation on Leydig cell function in prepubertal boys with acute lymphoblastic leukaemia. Arch. Dis. Childhood 58: 906-910 (1983).

L16 Larson, D.L., S. Kroll, N. Jaffe et al. Long-term effects of radiotherapy in childhood and adolescence. Am. J. Surg. 160: 348-351 (1990).

L17 Libshitz, H.I. and B.S. Edeiken. Radiotherapy changes of the pediatric hip. Am. J. Roentgenol. 137: 585-588 (1981).

L18 Lockich, J.J., H. Bass, F.E. Eberly et al. The pulmonary effect of mantle irradiation in patients with Hodgkin's disease. Radiology 108: 397-402 (1973).

L19 Littman, P., A.T. Meadows, G. Polgar et al. Pulmonary function in survivors of Wilms' tumor. Patterns of impairment. Cancer 37: 2773-2776 (1976).

L20 Lewin, K. and R.R. Millis. Human radiation hepatitis. A morphologic study with emphasis on the late changes. Arch. Pathol. 96: 21-26 (1973).

L21 Luxton, R.W. Radiation nephritis. Q. J. Med. 22: 215-242 (1953).

L22 Ladavas, E., G. Missiroli, P. Rosito et al. Intellectual function in long-term survivors of childhood acute lymphoblastic leukaemia. Int. J. Neurol. Sci. 6: 451-455 (1985).

L23 Lappi, M., J. Rajantie and R.J. Uusitalo. Irradiation cataract in children after bone marrow transplantation. Graefes Arch. Klin. Exp. Ophthalmol. 228: 218-221 (1990).

L24 Levitt, G.A., E. Yeomans, C. Dicks Mireaux et al. Renal size and function after cure of Wilms' tumour. Br. J. Cancer 66: 877-882 (1992).

L25 Lenskaya, R.V., E.V. Samotsatova, V.M. Bujankin et al. Leukopoiesis in children from Krasnogorsk district of the Brjansk region. p. 95-97 in: Medical Aspects on the Influence of Small Radiation Doses. Obninsk, 1992. (in Russian)

L26 Lenskaya, R.V., O.A. Ikonnikova, A.M. Dzerschinskaja et al. Non-specific esterase of lymphocytes in 101 children from Polesskoje, Ukraine. J. Clin. Lab. Diagn. 11-12: (1992). (in Russian)

L27 Lenskaya, R.V., V.M. Bujankin, O.A. Ikonnikova et al. Cytochemical markers of lymphocytes for the screening of children from radiation contaminated areas. Hematol. Transfusiol. 8: 31-33 (1993). (in Russian)

L28 Lenskaya, R.V., V.M. Bujankin, V.N. Blindar et al. Cytochemical criteria for the screening of children in the radiation contaminated Brjansk region. in: Molecular and Genetic Mechanisms of Influence of Low Radiation Doses. Moscow, 1993. (in Russian)

L29 Lenskaya, R.V., A.G. Rumjantsev, V.M. Bujankin et al. Blood and bone marrow data for 28 children one year after the Chernobyl accident. Hematol. Transfusiol. 4: 25-28 (1991). (in Russian)

M1 Meadows, A.T. The concept of care for life. J. Assoc. Pediatr. Oncol. Nurses 5: 7-9 (1988).

M2 Meadows, A.T., W. Hobbie, P. Jarrett et al. Disabilities in long-term survivors of childhood cancer: results of a systematic follow-up program. Abstract. Proc. Am. Soc. Clin. Oncol. 5: 211 (1986).

M3 Mikhael, M.A. Dosimetric considerations in the diagnosis of radiation necrosis of the brain. p. 59-91 in: Radiation Damage to the Nervous System. (H.A. Gilbert and A.R. Kagan, eds.) Raven Press, New York, 1980.

M4 Moore, I.M., J. Kramer and A. Ablin. Late effects of central nervous system prophylactic leukemia therapy on cognitive functioning. Oncol. Nurs. Forum 13: 45-51 (1986).

M5 McIntosh, S., E.H. Klatskin, R.T. O'Brien et al. Chronic neurologic disturbance in childhood leukemia. Cancer 37: 853-857 (1976).

M6 Meadows, A.T. and A.E. Evans. Effects of chemotherapy on the central nervous system. A study of parenteral methotrexate in long-term survivors of leukemia and lymphoma in childhood. Cancer 37: 1079-1085 (1976).

M7 Marks, J.E., R.J. Baglan, S.C. Prassad et al. Cerebral radionecrosis: incidence and risk in relation to dose, time, fractionation and volume. Int. J. Radiat. Oncol. Biol. Phys. 7: 243-252 (1981).

M8 Mulhern, R.K., J.J. Crisco and L.E. Kun. Neuropsychological sequelae of childhood brain tumors: a review. J. Clin. Child Psychol. 12: 66-73 (1983).

M9 Mulhern, R.K., M.E. Horowitz, E.H. Kovnar et al. Neurodevelopment status of infants and young children treated for brain tumors with pre-irradiation chemotherapy. J. Clin. Oncol. 7: 1660-1666 (1989).

M10 Mulhern, R.K. and L.E. Kun. Neuropsychologic function in children with brain tumors. III. Interval changes in the six months following treatment. Med. Pediatr. Oncol. 13: 318-324 (1985).

M11 Meadows, A.T., J. Gordon, D.J. Massari et al. Declines in IQ scores and cognitive dysfunctions in children with acute lymphocytic leukaemia treated with cranial irradiation. Lancet 2: 1015-1018 (1981).

M12 Moss, H.A., E.D. Nannis and D.G. Poplack. The effects of prophylactic treatment of the central nervous system on the intellectual functioning of children with acute lymphocytic leukemia. Am. J. Med. 71: 47-52 (1981).

M13 Muchi, H., T. Satoh, K. Yamamoto et al. Studies on the assessment of neurotoxicity in children with acute lymphoblastic leukemia. Cancer 59: 891-895 (1987).

M14 Mauras, N., H. Sabio and A.D. Rogol. Neuro-endocrine function in survivors of childhood acute lymphocytic leukemia and non-Hodgkins lymphoma: a study of pulsatile growth hormone and gonadotropin secre-tions. Am. J. Pediatr. Hematol./Oncol. 10: 9-17 (1988).

M15 Moëll, C. Disturbed pubertal growth in girls after acute leukaemia: a relative growth hormone insufficiency with late presentation. Acta Paediatr. Scand. (Suppl.) 343: 162-166 (1988).

