

Supplementary Table S1. Presence of self-reported medical conditions among those who received diagnostic or therapeutic medical x-rays and among total study participants

	Cancer (%)	Stroke (%)	Heart diseases (%)	Chronic hepatitis (%)	Total chronic diseases <sup>a</sup> (%)
Total CT (n = 9,096)	19.6	10.7	26.1	8.5	50.1
Head CT (n = 6,899)	18.8	14.1	27.3	8.3	51.5
Chest CT (n = 5,794)	23.5	10.8	30.0	8.7	55.0
Abdominal CT (n = 4,770)	27.7	10.7	27.9	12.8	58.4
Total fluoroscopy (n = 9,362)	17.1	8.5	23.9	7.9	44.7
UGI fluoroscopy (n = 9,220)	17.0	8.6	24.4	7.9	45.1
LGI fluoroscopy (n = 4,430)	21.4	9.6	26.8	8.9	50.0
Total angiography (n = 2,480)	21.9	17.5	56.5	12.8	77.7
Cerebral angiography (n = 1,085)	23.7	28.9	38.2	10.0	71.0
Coronary angiography (n = 1,706)	20.2	13.0	76.6	8.7	84.5
Hepatic angiography (n = 480)	32.9	15.4	36.0	38.5	76.7
Radiotherapy (n = 952)	53.6	12.9	26.3	9.5	73.1
Total (n = 12,670)	16.0	8.8	23.2	7.1	43.2

<sup>a</sup> Cancer, stroke, heart diseases, and chronic hepatitis

Supplementary Table S2. Associations of the number of medical radiation exposures with demographic factors and history of cancer

	Total CT scans <sup>a</sup>								Total fluoroscopy examinations <sup>b</sup>								Total angiography examinations <sup>c</sup>								Total	
	0		1-5		6+		Unknown		0		1-5		6+		Unknown		0		1-5		6+		Unknown		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
City																										
Hiroshima	1,863	22.7	4,370	53.3	1,476	18.0	498	6.1	1,533	18.7	4,058	49.5	2,100	25.6	516	6.3	6,020	73.4	1,445	17.6	164	2.0	578	7.0	8,207	100.0
Nagasaki	944	21.2	2,406	53.9	844	18.9	269	6.0	993	22.3	2,329	52.2	875	19.6	266	6.0	3,242	72.6	768	17.2	103	2.3	350	7.8	4,463	100.0
Sex																										
Men	1,048	21.1	2,603	52.3	1,084	21.8	242	4.9	785	15.8	2,302	46.3	1,643	33.0	247	5.0	3,471	69.7	1,044	21.0	163	3.3	299	6.0	4,977	100.0
Women	1,759	22.9	4,173	54.2	1,236	16.1	525	6.8	1,741	22.6	4,085	53.1	1,332	17.3	535	7.0	5,791	75.3	1,169	15.2	104	1.4	629	8.2	7,693	100.0
Age at the time of the bombings																										
< 10 years	1,707	26.6	3,443	53.7	1,016	15.8	250	3.9	1,124	17.5	3,227	50.3	1,818	28.3	247	3.9	5,120	79.8	933	14.5	107	1.7	256	4.0	6,416	100.0
10-19 years	861	17.7	2,620	53.8	1,025	21.0	368	7.6	1,018	20.9	2,509	51.5	996	20.4	351	7.2	3,246	66.6	1,018	20.9	136	2.8	474	9.7	4,874	100.0
>= 20 years	239	17.3	713	51.7	279	20.2	149	10.8	384	27.8	651	47.2	161	11.7	184	13.3	896	64.9	262	19.0	24	1.7	198	14.4	1,380	100.0
AHS status																										
Not selected	2,318	22.4	5,519	53.3	1,965	19.0	558	5.4	1,829	17.7	5,289	51.1	2,665	25.7	577	5.6	7,623	73.6	1,801	17.4	227	2.2	709	6.8	10,360	100.0
Selected	489	21.2	1,257	54.4	355	15.4	209	9.1	697	30.2	1,098	47.5	310	13.4	205	8.9	1,639	71.0	412	17.8	40	1.7	219	9.5	2,310	100.0
Past medical history of cancer																										
Never	2,620	26.3	5,424	54.5	1,379	13.9	523	5.3	2,123	21.4	5,064	50.9	2,257	22.7	502	5.1	7,694	77.4	1,588	16.0	168	1.7	496	5.0	9,946	100.0
Ever	124	6.1	984	48.5	799	39.4	121	6.0	291	14.4	979	48.3	618	30.5	140	6.9	1,291	63.7	461	22.7	81	4.0	195	9.6	2,028	100.0
Unknown	63	9.1	368	52.9	142	20.4	123	17.7	112	16.1	344	49.4	100	14.4	140	20.1	277	39.8	164	23.6	18	2.6	237	34.1	696	100.0

