

RESULTS

General overview

Table 4 presents age-specific death rates for the most frequent types of cancer among the men for the period 1979—1982. Lung cancer was the most important cause of death among those in middle age, whereas in old age prostate cancer ranked first. Stomach cancer and carcinoma of the colon were next in importance, and they were more pronounced in old age. Cancer of the mouth and pharynx, as well as cancer of the blood-forming and lymphatic systems, accounted for a greater fraction of deaths at younger ages.

Agriculture, fishing and forestry work (100—145)

The occupations “farmers, animal breeders” and “other farming occupations” showed partially coin-

ciding patterns for the SMR values (table 5). For both groups, cancer of the stomach was more frequent than in the general population, while the mortality risks from cancer of the colon, liver and gallbladder, lung and bronchi, the bladder or urinary organs, as well as of the blood-forming and lymphatic organs (except for leukemias) were lower. “Other farming occupations” showed elevated risks also for cancer of the mouth and pharynx and the esophagus. Carcinoma of the mouth and pharynx was found for “fishermen, fish breeders and hunters.” “Other farming occupations” had a slightly lower mortality from skin cancer. The coding for “farmers, animal breeders” was reliable; for “other farming occupations” it was moderately reliable.

“Wine growers” showed an entirely different pattern. They had high risks of cancer of the esophagus and low prostate cancer mortality. “Vegetable pro-

Table 4. Death rates for the most important cancers among men in Switzerland, 1979–1982.

Cancer ICD-8-code ^a Description		Age group (years)									
		30–54 ^b		55–64 ^b		65–74 ^b		≥ 75 ^b		Total ^b	
		Rate ^c	%	Rate ^c	%	Rate ^c	%	Rate ^c	%	Rate ^c	%
140–149	Mouth and pharynx	6.1	7.3	29.3	5.1	31.3	2.8	47.1	2.2	17.3	3.5
150	Esophagus	3.1	3.7	26.6	4.7	37.0	3.3	72.9	3.4	18.0	3.6
151	Stomach	4.5	5.5	36.0	6.3	89.3	7.9	220.3	10.3	40.5	8.2
153	Colon	3.7	4.4	32.4	5.7	86.1	7.6	190.0	8.9	36.4	7.4
154	Rectum	2.2	2.6	16.6	2.9	45.8	4.0	100.3	4.7	19.3	3.9
157	Pancreas	3.3	4.0	25.8	4.5	49.9	4.4	89.2	4.2	21.3	4.3
162	Lung and bronchi	24.7	29.8	205.9	36.2	356.5	31.6	373.1	17.4	135.1	27.3
185	Prostate	1.0	1.2	24.5	4.3	120.3	10.6	503.3	23.5	64.4	13.0
188	Bladder	2.1	2.5	16.3	2.9	44.2	3.9	103.4	4.8	19.2	3.9
204–207	Leukemia	3.0	3.6	12.4	2.2	29.5	2.6	68.9	3.2	14.0	2.8
200–203,	Other blood and lymph organs Remaining malignant neoplasms	5.3	6.3	27.9	4.9	53.2	4.7	83.7	3.9	22.9	4.6
208–209		24.0	29.0	115.5	20.3	186.4	16.5	291.2	13.6	86.4	17.5
140–209	All malignant neoplasms	83.0	100.0	569.1	100.0	1129.6	100.0	2143.4	100.0	495.0	100.0

^a From reference 10.^b Population (males with occupation): 30–54 years: 817 070; 55–64 years: 240 053; 65–74 years: 208 554; ≥ 75 years: 113 160; total: 1 378 837.^c Deaths per 100 000 persons per year.**Table 5.** Occupations and cancers with significantly increased or decreased standardized mortality ratios among Swiss men aged 30 years and over, 1979–1982. (SMR_c = corrected standardized mortality ratio, PMR = proportionate mortality ratio)