M16 Moëll, C., S. Garwicz, U. Westgren et al. Disturbed pubertal growth in girls treated for acute lymphoblastic leukemia. Am. J. Pediatr. Hematol./Oncol. 4: 1-5 (1987).

M17 Moëll, C., S. Garwicz, U. Westgren et al. Suppressed spontaneous secretion of growth hormone in girls after treatment for acute lymphoblastic leukaemia. Arch. Dis. Childhood 64: 252-258 (1989).

M18 Mefferd, J.M., S.S. Donaldson and M.P. Link. Pediatric Hodgkin's disease: pulmonary, cardiac, and thyroid function following combined modality therapy. Int. J. Radiat. Oncol. Biol. Phys. 16: 679-685 (1989).

M19 Maxon, H.R., S.R. Thomas, E.L. Saenger et al. Ionizing irradiation and the induction of clinically significant disease in the human thyroid gland. Am. J. Med. 63: 967-978 (1977).

M20 Maxon, H.R. Radiation-induced thyroid disease. Med. Clin. North Am. 69: 1049-1061 (1985).

M21 Morimoto, I., Y. Yoshimoto, K. Sato et al. Serum TSH, thyroglobulin, and thyroid disorders in atomic bomb survivors exposed in youth: a study 30 years after exposure. RERF TR/20-85 (1985).

M22 Morimoto, I., Y. Yoshimoto, K. Sato et al. Serum TSH, thyroglobulin, and thyroidal disorders in atomic bomb survivors exposed in youth: 30-year follow-up study. J. Nucl. Med. 28: 1115-1122 (1987).

M23 Miller, J.J., G.F. Williams and J.C. Leissring. Multiple late complications of therapy with cycholophosphamide, including ovarian destruction. Am. J. Med. 50: 530-535 (1971).

M24 Mays, C.W., H. Speiss and A. Gerspach. Skeletal effects following 224-Ra injections into humans. Health Phys. 35: 83-90 (1978).

M25 Meadows, A.T., N.L. Krejmas and J.B. Belasco. The medical cost of cure: sequelae in survivors of childhood cancer. p. 263-276 in: Status of the Curability of Childhood Cancers. (J. van Eys and M.P. Sullivan, eds.) Raven Press, New York, 1980.

M26 McGinnis, J.P., K.P. Hopkins, E.I. Thompson et al. Mandibular third molar development after mantle radiation in long-term survivors of childhood Hodgkin's disease. Oral Surg. Oral Med. Oral Pathol. 63: 630-633 (1987).

M27 Merriam, G.R., A. Szechter and E.F. Focht. The effects of ionizing radiations on the eye. p. 346-385 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

M28 Marks, R.D., S.K. Agarwal and W.C. Constable. Radiation induced pericarditis in Hodgkin's disease. Acta Radiol. Ther. Phys. Biol. 12: 305-312 (1973).

M29 Martin, R.G., J.C. Rukdeschel, P. Chang et al. Radiation-related pericarditis. Am. J. Cardiol. 35: 216-220 (1975).

M30 Mäkinen, L., A. Mäkipernaa, J. Rautonen et al. Long-term cardiac sequelae after treatment of malignant tumors with radiotherapy or cytostatics in childhood. Cancer 65: 1913-1917 (1990).

M31 Minow, R.A., R.S. Benjamin and J.A. Gottlieb. Adriamycin (NSC-123127) cardiomyopathy - an overview with determination of risk factors. Cancer Chemother. Rep. 6: 195-200 (1975).

M32 Miller, R.W., J.E. Fusner, R.J. Fink et al. Pulmonary function abnormalities in long-term survivors of childhood cancer. Med. Pediatr. Oncol. 14: 202-207 (1986).

M33 Mitus, A., M. Tefft, F.X. Fellers. Long-term follow-up of renal functions in 108 children who underwent nephrectomy for malignant disease. Pediatrics 44: 912-921 (1969).

M34 Margolis, L. and T.L. Phillips. Whole-lung irradiation for metastatic tumor. Radiology 93: 1173-1179 (1969).

M35 Moss, W.T. Therapeutic Radiology. Mosby, St. Louis, 1959.

M36 McIntosh, S., D.L. Davidson, R.T. O'Brien et al. Methotrexate hepatotoxicity in children with leukemia. J. Pediatr. 90: 1019-1021 (1977).

M37 Mage, K., J.F. Duhamel, J. Sauvegrain et al. Lesions radiques du tube digestif de l'enfant apres irradiation de l'abdomen. Aspects radiologiques. J. Radiol. Electrol. Med. Nucl. 61: 763-768 (1980).

M38 Maher, J.F. Toxic and irradiation nephropathies. p. 1431-1472 in: Strauss and Welt's Diseases of the Kidney. 3rd edition. (L.E. Earley and C.W. Gottschalk, eds.) Little Brown, Boston, 1979.

M39 Maier, J.G. Effects of radiations on kidney, bladder and prostate. p. 196-227 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

M40 McGill, C.W., T.M. Holder, T.H. Smith et al. Post-radiation renovascular hypertension. J. Pediatr. Surg. 14: 831-833 (1979).

M41 Molls, M. and M. Stuschke. Radiotherapy in childhood: normal tissue injuries and carcinogenesis. p. 461-481 in: Medical Radiology, Radiopathology of Organs and Tissues. (E. Scherer, Ch. Streffer and K.-R. Trott, eds.) Springer Verlag, Berlin, 1991.

N1 Nesbit, M.E., H.N. Sather, L.L. Robison et al. Presymptomatic central nervous system therapy in

previously untreated childhood acute lymphoblastic leukaemia: comparison of 1800 rad and 2400 rad. A report for Childrens Cancer Study Group. Lancet 1: 461-466 (1981).

N2 Nelson, D.F., K.V. Reddy, R.E. O'Mara et al. Thyroid abnormalities following neck irradiation for Hodgkin's disease. Cancer 42: 2553-2562 (1978).

N3 Nesbit, M.E., L.L. Robison, H.N. Sather et al. Evaluation of long-term survivors of childhood acute lymphoblastic leukemia (ALL). Abstract. Proc. Am. Assoc. Cancer Res. 23: 107 (1982).

N4 National Council on Radiation Protection and Measurements. Protection of the thyroid gland in the event of releases of radioiodine. NCRP Report No. 55 (1977).