<sup>a</sup> Head, chest, and abdominal CT scans

<sup>b</sup> Upper and lower GI fluoroscopy examinations

<sup>c</sup> Cerebral, coronary, and hepatic angiography examinations

cont.

	Radiotherapy						Total	
	Never		Ever		Unknown		No.	%
	No.	%	No.	%	No.	%		
<b>City</b>								
Hiroshima	6,892	84	625	7.62	690	8.41	8,207	100.0
Nagasaki	3,786	84.8	327	7.33	350	7.84	4,463	100.0
<b>Sex</b>								
Men	4,247	85.3	391	7.86	339	6.81	4,977	100.0
Women	6,431	83.6	561	7.29	701	9.11	7,693	100.0
<b>Age at the time of the bombings</b>								
< 10 years	5,678	88.5	413	6.44	325	5.07	6,416	100.0
10-19 years	3,928	80.6	439	9.01	507	10.4	4,874	100.0
>= 20 years	1,072	77.7	100	7.25	208	15.1	1,380	100.0
<b>AHS status</b>								
Not selected	8,795	84.9	769	7.42	796	7.68	10,360	100.0
Selected	1,883	81.5	183	7.92	244	10.6	2,310	100.0
<b>Past medical history of cancer</b>								
Never	8,986	90.4	368	3.7	592	5.95	9,946	100.0
Ever	1,333	65.7	510	25.2	185	9.12	2,028	100.0
Unknown	359	51.6	74	10.6	263	37.8	696	100.0

Supplementary Table S3. Associations of the number of medical radiation exposures with demographic factors and past medical histories

