

**The 100 Millisievert Threshold Lie:
Accepted Knowledge about Radiation Effects after Chronical Low-Dose
Exposure and Remaining Issues**

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POISONED POWER

**THE CASE AGAINST
NUCLEAR POWER PLANTS**

1971

**by John W. Gofman
and Arthur R. Tamplin**

With a Foreword by Senator Mike Gravel



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Alice Stewart

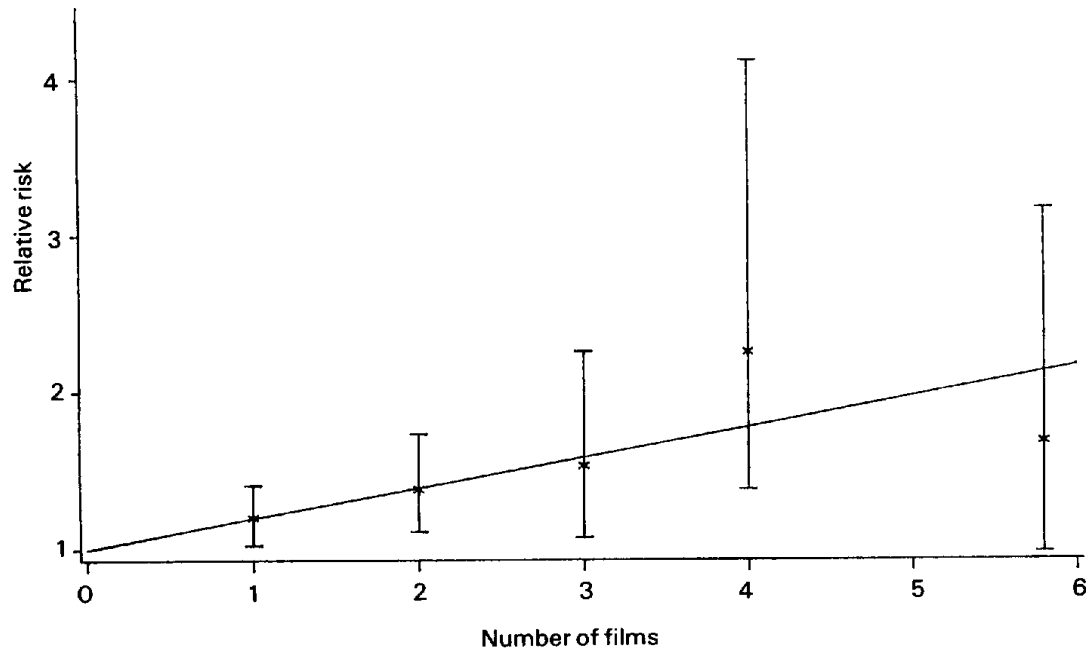
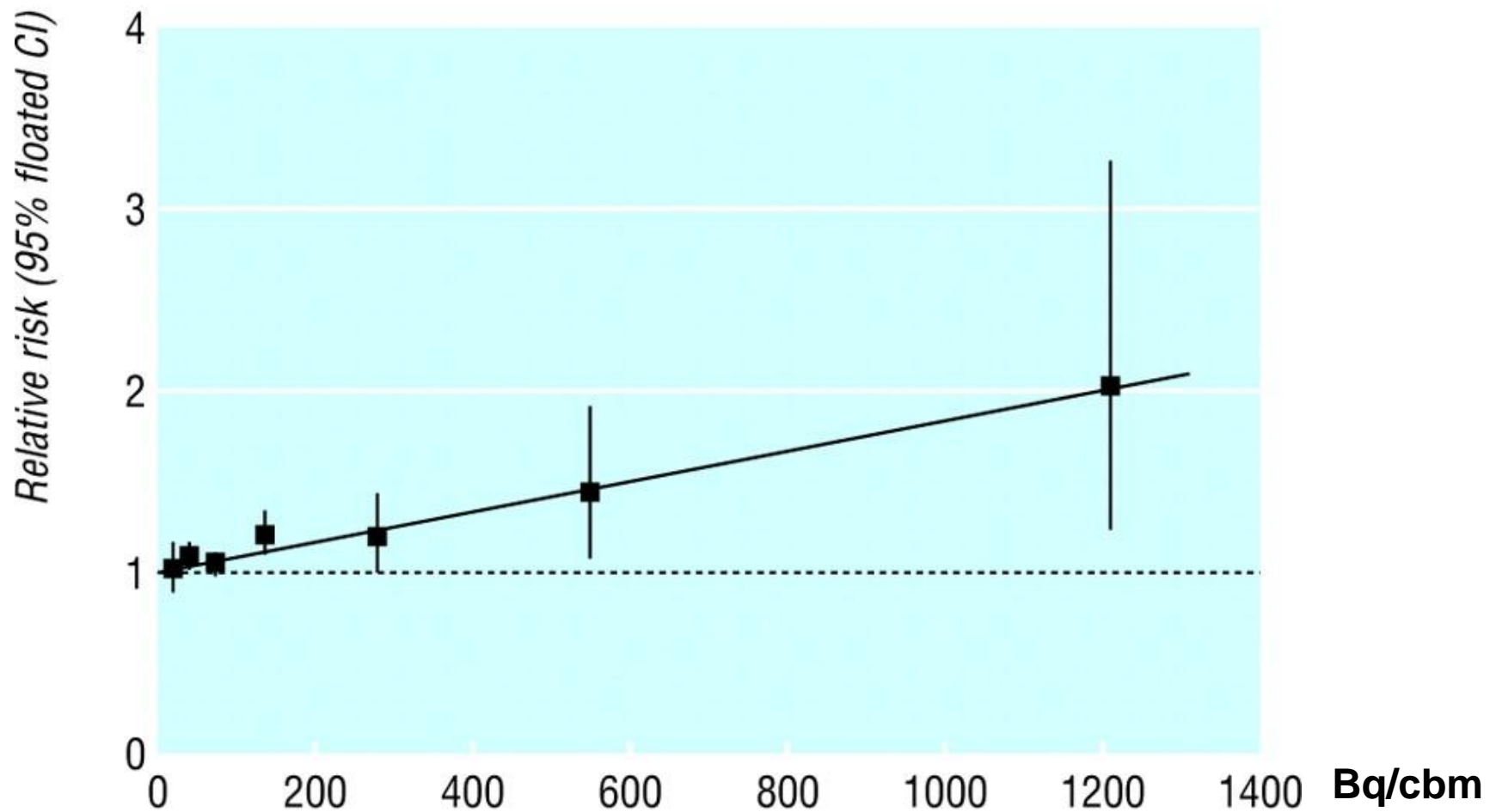