N5 Neuhauser, E.B.D., M.H. Wittenborg, C.Z. Berman et al. Irradiation effects of roentgen therapy on the growing spine. Radiology 59: 637-650 (1952).

N6 Nesbit, M.E., W. Krivit, R. Heyn et al. Acute and chronic effects of methotrexate on hepatic, pulmonary, and skeletal systems. Cancer 37: 1048-1054 (1976).

N7 Nagataki, S. Delayed effects of atomic bomb radiation on the thyroid. p. 1-10 in: Radiation and the Thyroid. (S. Nagataki, ed.) Excerpta Medica, Amsterdam, 1989.

N8 Notter, G., R. Walstam and L. Wikholm. Radiation induced cataracts after radium therapy in children. A preliminary report. Acta Radiol. 254 (Suppl.): 87-92 (1966).

O1 Ochs, J., R. Mulhern, D. Fairclough et al. Prospective evaluation of central nervous system (CNS) changes in children with acute lymphoblastic leukemia (ALL) treated with prophylactic cranial irradiation (RT) or iv methothrexate (MTX). Abstract. Proc. Annu. Meet. Am. Soc. Clin. Oncol. 8: A824 (1989).

O2 Ochs, J.J., L.S. Parvey, J.N. Whitaker et al. Serial cranial computed tomography scans in children with leukemia given two different forms of central nervous system therapy. J. Clin. Oncol. 1: 793-798 (1983).

O3 Obetz, S.W., R.J. Ivnik, W.A. Smithson et al. Neuropsychologic follow-up study of children with acute lymphocytic leukemia. A preliminary report. Am. J. Pediatr. Hematol./Oncol. 1: 207-213 (1979).

O4 Ochs, J., R. Mulhern, D. Fairclough et al. Comparison of neuropsychologic functioning and clinical indicators of neurotoxicity in long-term survivors of childhood leukemia given cranial radiation or parenteral methotrexate: a prospective study. J. Clin. Oncol. 9: 145-151 (1991).

O5 Omran, A.R., R.E. Shore, R.A. Markoff et al. Follow-up study of patients treated by X-ray epilation for tinea capitis: psychiatric and psychometric evaluation. Am. J. Public Health 68: 561-567 (1978).

O6 Oberfield, S.E., J.C. Allen, J. Pollack et al. Long-term endocrine sequelae after treatment of medulloblastoma: prospective study of growth and thyroid function. J. Pediatr. 108: 219-223 (1986).

O7 Oliff, A., U. Bode, B.B. Bercu et al. Hypothalamic-pituitary dysfunction following CNS prophylaxis in acute lymphocytic leukemia: correlation with CT scan abnormalities. Med. Pediatr. Oncol. 7: 141-151 (1979).

O8 Onoyama, Y., M. Abe, M. Takahashi et al. Radiation therapy of brain tumors in children. Radiology 115: 687-693 (1975).

O9 Olive, D., B.P. Lelleup and M. Pierson. Ovarian function in 12 long term surviving patients (PTS) with Wilms' tumor. Abstract. Proc. Annu. Meet. Am. Soc. Clin. Oncol. 6: A875 (1987).

O10 Oliver, J.H., G. Gluck, R.B. Gledhill et al. Musculoskeletal deformities following treatment of Wilms' tumour. Can. Med. Assoc. J. 119: 459-464 (1978).

O11 Oglesby, R.B., R.L. Black, L. von Sallmann et al. Cataracts in patients with rheumatic diseases treated with corticosteroids. Further observations. Arch. Ophthalmol. 66: 41-46 (1961).

O12 O'Malley, B., G.J. D'Angio and G.F. Vawter. Late effects of roentgen therapy given in infancy. Am. J. Roentgenol. 89: 1067 (1963).

O13 Ochs, J.J., R. Berg, L. Ch'ien et al. Structural and functional central nervous system (CNS) changes in long-term acute lymphocytic leukemia (ALL) survivors. Proc. Am. Soc. Clin. Oncol. 1: 27 (1982).

O14 Ochs, J.J., P. Berger, M.L. Brecher et al. Computed tomography brain scans in children with acute lymphocytic leukemia receiving methotrexate alone as central nervous system prophylaxis. Cancer 45: 2274-2278 (1980).

O15 Otake, M. and W.J. Schull. Radiation-related posterior lenticular opacities in Hiroshima and Nagasaki atomic bomb survivors based on the DS86 dosimetry system. Radiat. Res. 121: 3-13 (1990).

O16 Otake, M., S.C. Finch, K. Choshi et al. Radiation-related optalmologic changes and aging among a-bomb survivors: a reanalysis. RERF TR/18-91 (1991).

O17 Ochs, J. and R.K. Mulhern. Prospective evaluation of neuropsychological function following cranial irradiation or intermediate dose methotrexate. p. 23-30 in: Late Effects of Treatment for Childhood Cancer. (D.M. Green and G.J. D'Angio, eds.) Wiley-Liss Inc., New York, 1992.

P1 Pizzo, P.A., D.G. Poplack and W.A. Bleyer. Neurotoxicities of current leukemia therapy. Am. J. Pediatr. Hematol./Oncol. 1: 127-140 (1979).

P2 Poplack, D.G. and P. Brouwers. Adverse sequalae of central nervous system therapy. Clin. Oncol. 4: 263-285 (1985).

P3 Price, R.A. and P.A. Jamieson. The central nervous system in childhood leukemia. II. Subacute leukoencephalopathy. Cancer 35: 306-318 (1975).

P4 Price, R.A. and D.A. Birdwell. The central nervous system in childhood leukemia. III. Mineralizing microangiopathy and dystrophic calcification. Cancer 42: 717-728 (1978).

P5 Pavlovsky, S., J. Castano, R. Leiguarda et al. Neuropsychological study in patients with ALL. Am. J. Pediatr. Hematol./Oncol. 5: 79-86 (1983).

P6 Packer, R.J., R.A. Zimmerman and L.T. Bilaniuk. Magnetic resonance imaging in the evaluation of treatment-related central nervous system damage. Cancer 58: 635-640 (1986).

P7 Peylan-Ramu, N., D.G. Poplack, P.A. Pizzo et al. Abnormal CT scans of the brain in asymptomatic children with acute lymphocytic leukemia after prophylactic treatment of the central nervous system with radiation and intrathecal chemotherapy. N. Engl. J. Med. 298: 815-818 (1978).