	Head CT scans										Chest CT scans										Abdominal CT scans										Total	
	0		1-2		3-5		6+		Unknown		0		1-2		3-5		6+		Unknown		0		1-2		3-5		6+		Unknown		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
City																																
Hiroshima	3,287	40.1	2,874	35.0	1,122	13.7	364	4.4	560	6.8	3,898	47.5	1,971	24.0	872	10.6	584	7.1	882	10.8	4,577	55.8	1,674	20.4	679	8.3	391	4.8	886	10.8	8,207	100.0
Nagasaki	1,834	41.1	1,587	35.6	562	12.6	177	4.0	303	6.8	1,991	44.6	1,109	24.9	544	12.2	350	7.8	469	10.5	2,287	51.2	1,023	22.9	436	9.8	235	5.3	482	10.8	4,463	100.0
Sex																																
Men	2,081	41.8	1,641	33.0	728	14.6	241	4.8	286	5.8	2,163	43.5	1,336	26.8	657	13.2	419	8.4	402	8.1	2,437	49.0	1,185	23.8	584	11.7	325	6.5	446	9.0	4,977	100.0
Women	3,040	39.5	2,820	36.7	956	12.4	300	3.9	577	7.5	3,726	48.4	1,744	22.7	759	9.9	515	6.7	949	12.3	4,427	57.6	1,512	19.7	531	6.9	301	3.9	922	12.0	7,693	100.0
Age at the time of the bombings																																
< 10 years	2,968	46.3	2,265	35.3	686	10.7	214	3.3	283	4.4	3,407	53.1	1,527	23.8	604	9.4	418	6.5	460	7.2	3,749	58.4	1,383	21.6	521	8.1	303	4.7	460	7.2	6,416	100.0
10-19 years	1,718	35.3	1,700	34.9	784	16.1	253	5.2	419	8.6	1,969	40.4	1,227	25.2	636	13.1	390	8.0	652	13.4	2,420	49.7	1,045	21.4	480	9.9	277	5.7	652	13.4	4,874	100.0
>= 20 years	435	31.5	496	35.9	214	15.5	74	5.4	161	11.7	513	37.2	326	23.6	176	12.8	126	9.1	239	17.3	695	50.4	269	19.5	114	8.3	46	3.3	256	18.6	1,380	100.0
AHS status																																
Not selected	4,236	40.9	3,636	35.1	1,420	13.7	454	4.4	614	5.9	4,876	47.1	2,514	24.3	1,174	11.3	796	7.7	1,000	9.7	5,688	54.9	2,182	21.1	931	9.0	529	5.1	1,030	9.9	10,360	100.0
Selected	885	38.3	825	35.7	264	11.4	87	3.8	249	10.8	1,013	43.9	566	24.5	242	10.5	138	6.0	351	15.2	1,176	50.9	515	22.3	184	8.0	97	4.2	338	14.6	2,310	100.0
Past medical history of cancer																																
Never	4,363	43.9	3,552	35.7	1,173	11.8	337	3.4	521	5.2	5,222	52.5	2,390	24.0	931	9.4	537	5.4	866	8.7	6,111	61.4	2,034	20.5	668	6.7	274	2.8	859	8.6	9,946	100.0
Ever	610	30.1	676	33.3	383	18.9	175	8.6	184	9.1	508	25.1	524	25.8	395	19.5	341	16.8	260	12.8	551	27.2	519	25.6	369	18.2	326	16.1	263	13.0	2,028	100.0
Unknown	148	21.3	233	33.5	128	18.4	29	4.2	158	22.7	159	22.8	166	23.9	90	12.9	56	8.1	225	32.3	202	29.0	144	20.7	78	11.2	26	3.7	246	35.3	696	100.0

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	Upper GI fluoroscopy										Lower GI fluoroscopy										Total		
	0		1-2		3-5		6+		Unknown		0		1-2		3-5		6+		Unknown		No.	%	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%					
City																							
Hiroshima	1,803	22.0	2,158	26.3	1,737	21.2	1,866	22.7	643	7.8	4,992	60.8	2,076	25.3	495	6.0	139	1.7	505	6.2	8,207	100.0	
Nagasaki	1,167	26.2	1,358	30.4	899	20.1	704	15.8	335	7.5	2,555	57.3	1,215	27.2	306	6.9	88	2.0	299	6.7	4,463	100.0	
Sex																							
Men	935	18.8	1,215	24.4	1,078	21.7	1,443	29.0	306	6.2	2,856	57.4	1,326	26.6	414	8.3	119	2.4	262	5.3	4,977	100.0	
Women	2,035	26.5	2,301	29.9	1,558	20.3	1,127	14.7	672	8.7	4,691	61.0	1,965	25.5	387	5.0	108	1.4	542	7.1	7,693	100.0	
Age at the time of the bombings																							
< 10 years	1,309	20.4	1,760	27.4	1,392	21.7	1,637	25.5	318	5.0	829	23.5	1,074	30.4	794	22.5	646	18.3	186	5.3	6,416	100.0	
10-19 years	1,231	25.3	1,373	28.2	1,020	20.9	805	16.5	445	9.1	830	28.1	880	29.8	576	19.5	379	12.8	288	9.8	4,874	100.0	
>= 20 years	430	31.2	383	27.8	224	16.2	128	9.3	215	15.6	376	31.1	347	28.7	188	15.5	102	8.4	198	16.4	1,380	100.0	
AHS status																							
Not selected	2,161	20.9	2,878	27.8	2,263	21.8	2,317	22.4	741	7.2	6,128	59.2	2,729	26.3	698	6.7	202	2.0	603	5.8	10,360	100.0	
Selected	809	35.0	638	27.6	373	16.2	253	11.0	237	10.3	1,419	61.4	562	24.3	103	4.5	25	1.1	201	8.7	2,310	100.0	
Past medical history of cancer																							
Never	2,461	24.7	2,818	28.3	2,031	20.4	1,996	20.1	640	6.4	6,333	63.7	2,529	25.4	515	5.2	148	1.5	421	4.2	9,946	100.0	
Ever	377	18.6	484	23.9	484	23.9	497	24.5	186	9.2	951	46.9	601	29.6	240	11.8	71	3.5	165	8.1	2,028	100.0	
Unknown	132	19.0	214	30.8	121	17.4	77	11.1	152	21.8	263	37.8	161	23.1	46	6.6	8	1.2	218	31.3	696	100.0	