Figure 6.1 Risk-exposure relationship for third trimester X-raying: OSCC deaths, 1953–72. The straight line is fitted using the method of Bithell and Stiller (1988a) and has a slope of 0.194 units of excess RR per film (95% confidence interval 0.134:0.280).

Oxford Survey of Childhood Cancer
 Leukaemia in dependency of the number of X-ray films

Dose cohorts of the Life Span Study in Japanese A-bomb survivors
(Preston et al. in RERF Update Vol.18, 2007)

Dose Sv	<0,005	0.005-0,1	0,1-0,2	0,2-0,5	0,5-1	1-2	2 +	all
Number of persons	35545	27789	5527	5935	3173	1647	564	105,427



Radon in Homes and Lung Cancer (Darby et al. 2005)

To insist on a “practical” threshold dose of 100 mSv in these days simply ignores the current state of knowledge. It is irresponsible with respect to the victims of environmental radioactive contaminations and other low dose exposures

Leukaemia and Tumours as Consequence of Diagnostic X-raying, publications since 1988

- Leukaemia after exposure of children and adults (6 examples)
- Breast cancer in scoliosis patients (Ronckers et al. 2008)
- Prostate cancer in the U.K. (Myles et al. 2008)
20 % of cases in men below 60 at exposure radiation-induced
- **Brain tumours see following table**
- **Others (7 examples)**

Brain tumours after diagnostic X-ray exposure

Investigation (Case-control studies)	Study about	Results (relative risk)
Dental exposures Los Angeles 1972-1979 ≥ 4 x Panorama (Preston-Martin & White 1990) Missouri Cluster 1973-1982 (Neuberger et al. 1991) Uppsala 1987-1990 ≥ 1 x annually (Rodvall et al. 1998) U.S.A. 1995-2003 ≥ 6 x Panorama (Longstreth et al. 2004) U.S.A. regions 2006-2011 Single tooth and Panorama (Claus et al. 2012)	Meningiomas	2.5 P=0.04
	Malign tumours	10.7 (1.4-81)
	Meningiomas Gliomas All tumours	2.1 (1.0-4.3) not elevated not sign.elevated
	Meningiomas	2.0 (1.0-4.2)
	Meningiomas	1.4 – 4.9
X-ray Neck/Head 2 Swedish regions 1994-1996 (Hardell et al. 2001)	Meningiomas All tumours	5.0 (1.6-15.8) 1.6 (1.0-2.6)

Radiation-induced hereditary effects/Cancer in childhood after preconceptional low-dose exposure

Exposed collective	Disease	Gonadal Dose mSv	Relative Risk	Doubling dose mSv
Seascale fathers 1990 (25) all stages of spermatogenesis 6 months before conception	Leukaemia + lymphoma	200 10	7 7	29 1.4
Sellafield workers 2002 (26)	“		1.9	
Occupational exposure W.Cumbria 1991 (27)	“		3.2	
Preconceptional X-ray diagnostics				
Fathers 1966 (28)	Leukaemia	5*	1.3	3.8
Fathers 1988 (29)	Leukaemia	3-30	1.4-3.9	
Fathers 1994 (30)	Leukaemia		3.8	
Mothers 1958 (31)	Leukaemia	5*	1.7	2.9
Mothers 1966 (28)	Leukaemia	5*	1.7	2.9
Mothers 1973 (32)	Leukaemia	5*	1.4	3.6
Mothers 1980 (33)	Cancer	3*	2.6	1.2
Occupational exposure 1984 (34)	Cancer		2.7	

* Dose values reckoned by writer