P8 Perry-Keene, D.A., J.F. Connelly, R.A. Young et al. Hypothalamic hypopituitarism following external radiotherapy for tumours distant from the adenohypophysis. Clin. Endocrinol. 5: 373-380 (1976).

P9 Poussin-Rosillo, H., L.Z. Nisce and B.J. Lee. Complications of total nodal irradiation of Hodgkin's disease stages III and IV. Cancer 42: 437-441 (1978).

P10 Probert, J.C. and B.R. Parker. The effects of radiation therapy on bone growth. Radiology 114: 155-162 (1975).

P11 Probert, J.C., B.R. Parker and H.S. Kaplan. Growth retardation in children after megavoltage irradiation of the spine. Cancer 32: 634-639 (1973).

P12 Price, D.A., M.J. Morris, K.V. Rowsell et al. The effects of anti-leukaemic drugs on somatomedin production and cartilage responsiveness to somatomedin in vitro. Abstract. Pediatr. Res. 15: 1553 (1981).

P13 Parker, R.G. and H.C. Berry. Late effects of therapeutic irradiation on the skeleton and bone marrow. Cancer 37: 1162-1171 (1976).

P14 Prindull, G., W. Weigel, E. Jentsch et al. Aseptic oestonecrosis in children treated for acute lymphoblastic leukemia and aplastic anemia. Eur. J. Pediatr. 139: 48-51 (1982).

P15 Parsons, J.T., C.R. Fitzgerald, C.I. Hood et al. The effects of irradiation on the eye and optic nerve. Int. J. Radiat. Oncol. Biol. Phys. 9: 609-622 (1983).

P16 Prout, M.N., M.J.S. Richards, K.J. Chung et al. Adriamycin cardiotoxicity in children. Case reports, literature review, and risk factors. Cancer 39: 62-65 (1977).

P17 Pratt, C.B., J.L. Ransom and W.E. Evans. Age-related adriamycin cardiotoxicity in children. Cancer Treat. Rep. 62: 1381-1385 (1978).

P18 Pinkel, D., B. Camitta, L. Kun et al. Doxorubicin cardiomyopathy in children with left-sided Wilms' tumor. Med. Pediatr. Oncol. 10: 483-488 (1982).

Q1 Quigley, C., C. Cowell, M. Jimenez et al. Normal or early development of puberty despite gonadal damage in children treated for acute lymphoblastic leukemia. N. Engl. J. Med. 321: 143-151 (1989).

Q2 Qvist, C.F. and B. Zachau-Christiansen. Radiation cataract following fractionated radium therapy in childhood. Acta Radiol. 51: 207-216 (1959).

R1 Rubin, P. and G.W. Casarett. Clinical Radiation Pathology. Volume 1. Saunders, Philadelphia, 1968.

R2 Rubin, P. and G.W. Casarett. A direction for clinical radiation pathology. The tolerance dose. p. 1-16 in: Frontiers of Radiation Therapy and Oncology. Volume 6. (J.M. Vaeth, ed.) Karger, Basel and University Park Press, Baltimore, 1972.

R3 Rubin, P. The Franz Buschke lecture: Late effects of chemotherapy and radiation therapy: a new hypothesis. Int. J. Radiat. Oncol. Biol. Phys. 10: 5-34 (1984).

R4 Rubinstein, L.J., M.M. Herman, T.F. Long et al. Disseminated necrotizing leukoencephalopathy: a complication of treated central nervous system leukemia and lymphoma. Cancer 35: 291-305 (1975).

R5 Riccardi, R., P. Brouwers, G. Di Chiro et al. Abnormal computed tomography brain scans in children with acute lymphoblastic leukemia: serial long-term follow-up. J. Clin. Oncol. 3: 12-18 (1985).

R6 Raimondi, A.J. and T. Tomita. The disadvantages of prophylactic whole CNS post-operative radiation therapy for medulloblastoma. p. 209-218 in: Multidisciplinary Aspects of Brain Tumor Therapy. (P. Paoletti, M.D. Walker, G. Butti et al., eds.) Elsevier/North Holland Biomedical Press, New York, 1979.

R7 Rubinstein, C.L., J.W. Varni and E.R. Katz. Cognitive functioning in long-term survivors of childhood leukemia; a prospective analysis. J. Dev. Behav. Pediatr. 11: 301-305 (1990).

R8 Rowland, J.H., O.J. Glidewell, R.F. Sibley et al. Effects of different forms of central nervous system prophylaxis on neuropsychologic function in childhood leukemia. J. Clin. Oncol. 2: 1327-1335 (1984).

R9 Robison, L.L., A.T. Meadows, M.E. Nesbit et al. Factors associated with IQ scores in long-term survivors of childhood acute lymphoblastic leukemia. Am. J. Pediatr. Hematol./Oncol. 6: 115-120 (1984).

R10 Ron, E., B. Modan, S. Floro et al. Mental function following scalp irradiation during childhood. Am. J. Epidemiol. 116: 149-160 (1982).

R11 Richards, G.E., W.M. Wara, M.M. Grumbach et al. Delayed onset of hypopituitarism: sequelae of therapeutic irradiation of central nervous system, eye, and middle ear tumors. J. Pediatr. 89: 553-559 (1976).

R12 Romshe, C.A., W.B. Zipf and A. Miser. Evaluation of growth hormone release and human growth hormone treatment in children with cranial irradiation - associated short stature. J. Pediatr. 104: 177-181 (1984).

R13 Robison, L.L., M.E. Nesbit, H.N. Sather et al. Height of children successfully treated for acute lymphoblastic leukemia: a report from the late effects study committee of Childrens Cancer Study Group. Med. Pediatr. Oncol. 13: 14-21 (1985).

R14 Robbins, J., J.E. Rall and R.A. Conard. Late effects of radioactive iodine in fallout. Ann. Intern. Med. 66: 1214-1242 (1967).

R15 Rogers, P.C.J., C.J.H. Fryer and S. Hussein. Radiation dose to the thyroid in the treatment of acute lymphoblastic leukemia (ALL). Med. Pediatr. Oncol. 10: 385-388 (1982).

R16 Robison, L.L., M.E. Nesbit, H.N. Sather et al. Thyroid abnormalities in long-term survivors of childhood acute lymphoblastic leukemia. Pediatr. Res. 19: 226A (1985).

R17 Rubin, P., P. van Houtte and L. Constine. Radiation sensitivity and organ tolerances in pediatric oncology: a new hypothesis. Front. Radiat. Ther. Oncol. 16: 62-82 (1982).