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	Cerebral angiography						Coronary angiography						Hepatic angiography						Total	
	Never		Ever <sup>a</sup>		Unknown		Never		Ever <sup>a</sup>		Unknown		Never		Ever <sup>a</sup>		Unknown		No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
City																				
Hiroshima	6,931	84.5	686	8.4	590	7.2	6,656	81.1	1,047	12.8	504	6.1	7,318	89.2	288	3.5	601	7.3	8,207	100.0
Nagasaki	3,761	84.3	334	7.5	368	8.3	3,546	79.5	605	13.6	312	7.0	3,946	88.4	153	3.4	364	8.2	4,463	100.0
Sex																				
Men	4,166	83.7	494	9.9	317	6.4	3,886	78.1	828	16.6	263	5.3	4,417	88.8	244	4.9	316	6.4	4,977	100.0
Women	6,526	84.8	526	6.8	641	8.3	6,316	82.1	824	10.7	553	7.2	6,847	89.0	197	2.6	649	8.4	7,693	100.0
Age at the time of the bombings																				
< 10 years	5,726	89.3	419	6.5	271	4.2	5,555	86.6	657	10.2	204	3.2	5,971	93.1	194	3.0	251	3.9	6,416	100.0
10-19 years	3,892	79.9	490	10.1	492	10.1	3,650	74.9	795	16.3	429	8.8	4,151	85.2	210	4.3	513	10.5	4,874	100.0
>= 20 years	1,074	77.8	111	8.0	195	14.1	997	72.3	200	14.5	183	13.3	1,142	82.8	37	2.7	201	14.6	1,380	100.0
AHS status																				
Not selected	8,790	84.9	838	8.1	732	7.1	8,403	81.1	1,348	13.0	609	5.9	9,262	89.4	361	3.5	737	7.1	10,360	100.0
Selected	1,902	82.3	182	7.9	226	9.8	1,799	77.9	304	13.2	207	9.0	2,002	86.7	80	3.5	228	9.9	2,310	100.0
Past medical history of cancer																				
Never	8,769	88.2	703	7.1	474	4.8	8,343	83.9	1,204	12.1	399	4.0	9,223	92.7	255	2.6	468	4.7	9,946	100.0
Ever	1,582	78.0	235	11.6	211	10.4	1,535	75.7	328	16.2	165	8.1	1,679	82.8	146	7.2	203	10.0	2,028	100.0
Unknown	341	49.0	82	11.8	273	39.2	324	46.6	120	17.2	252	36.2	362	52.0	40	5.8	294	42.2	696	100.0

<sup>a</sup> Three responses (1-2, 3-5, and 6+ times) were combined because the proportions of the responses 3-5 and 6+ were small.

Supplementary Table S4. Associations between atomic bomb radiation dose and the number of medical radiation exposures

		DS02 weighted absorbed colon dose									
		< 0.005 Gy		0.005 to < 0.1 Gy		0.1 to <1.0 Gy		>= 1.0 Gy		Linear trend	
		Reference	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	
Head CT	(0 vs 1–2 times)	1	0.98	(0.89 to 1.08)	0.95	(0.84 to 1.07)	1.22	(0.90 to 1.66)	1.00	(0.85 to 1.18)	
	(0 vs 3–5 times)	1	1.00	(0.88 to 1.14)	0.98	(0.83 to 1.15)	1.79	(1.20 to 2.67)	1.27	(1.02 to 1.57)	
	(0 vs 6+ times)	1	1.03	(0.84 to 1.27)	1.02	(0.79 to 1.32)	1.87	(1.01 to 3.46)	1.44	(1.05 to 1.98)	
Chest CT	(0 vs 1–2 times)	1	0.94	(0.85 to 1.04)	0.94	(0.83 to 1.07)	0.98	(0.69 to 1.38)	0.96	(0.80 to 1.15)	
	(0 vs 3–5 times)	1	0.88	(0.77 to 1.01)	1.10	(0.93 to 1.29)	1.93	(1.29 to 2.86)	1.42	(1.14 to 1.76)	
	(0 vs 6+ times)	1	1.06	(0.90 to 1.24)	1.16	(0.95 to 1.42)	2.33	(1.46 to 3.73)	1.66	(1.30 to 2.12)	
UGI fluoroscopy	(0 vs 1–2 times)	1	1.05	(0.93 to 1.18)	1.07	(0.93 to 1.23)	0.90	(0.63 to 1.27)	1.03	(0.86 to 1.24)	
	(0 vs 3–5 times)	1	0.91	(0.81 to 1.03)	1.01	(0.87 to 1.18)	1.08	(0.74 to 1.58)	1.10	(0.90 to 1.35)	
	(0 vs 6+ times)	1	1.00	(0.88 to 1.13)	1.10	(0.94 to 1.29)	1.36	(0.91 to 2.04)	1.23	(0.98 to 1.51)	

OR: odds ratio, CI: confidence interval

<sup>a</sup> Estimated by using multinomial logistic regression models with adjustment for city, sex, age at the time of the bombings and the AHS membership

Supplementary Table S5. Associations between atomic bomb radiation dose and medical radiation exposures among those with or without self-reported history of cancer and other chronic diseases