R18 Robison, L.L. Delayed consequences of therapy in childhood acute lymphoblastic leukaemia. Clin. Oncol. 4: 321-332 (1985).

R19 Refetoff, S., J. Harrison, B.T. Karanfilski et al. Continuing occurrence of thyroid carcinoma after irradiation to the neck in infancy and childhood. N. Engl. J. Med. 292: 171-175 (1975).

R20 Robbins, J. and W.H. Adams. Radiation effects in the Marshall Islands. p. 11-24 in: Radiation and the Thyroid. (S. Nagataki, ed.) Excerpta Medica, Amsterdam, 1989.

R21 Rallison, M.L., B.M. Dobyns, F.R. Keating et al. Thyroid disease in children. A survey of subjects potentially exposed to fallout radiation. Am. J. Med. 56: 457-463 (1974).

R22 Rallison, M.L., B.M. Dobyns, F.R. Keating et al. Thyroid nodularity in children. J. Am. Med. Assoc. 233: 1069-1072 (1975).

R23 Rappaport, R., R. Brauner, P. Czernichow et al. Effect of hypothalamic and pituitary irradiation on pubertal development in children with cranial tumors. J. Clin. Endocrinol. Metab. 54: 1164-1168 (1982).

R24 Rowley, M.J., D.R. Leach, G.A. Warner et al. Effect of graded doses of ionizing radiation on the human testis. Radiat. Res. 59: 665-678 (1974).

R25 Rubin, P., R.B. Duthie and L.W. Young. Significance of scoliosis in post-irradiated Wilms' tumor and neuroblastoma. Radiology 79: 539-559 (1962).

R26 Rausch, L., W. Koch and G. Hagemann. Klinische und dosimetrische Untersuchungen zur Frage der kritischen Dosis und typischer Strahlenschäden am Skelett bestrahlter Angiom-Patienten. Strahlentherapie (Sonderbände) 55: 198-514 (1964).

R27 Riseborough, E.J., S.L. Grabias, R.I. Burton et al. Skeletal alternations following irradiation for Wilms' tumor with particular reference to scoliosis and kyphosis. J. Bone Jt. Surg. 58A: 526-536 (1976).

R28 Ruckdeschel, J.C., P. Chang, R.G. Martin et al. Radiation-related pericardial effusions in patients with Hodgkin's disease. Medicine 54: 245-259 (1975).

R29 Rubin, P., S. Landman, E. Mayer et al. Bone marrow regeneration and extension after extended field irradiation in Hodgkin's disease. Cancer 32: 699-711 (1973).

R30 Ron, E., B. Modan, J.D. Boice et al. Tumors of the brain and nervous system after radiotherapy in childhood. N. Engl. J. Med. 319: 1033-1039 (1988).

S1 Sposto, R. and G.D. Hammond. Survival in childhood cancer. Clin. Oncol. 4: 195-204 (1985).

S2 Sheline, G.E., W.M. Wara and V. Smith. Therapeutic irradiation and brain injury. Int. J. Radiat. Oncol. Biol. Phys. 6: 1215-1228 (1980).

S3 Silverman, C.L., H. Palkes, B. Talent et al. Late effects of radiotherapy on patients with cerebellar medulloblastoma. Cancer 54: 825-829 (1984).

S4 Suc, E., C. Kalifa, R. Brauner et al. Brain tumours under the age of three. The price of survival. A retrospective study of 20 long-term survivors. Acta Neurochir. 106: 93-98 (1990).

S5 Sawyer, M.G., I. Toogood, M. Rice et al. School performance and psychological adjustment of children treated for leukemia. A long-term follow-up. Am. J. Pediatr. Hematol./Oncol. 11: 146-152 (1989).

S6 Soni, S.S., G.W. Marten, S.E. Pitner et al. Effects of central-nervous-system irradiation on neuropsychologic functioning of children with acute lymphocytic leukemia. N. Engl. J. Med. 293: 113-118 (1975).

S7 Shore, R.E., R.E. Albert and B.S. Pasternack. Follow-up study of patients treated by x-ray epilation for tinea capitis. Resurvey of post-treatment illness and mortality experience. Arch. Environ. Health 31: 21-28 (1976).

S8 Spunberg, J.J., C.H. Chang, M. Goldman et al. Quality of long-term survival following irradiation for intracranial tumors in children under the age of two. Int. J. Radiat. Oncol. Biol. Phys. 7: 727-736 (1981).

S9 Samaan, N.A., P.N. Schultz, K.-P.P. Yang et al. Endocrine complications after radiotherapy for tumors of the head and neck. J. Lab. Clin. Med. 109: 364-372 (1987).

S10 Shalet, S.M. Growth and hormonal status of children treated for brain tumours. Child's Brain 9: 284-293 (1982).

S11 Shalet, S.M., C.G. Beardwell, B.M. Aarons et al. Growth impairment in children treated for brain tumours. Arch. Dis. Childhood 53: 491-494 (1978).

S12 Shalet, S.M., C.G. Beardwell, J.A. Twomey et al. Endocrine function following the treatment of acute leukemia in childhood. J. Pediatr. 90: 920-923 (1977).

S13 Shalet, S.M., C.G. Beardwell, P.H. Morris-Jones et al. Growth hormone deficiency in children with brain tumors. Cancer 37: 1144-1148 (1976).

S14 Shalet, S.M., C.G. Beardwell, D. Pearson et al. The effect of varying doses of cerebral irradiation on growth hormone production in childhood. Clin. Endocrinol. 5: 287-290 (1976).

S15 Shalet, S.M., C.G. Beardwell, I.A. MacFarlane et al. Endocrine morbidity in adults treated with cerebral irradiation for brain tumors during childhood. Acta Endocrinol. 84: 673-680 (1977).

S16 Shalet, S.M., C.G. Beardwell, P.H. Morris-Jones et al. Pituitary function after treatment of intracranial tumours in children. Lancet 2: 104-107 (1975).

S17 Samaan, N.A., R. Vieto, P.N. Schultz et al. Hypothalamic pituitary and thyroid dysfunction after radiotherapy to the head and neck. Int. J. Radiat. Oncol. Biol. Phys. 8: 1857-1867 (1982).

S18 Samaan, N.A., M.M. Bakdash, J.B. Caderao et al. Hypopituitarism after external irradiation. Evidence for both hypothalamic and pituitary origin. Ann. Intern. Med. 83: 771-777 (1975).

S19 Shalet, S.M., D.A. Price, C.G. Beardwell et al. Normal growth despite abnormalities of growth hormone secretion in children treated for acute leukemia. J. Pediatr. 94: 719-722 (1979).

S20 Shalet, S.M. The effects of cancer treatment on growth and sexual development. Clin. Oncol. 4: 223-238 (1985).

S21 Shalet, S.M., C.G. Beardwell, P.H. Morris-Jones et al. Growth hormone deficiency after treatment of acute leukaemia in children. Arch. Dis. Childhood 51: 489-493 (1976).

S22 Starceski, P.J., P.A. Lee, J. Blatt et al. Comparable effects of 1800- and 2400-rad (18- and 24-Gy) cranial irradiation on height and weight in children treated for acute lymphocytic leukemia. Am. J. Dis. Child. 141: 550-552 (1987).

S23 Sanders, J.E., S. Pritchard, P. Mahoney et al. Growth and development following marrow transplantation for leukemia. Blood 68: 1129-1135 (1986).

S24 Sanders, J.E. Late effects in children receiving total body irradiation for bone marrow transplantation. Radiother. Oncol. 18 (Suppl. 1): 82-87 (1990).

S25 Sanders, J.E. Implications of cancer therapy to the head and neck on growth and development and other delayed effects. Natl. Cancer Inst. Monogr. 9: 163-167 (1990).

S26 Sutow, W.W., R.A. Conard and K.M. Griffith. Growth status of children exposed to fallout radiation on the Marshall Islands. Pediatrics 36: 721-31 (1965).

S27 Shalet, S.M., J.D. Rosenstock, C.G. Beardwell et al. Thyroid dysfunction following external irradiation to the neck for Hodgkin's disease in childhood. Clin. Radiol. 28: 511-515 (1977).

S28 Schimpff, S.C., C.H. Diggs, J.G. Wiswell et al. Radiation-related thyroid dysfunction: implications for the treatment of Hodgkin's disease. Ann. Intern. Med. 92: 91-98 (1980).

S29 Smith, R.E., R.A. Adler, P. Clark et al. Thyroid function after mantle irradiation in Hodgkin's disease. J. Am. Med. Assoc. 245: 46-49 (1981).

S30 Sklar, C.A., T.H. Kim and M.K.C. Ramsay. Thyroid dysfunction among long-term survivors of bone marrow transplantation. Am. J. Med. 73: 688-694 (1982).

S31 Sklar, C.A. Physiology of growth hormone production and release. p. 49-54 in: Late Effects of Treatment for Childhood Cancer. (D.M. Green and G.J. D'Angio, eds.) Wiley-Liss Inc., New York, 1992.

S32 Shalet, S.M., C.G. Beardwell, P.H. Morris-Jones et al. Ovarian failure following abdominal irradiation in childhood. Br. J. Cancer 33: 655-658 (1976).

S33 Stillman, R.J., J.S. Schinfeld, I. Schiff et al. Ovarian failure in long-term survivors of childhood malignancy. Am. J. Obstet. Gynecol. 139: 62-66 (1981).

S34 Sanders, J.E., C.D. Buckner, K.M. Sullivan et al. Growth and development after bone marrow transplantation. p. 375-382 in: Advances and Controversies in Thalassemia Therapy: Bone Marrow Transplantation and Other Approaches. (C.D. Buckner, R.P. Gale and G. Lucarelli, eds.) Alan R. Liss Inc., New York, 1989.

S35 Sarkar, S.D., W.H. Beierwaltes, S.P. Gill et al. Subsequent fertility and birth histories of children and adolescents treated with ^{131}I for thyroid cancer. J. Nucl. Med. 17: 460-464 (1976).

S36 Sherins, R.J. and J.J. Mulvihill. Gonadal dysfunction. p. 2170-2180 in: Cancer. Principles & Practice of Oncology. (V.T. Devita, S. Hellman and S.A. Rosenberg, eds.) J.B. Lippincott Company, Philadelphia, 1989.

S37 Stefani, F.H., H. Spiess and C.W. Mays. Cataracts in patients injected with 224-Ra. p. 51-59 in: The Radiobiology of Radium and Thorotrast. (W. Gössner, G.B. Gerber, U. Hagen et al., eds.) Urban & Schwarzenberg, München, 1986.

S38 Shalet, S.M., A. Tsatsoulis, E. Whitehead et al. Vulnerability of the human Leydig cell to radiation damage is dependent upon age. J. Endocrinol. 120: 161-165 (1989).

S39 Shalet, S.M., C.G. Beardwell, H.S. Jacobs et al. Testicular function following irradiation of the human prepubertal testis. Clin. Endocrinol. 9: 483-490 (1978).

S40 Shalet, S.M., A. Horner, S.R. Ahmed et al. Leydig cell damage after testicular irradiation for lymphoblastic leukaemia. Med. Pediatr. Oncol. 13: 65-68 (1985).

S41 Sklar, C.A., L.L. Robison, M.E. Nesbit et al. Effects of radiation on testicular function in long-term survivors of childhood acute lymphoblastic leukemia. A report from the Childrens Cancer Study Group. J. Clin. Oncol. 8: 1981-1987 (1990).

S42 Smith, R., J.K. Davidson and G.E. Flatman. Skeletal effects of orthovoltage and megavoltage therapy following treatment of nephroblastoma. Clin. Radiol. 33: 601-613 (1982).

S43 Shalet, S.M., B. Gibson, R. Swindell et al. Effect of spinal irradiation on growth. Arch. Dis. Childhood 62: 461-464 (1987).

S44 Spiess, H., C.W. Mays and E. Spiess-Paulus. Growth retardation in children injected with 224-Ra. p. 45-50. in: The Radiobiology of Radium and Thorotrast. (W. Gössner, G.B. Gerber, U. Hagen et al., eds.) Urban & Schwarzenberg, München, 1986.

S45 Schultz, H., B. Jacobsen, K. Bjørn Jensen et al. Nephroblastoma. Results and complications of treatment. Acta Radiol. Oncol. 18: 449-459 (1979).

S46 Silverman, C.L., P.R.M. Thomas, W.H. McAlister et al. Slipped femoral capital epiphyses in irradiated children: dose, volume and age relationships. Int. J. Radiat. Oncol. Biol. Phys. 7: 1357-1363 (1981).