		DS02 weighted absorbed colon dose								
		< 0.005 Gy	0.005 to < 0.1 Gy		0.1 to <1.0 Gy		≥ 1.0 Gy		Linear trend	
		Reference	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI
Among those who did not have history of cancer and non-cancer diseases <sup>b</sup>										
Total CT	( ever )	1	0.93	(0.83 to 1.05)	0.91	(0.78 to 1.05)	1.37	(0.89 to 2.10)	1.03	(0.83 to 1.29)
Head CT	( ever )	1	0.99	(0.89 to 1.11)	0.91	(0.79 to 1.04)	1.61	(1.09 to 2.37)	1.09	(0.89 to 1.33)
Chest CT	( ever )	1	0.93	(0.83 to 1.04)	0.87	(0.75 to 1.01)	1.09	(0.74 to 1.63)	0.91	(0.73 to 1.13)
Abdominal CT	( ever )	1	1.12	(0.99 to 1.28)	1.04	(0.89 to 1.22)	1.33	(0.89 to 2.00)	1.14	(0.91 to 1.41)
Total fluoroscopy	( ever )	1	0.92	(0.80 to 1.05)	0.93	(0.79 to 1.10)	0.96	(0.64 to 1.45)	0.99	(0.79 to 1.23)
UGI fluoroscopy	( ever )	1	0.92	(0.81 to 1.05)	0.96	(0.82 to 1.12)	0.92	(0.62 to 1.36)	0.99	(0.80 to 1.23)
LGI fluoroscopy	( ever )	1	0.92	(0.82 to 1.04)	1.01	(0.87 to 1.17)	1.55	(1.05 to 2.29)	1.18	(0.96 to 1.47)
Total angiography	( ever )	1	1.06	(0.86 to 1.30)	1.13	(0.87 to 1.46)	2.31	(1.30 to 4.13)	1.63	(1.19 to 2.24)
Cerebral angiography	( ever )	1	1.00	(0.77 to 1.30)	1.00	(0.71 to 1.40)	2.51	(1.23 to 5.14)	1.80	(1.23 to 2.64)
Coronary angiography	( ever )	1	1.16	(0.87 to 1.54)	1.10	(0.76 to 1.58)	2.08	(0.91 to 4.78)	1.54	(0.99 to 2.41)
Hepatic angiography	( ever )	1	0.67	(0.42 to 1.07)	1.08	(0.65 to 1.80)	2.25	(0.83 to 6.14)	1.53	(0.85 to 2.75)
Radiotherapy	( ever )	1	1.07	(0.80 to 1.43)	0.95	(0.65 to 1.40)	1.04	(0.37 to 2.98)	0.95	(0.54 to 1.69)
Among those who had history of cancer or non-cancer diseases <sup>b</sup>										
Total CT	( ever )	1	1.00	(0.81 to 1.22)	0.93	(0.73 to 1.19)	1.49	(0.75 to 2.96)	1.10	(0.80 to 1.52)
Head CT	( ever )	1	1.05	(0.92 to 1.21)	0.98	(0.83 to 1.16)	0.93	(0.62 to 1.40)	0.91	(0.74 to 1.13)
Chest CT	( ever )	1	0.98	(0.86 to 1.13)	1.09	(0.92 to 1.28)	1.32	(0.87 to 2.00)	1.21	(0.98 to 1.50)
Abdominal CT	( ever )	1	0.98	(0.86 to 1.12)	1.02	(0.87 to 1.20)	1.62	(1.09 to 2.41)	1.23	(1.00 to 1.51)



Total fluoroscopy	( ever )	1	1.08	(0.91 to 1.29)	1.17	(0.95 to 1.44)	1.09	(0.69 to 1.71)	1.11	(0.87 to 1.42)
UGI fluoroscopy	( ever )	1	1.10	(0.94 to 1.29)	1.20	(0.99 to 1.45)	1.11	(0.73 to 1.70)	1.11	(0.89 to 1.39)
LGI fluoroscopy	( ever )	1	1.09	(0.96 to 1.24)	1.05	(0.90 to 1.24)	1.39	(0.95 to 2.03)	1.18	(0.97 to 1.43)
Total angiography	( ever )	1	0.90	(0.79 to 1.03)	0.95	(0.81 to 1.12)	1.29	(0.87 to 1.89)	1.06	(0.86 to 1.30)
Cerebral angiography	( ever )	1	0.98	(0.82 to 1.17)	0.97	(0.78 to 1.21)	1.29	(0.78 to 2.13)	1.14	(0.87 to 1.49)
Coronary angiography	( ever )	1	0.86	(0.74 to 0.99)	0.96	(0.80 to 1.14)	1.07	(0.71 to 1.62)	1.02	(0.82 to 1.28)
Hepatic angiography	( ever )	1	0.92	(0.72 to 1.18)	0.95	(0.70 to 1.30)	1.03	(0.49 to 2.16)	1.01	(0.68 to 1.50)
Radiotherapy	( ever )	1	1.04	(0.86 to 1.25)	1.02	(0.81 to 1.28)	1.92	(1.19 to 3.09)	1.36	(1.05 to 1.75)

OR: odds ratio, CI: confidence interval

<sup>a</sup> Adjusted for city, sex, age at the time of the bombings, and the AHS membership