S47 Sonis, A.L., N. Tarbell, R.W. Valachovic et al. Dentofacial development in long-term survivors of acute lymphoblastic leukemia. A comparison of three treatment modalities. Cancer 66: 2645-2652 (1990).

S48 Sonnabend, E., H. Spiess and C.W. Mays. Tooth breakage in patients injected with 224-Ra. p. 60-64 in: The Radiobiology of Radium and Thorotrast. (W. Gössner, G.B. Gerber, U. Hagen et al., eds.) Urban & Schwarzenberg, München, 1986.

S49 Spaeth, G.L. and L. von Sallmann. Corticosteroids and cataracts. Int. Ophthalmol. Clin. 6: 915-928 (1966).

S50 Stewart, J.R. and L.F. Fajardo. Dose response in human and experimental radiation-induced heart disease. Application of the nominal standard dose (NSD) concept. Radiology 99: 403-408 (1971).

S51 Scott, D.L. and R.D. Thomas. Late onset constrictive pericarditis after thoracic radiotherapy. Br. Med. J. 1: 341-342 (1978).

S52 Smith, P.J., H. Ekert, K.D. Waters et al. High incidence of cardiomyopathy in children treated with adriamycin and DTIC in combination chemotherapy. Cancer Treat. Rep. 61: 1736-1738 (1977).

S53 Springmeyer, S.C., N. Flournoy, K.M. Sullivan et al. Pulmonary function changes in long-term survivors of allogeneic marrow transplantation. p. 343-353 in: Recent Advances in Bone Marrow Transplantation. (R.P. Gale, ed.) Alan R. Liss Inc., New York, 1983.

S54 Shapiro, S.J., S.D. Shapiro, W.B. Mill et al. Prospective study of long-term pulmonary manifestations of mantle irradiation. Int. J. Radiat. Oncol. Biol. Phys. 19: 707-714 (1990).

S55 Scotti, G., M. Bracchi, G. Masera et al. Prophylactic treatment of the central nervous system in acute lymphoblastic leukemia. CT findings in 45 children of therapy. J. Neurol. Sci. 2(4): 361-365 (1981).

S56 Sheline, G.E., W.M. Wara and V. Smith. Therapeutic irradiation and brain injury. Int. J. Radiat. Oncol. Biol. Phys. 6: 1215-1218 (1980).

S57 Stevens, S.K., S.G. Moore and I.D. Kaplan. Early and late bone-marrow changes after irradiation: MR evaluation. AJR, Am. J. Roentgenol. 154: 745-750 (1990).

T1 Trott, K.-R. Chronic damage after radiation therapy: challenge to radiation biology. Int. J. Radiat. Oncol. Biol. Phys. 10: 907-913 (1984).

T2 Thames, H.D., H.R. Withers, L.J. Peters et al. Changes in early and late radiation responses with altered dose fractionation: implications for dose-survival relationships. Int. J. Radiat. Oncol. Biol. Phys. 8: 219-226 (1982).

T3 Tarbell, T.J., E.C. Guinan, L. Chin et al. Renal insufficiency after total body irradiation for pediatric bone marrow transplantation. Radiother. Oncol. 18 (Suppl. 1): 139-142 (1990).

T4 Tamaroff, M., R. Salwen, D.R. Miller et al. Comparison of neuropsychologic performance in children treated for acute lymphoblastic leukemia (ALL) with 1800 rads cranial radiation plus intrathecal methotrexate or intrathecal methotrexate alone. Abstract. Proc. Am. Soc. Oncol. 3: 198 (1984).

T5 Tamaroff, M., D.R. Miller, M.L. Murphy et al. Immediate and long-term post-therapy neuropsychologic performance in children with acute lymphoblastic leukemia treated without central nervous system radiation. J. Pediatr. 101: 524-529 (1982).

T6 Tamaroff, M., R. Salwen, D.R. Miller et al. Neuropsychologic sequelae in irradiated (1800 rads (r) & 2400r) and non-irradiated children with acute lymphoblastic leukemia (ALL). Abstract. Proc. Am. Soc. Clin. Oncol. 4: 165 (1985).

T7 Trautman, P.D., C. Erickson, D. Shaffer et al. Prediction of intellectual deficits in children with acute lymphoblastic leukemia. J. Dev. Behav. Pediatr. 9: 122-128 (1988).

T8 Tamura, K., K. Shimaoka and M. Friedman. Thyroid abnormalities associated with treatment of malignant lymphoma. Cancer 47: 2704-2711 (1981).

T9 Tarbell, N.J., L. Thompson and P. Mauch. Thoracic irradiation in Hodgkin's disease: disease control and long-term complications. Int. J. Radiat. Oncol. Biol. Phys. 18: 275-281 (1990).

T10 Tefft, M., P.B. Lattin, B. Jereb et al. Acute and late effects on normal tissues following combined chemo- and radiotherapy for childhood rhabdomyosarcoma and Ewing's sarcoma. Cancer 37: 1201-1213 (1976).

T11 Thomas, P.R.M., K.D. Griffith, B.B. Fineberg et al. Late effects of treatment for Wilms' tumor. Int. J. Radiat. Oncol. Biol. Phys. 9: 651-657 (1983).

T12 Thomas, P.R.M., M. Tefft, G.J. D'Angio et al. Radiation associated toxicities in the Second National Wilms' Tumor Study (NWTS-2). Abstract. Int. J. Radiat. Oncol. Biol. Phys. 10 (Suppl. 2): 88 (1984).

T13 Tefft, M., A. Mitus, L. Das et al. Irradiation of the liver in children: review of experience in the acute and chronic phases, and in the intact normal and partially resected. Am. J. Roentgenol. 108: 365-385 (1970).

T14 Twaddle, V., P.G. Britton, A.C. Craft et al. Intellectual function after treatment for leukaemia or solid tumours. Arch. Dis. Childhood 58: 949-952 (1983).

T15 Tereshenko, N.Ya., L.I. Burtseva and V.M. Abdulaeva. Delayed clinical effects of contact gamma-irradiation therapy for angioma cutis in young children. Med. Radiol. 11: 49-53 (1988). (in Russian)

T16 Tarbell, N.J., E.C. Guinan, C. Niemeyer et al. Late onset of renal dysfunction in survivors of bone marrow transplantation. Int. J. Radiat. Oncol. Biol. Phys. 15: 99-104 (1988).

T17 Tichelli, A., A. Gratwohl, M. Uhr et al. Gesundheitszustand und Spätkomplikationen nach allogener Knochenmarktransplantation. Eine Übersicht. Schweiz. Med. Wochenschr. 121: 1473-1481 (1991).