<sup>b</sup> Stroke, heart diseases, or chronic hepatitis

Supplementary Table S6-1. Associations between atomic bomb radiation dose and medical radiation exposures for those having atomic bomb radiation dose between 0-1 Gy

		DS02 weighted absorbed colon dose										
		< 0.005 Gy	0.005 to < 0.1 Gy		0.1 to < 0.2 Gy		0.2 to < 0.5 Gy		0.5 to < 1.0 Gy		Linear trend	
		Reference	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI
Total CT	( ever )	1	0.93	(0.84 to 1.02)	1.02	(0.85 to 1.21)	0.88	(0.74 to 1.05)	0.95	(0.75 to 1.20)	0.93	(0.70 to 1.24)
Head CT	( ever )	1	1.00	(0.92 to 1.09)	0.98	(0.84 to 1.14)	0.99	(0.85 to 1.15)	0.87	(0.71 to 1.06)	0.88	(0.69 to 1.12)
Chest CT	( ever )	1	0.93	(0.86 to 1.02)	0.98	(0.84 to 1.13)	0.99	(0.85 to 1.16)	0.99	(0.81 to 1.21)	1.06	(0.83 to 1.36)
Abdominal CT	( ever )	1	1.02	(0.93 to 1.11)	1.12	(0.96 to 1.30)	0.96	(0.82 to 1.12)	1.11	(0.91 to 1.36)	1.11	(0.86 to 1.42)
Total fluoroscopy	( ever )	1	0.97	(0.87 to 1.08)	0.96	(0.80 to 1.16)	1.06	(0.88 to 1.28)	1.08	(0.86 to 1.36)	1.17	(0.88 to 1.56)
UGI fluoroscopy	( ever )	1	0.98	(0.89 to 1.09)	1.00	(0.84 to 1.19)	1.08	(0.90 to 1.29)	1.11	(0.90 to 1.38)	1.22	(0.93 to 1.61)
LGI fluoroscopy	( ever )	1	0.99	(0.91 to 1.08)	1.06	(0.91 to 1.24)	1.06	(0.91 to 1.24)	0.95	(0.77 to 1.18)	1.01	(0.78 to 1.31)
Total angiography	( ever )	1	0.91	(0.82 to 1.02)	0.99	(0.82 to 1.19)	1.02	(0.85 to 1.24)	1.22	(0.96 to 1.54)	1.36	(1.01 to 1.82)
Cerebral angiography	( ever )	1	0.96	(0.83 to 1.11)	0.91	(0.70 to 1.20)	1.03	(0.79 to 1.34)	1.20	(0.86 to 1.66)	1.29	(0.86 to 1.94)
Coronary angiography	( ever )	1	0.88	(0.78 to 0.99)	0.94	(0.76 to 1.18)	1.03	(0.83 to 1.28)	1.22	(0.93 to 1.59)	1.40	(1.00 to 1.96)
Hepatic angiography	( ever )	1	0.83	(0.67 to 1.04)	1.16	(0.81 to 1.65)	0.85	(0.57 to 1.27)	1.05	(0.65 to 1.72)	1.05	(0.56 to 1.94)
Radiotherapy	( ever )	1	1.03	(0.88 to 1.20)	1.05	(0.80 to 1.38)	1.06	(0.81 to 1.40)	0.99	(0.68 to 1.43)	1.08	(0.69 to 1.68)

OR: odds ratio, CI: confidence interval

<sup>a</sup> Adjusted for city, sex, age at the time of the bombings and the AHS membership

Supplementary Table S6-2. Associations between atomic bomb radiation dose and medical radiation exposures adjusting for self-reported history of cancer and other chronic diseases for those having atomic bomb radiation dose between 0-1 Gy

		DS02 weighted absorbed colon dose										
		< 0.005 Gy	0.005 to < 0.1 Gy		0.1 to < 0.2 Gy		0.2 to < 0.5 Gy		0.5 to < 1.0 Gy		Linear trend	
		Reference	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI	OR <sup>a</sup>	95% CI
Total CT	( ever )	1	0.93	(0.84 to 1.03)	0.96	(0.80 to 1.15)	0.82	(0.69 to 0.98)	0.89	(0.70 to 1.14)	0.81	(0.61 to 1.09)
Head CT	( ever )	1	0.98 <sup>b</sup>	(0.89 to 1.07)	0.94 <sup>b</sup>	(0.80 to 1.10)	0.93 <sup>b</sup>	(0.79 to 1.10)	0.83 <sup>b</sup>	(0.67 to 1.02)	0.81 <sup>b</sup>	(0.63 to 1.05)
Chest CT	( ever )	1	0.92	(0.84 to 1.01)	0.92	(0.79 to 1.08)	0.94	(0.80 to 1.11)	0.93	(0.75 to 1.15)	0.96	(0.74 to 1.24)
Abdominal CT	( ever )	1	1.04	(0.94 to 1.14)	1.08	(0.91 to 1.27)	0.92	(0.78 to 1.09)	1.04	(0.83 to 1.29)	0.98	(0.75 to 1.28)
Total fluoroscopy	( ever )	1	0.96	(0.86 to 1.07)	0.92	(0.76 to 1.11)	1.05	(0.87 to 1.28)	1.03	(0.81 to 1.30)	1.10	(0.82 to 1.48)
UGI fluoroscopy	( ever )	1	0.97	(0.88 to 1.08)	0.95	(0.80 to 1.14)	1.07	(0.89 to 1.29)	1.05	(0.84 to 1.31)	1.14	(0.86 to 1.50)
LGI fluoroscopy	( ever )	1	0.98	(0.90 to 1.07)	1.04	(0.89 to 1.22)	1.06	(0.90 to 1.24)	0.90	(0.73 to 1.13)	0.95	(0.73 to 1.24)
Total angiography	( ever )	1	0.92	(0.82 to 1.02)	0.97	(0.80 to 1.18)	1.04	(0.86 to 1.27)	1.20	(0.94 to 1.54)	1.36	(1.00 to 1.85)
Cerebral angiography	( ever )	1	0.94 <sup>b</sup>	(0.80 to 1.10)	0.98 <sup>b</sup>	(0.73 to 1.31)	1.07 <sup>b</sup>	(0.80 to 1.42)	1.22 <sup>b</sup>	(0.86 to 1.73)	1.38 <sup>b</sup>	(0.89 to 2.15)
Coronary angiography	( ever )	1	0.95 <sup>c</sup>	(0.82 to 1.10)	1.00 <sup>c</sup>	(0.76 to 1.31)	1.04 <sup>c</sup>	(0.79 to 1.35)	1.15 <sup>c</sup>	(0.83 to 1.60)	1.31 <sup>c</sup>	(0.87 to 1.96)
Hepatic angiography	( ever )	1	0.88 <sup>d</sup>	(0.69 to 1.13)	1.12 <sup>d</sup>	(0.75 to 1.68)	0.96 <sup>d</sup>	(0.60 to 1.53)	0.96 <sup>d</sup>	(0.54 to 1.69)	1.02 <sup>d</sup>	(0.50 to 2.09)
Radiotherapy	( ever )	1	1.07	(0.90 to 1.27)	0.98	(0.72 to 1.32)	0.93	(0.69 to 1.27)	0.77	(0.51 to 1.15)	0.73	(0.44 to 1.19)

OR: odds ratio, CI: confidence interval

<sup>a</sup> Adjusted for city, sex, age at the time of the bombings, the AHS membership, and history of cancer

<sup>b</sup> Additionally adjusted for history of stroke

<sup>c</sup> Additionally adjusted for history of heart diseases

<sup>d</sup> Additionally adjusted for history of chronic hepatitis