U1 United Nations. Sources, Effects and Risks of Ionizing Radiation. United Nations Scientific Committee on the Effects of Atomic Radiation, 1988 Report to the General Assembly, with annexes. United Nations sales publication E.88.IX.7. United Nations, New York, 1988.

U2 United Nations. Genetic and Somatic Effects of Ionizing Radiation. United Nations Scientific Committee on the Effects of Atomic Radiation, 1986 Report to the General Assembly, with annexes. United Nations sales publication E.86.IX.9. United Nations, New York, 1986.

U3 United Nations. Ionizing Radiation: Sources and Biological Effects. United Nations Scientific Committee on the Effects of Atomic Radiation, 1982 Report to the General Assembly, with annexes. United Nations sales publication E.82.IX.8. United Nations, New York, 1982.

U4 United Nations. Sources and Effects of Ionizing Radiation. United Nations Scientific Committee on the Effects of Atomic Radiation, 1977 report to the General Assembly, with annexes. United Nations sales publication E.77.IX.1. United Nations, New York, 1977.

U11 Underwood, G.B. and L.E. Gaul. Disfiguring sequelae from radium therapy. Results of treatment of a birthmark adjacent to the breast in a female infant. Arch. Dermatol. Syphilology 57: 918-919 (1948).

V1 Von Muehlendahl, K.E., H. Gadner, H. Riehm et al. Endocrine function after antineoplastic therapy in 22 children with acute lymphoblastic leukaemia. Helv. Paediatr. Acta 31: 463-471 (1976).

V2 Verzosa, M.S., R.J.A. Aur, J.V. Simone et al. Five years after central nervous system irradiation of children with leukemia. Int. J. Radiat. Oncol. Biol. Phys. 1: 209-215 (1976).

V3 Von Hoff, D.D., M. Rozencweig and M. Piccart. The cardiotoxicity of anticancer agents. Semin. Oncol. 9: 23-33 (1982).

V4 Von Hoff, D.D., M. Rozencweig, M. Layard et al. Daunomycin-induced cardiotoxicity in children and adults. A review of 110 cases. Am. J. Med. 62: 200-208 (1977).

V5 Von Hoff, D.D., M.W. Layard, P. Basa et al. Risk factors for doxorubicin-induced congestive heart failure. Ann. Intern. Med. 91: 710-717 (1979).

V6 Van Slyck, E.J. and G.A. Bermudez. Radiation nephritis. Yale J. Biol. Med. 41: 243-256 (1968).

V7 Van Weel-Sipman, M.H., E.T. van't Veer-Korthof, H. van den Berg et al. Late effects of total body irradiation and cytostatic preparative regimen for bone marrow transplantation in children with hematological malignancies. Radiother. Oncol. 18 (Suppl. 1): 155-157 (1990).

V8 Van Why, S.K., A.L. Friedman, L.J. Wei et al. Renal insufficiency after bone marrow transplantation in children. Bone Marrow Transplant. 7: 383-388 (1991).

V9 Vladimirskaja, E.B., I.V. Zamaraeva, E.U. Osipova et al. Granulocytopoiesis in children from the radio-contaminated areas. in: Molecular and Genetic Mechanisms of Influence of Low Radiation Doses. Moscow, 1993. (in Russian)

W1 Withers, H.R. Predicting late normal tissue responses. Int. J. Radiat. Oncol. Biol. Phys. 12: 693-698 (1986).

W2 Withers, H.R., L.J. Peters, H.D. Thames et al. Hyperfractionation. Int. J. Radiat. Oncol. Biol. Phys. 8: 1807-1809 (1982).

W3 Whitt, J.K., R.J. Wells, M.M. Lauria et al. Cranial radiation in childhood acute lymphocytic leukemia. Neuropsychological sequelae. Am. J. Dis. Child. 138: 730-736 (1984).

W4 Westergren, U. Is growth hormone secretion related to growth? Acta Paediatr. Scand. 362(S): 32-35 (1989).

W5 Wells, R.J., M.B. Foster, A.J. D'Ercole et al. The impact of cranial irradiation on the growth of children with acute lymphocytic leukemia. Am. J. Dis. Child. 137: 37-39 (1983).

W6 Wallace, W.H.B., S.M. Shalet, J.H. Hendry et al. Ovarian failure following abdominal irradiation in childhood: the radiosensitivity of the human oocyte. Br. J. Radiol. 62: 995-998 (1989).

W7 Wilimas, J., E. Thompson and K.L. Smith. Long-term results of treatment of children and adolescents with Hodgkin's disease. Cancer 46: 2123-2125 (1989).

W8 Willich, E., H. Kuttig, G. Pfeil et al. Wirbelsäulenveränderungen nach Bestrahlung wegen Wilms' tumor im Kleinkindersalter. Strahlenther. Onkol. 166: 815-821 (1990).

W9 Walker, S.J., L.A. Whiteside, W.H. McAlister et al. Slipped capital femoral epiphysis following radiation and chemotherapy. Clin. Orthop. 159: 186-193 (1981).

W10 Wolf, E.L., W.E. Berdon, J.R. Cassady et al. Slipped femoral capital epiphysis as a sequela to childhood irradiation for malignant tumors. Radiology 125: 781-784 (1977).

W11 Weaver, R.G., A.R. Chauvenet, T.J. Smith et al. Ophtalmic evaluation of long-term survivors of childhood, acute lymphoblastic leukemia. Cancer 58: 963-968 (1986).

W12 Wara, W.M., T.L. Phillips, L.W. Margolis et al. Radiation pneumonitis: a new approach to the derivation of time-dose factors. Cancer 32: 547-552 (1973).

W13 Watchie, J., C.N. Coleman, T.A. Raffin et al. Minimal long-term cardiopulmonary dysfunction following treatment for Hodgkin's disease. Int. J. Radiat. Oncol. Biol. Phys. 13: 517-524 (1987).

W14 Wohl, M.E., N.T. Griscom, D.G. Traggis et al. Effects of therapeutic irradiation delivered in early childhood upon subsequent lung function. Pediatrics 55: 507-514 (1975).

Z1 Zaharia, M., E. Caceres, S. Valdivia et al. Postoperative whole lung irradiation with or without adriamycin in osteogenic sarcoma. Int. J. Radiat. Oncol. Biol. Phys. 12: 907-910 (1986).