Code ^a	Description of occupation	Description of cancer	Number of deaths	SMR _c	95% confidence interval	PMR	95% confidence interval
<i>Agriculture, forestry</i>							
100	Farmers	Stomach	357	125	108–144	120	107–133
		Colon	177	69	58–83	66	57–77
		Liver and gallbladder	73	70	55–91	68	53–85
		Lung and bronchi	654	78	69–88	77	71–83
		Other respiratory organs	14	57	35–101	56	31–94
		Bladder	90	66	53–84	64	51–79
		Other blood and lymph organs	126	87	71–106	84	70–100
111	Wine growers	Esophagus	8	..	..	262	113–517
		Prostate	4	..	..	38	10–98
122	Other farming occupations	Mouth and pharynx	27	172	110–286	138	91–201
		Esophagus	41	221	149–344	180	129–244
		Stomach	74	163	115–240	134	105–168
		Colon	32	78	51–126	65	44–92
		Liver and gallbladder	8	48	24–111	40	17–79
		Lung and bronchi	110	82	59–117	67	55–81
		Skin	4	49	20–158	39	11–100
		Prostate	49	61	42–94	51	38–67
		Other urinary organs	6	50	23–129	40	15–87
		Other blood and lymph organs	18	78	47–141	63	37–100
		Benign neoplasms	15	214	125–402	176	98–290
140	Foresters	Brain	2	324	101–1799	334	40–1205
		Benign neoplasms	2	488	151–2707	472	57–1704
141	Forestry workers	Pancreas	..	..	..	0	0–94
		Lung and bronchi	29	..	..	151	101–217
145	Fishermen, hunters	Mouth and pharynx	5	..	..	309	100–723
<i>Food industry</i>							
212	Bakers	Lung and bronchi	57	78	56–114	73	55–95
216	Cheese makers	Bones and connective tissues	3	757	263–3304	540	111–1588
		Brain	4	285	109–1031	188	51–483
		Secondary or without localization	6	276	119–812	203	74–443
221	Other food processing	Breast	1	464	103–6339	481	14–2681
<i>Textile industry</i>							
253	Weavers	Pancreas	7	267	108–880	236	95–487
262	Other textile industry	Bladder	2	20	6–126	26	3–94
270	Textile cutters	Skin	5	288	125–846	264	85–618
273	Other textile processing occupations	Mouth and pharynx	5	273	114–855	203	65–475
		Esophagus	6	290	127–834	205	75–447
		Rectum	..	0	0–143	0	0–88
		Bladder	..	0	0–144	0	0–88
		Other blood and lymph organs	7	269	123–723	190	76–392
		Brain	3	313	110–1338	243	50–714
<i>Wood-working industry</i>							
304	Carpenters	Mouth and pharynx	11	218	107–525	172	86–308
		Esophagus	15	262	135–584	213	119–351
		Bladder	14	213	109–483	177	97–297

(continued)

Table 5. Continued.

Code ^a	Description of occupation	Description of cancer	Number of deaths	SMR _c	95% confidence interval	PMR	95% confidence interval
306	Furniture makers	Leukemia	12	256	127-603	208	107-364
313	Other wood and cork processing	Other respiratory organs	18	326	204-556	344	204-544
		Esophagus	15	131	74-255	193	108-318
<i>Paper and graphic arts</i>							
330	Paper makers	Rectum	9	..	..	267	122-507
340	Typesetters	Colon	12	195	107-395	153	79-267
		Pancreas	9	261	135-583	204	93-388
		Breast	1	1123	255-1031	862	25-4804
		Other urinary organs	8	423	212-985	329	142-649
341	Printers	Other blood and lymph organs	8	216	108-504	168	72-331
		Colon	11	293	147-679	173	86-310
		Rectum	5	251	104-791	147	47-344
		Skin	3	320	112-1372	178	37-523
		Prostate	13	196	101-434	114	61-195
345	Other graphic arts	Secondary or without localization	5	382	159-1204	224	72-524
		Liver and gallbladder	7	231	113-560	187	75-386
		Prostate	23	193	121-329	149	94-224
		Other malignant neoplasms	6	259	121-672	199	73-434
<i>Leather industry</i>							
360	Occupations of leather processing	Bones and connective tissue	3	276	102-1071	250	52-735
		Other urinary organs	1	18	4-226	16	0-89
		Brain	—	0	0-98	0	0-84
<i>Chemical industry</i>							
370	Chemical workers	Stomach	29	178	97-365	195	131-280
		Stomach	23	153	92-278	162	103-243
390	Stone and earth processing	Bladder	1	14	3-182	15	0-84
<i>Metal industry</i>							
410	Foundry workers	Esophagus	13	207	113-425	188	100-322
426	Metal turners	Prostate	8	54	24-147	50	22-99
		Leukemia	—	0	0-119	0	0-97
456	Mechanics	Other respiratory organs	13	170	100-315	170	90-291
		Bladder	51	141	103-198	154	115-202
472	Electricians	Colon	36	160	108-250	118	83-163
		Pancreas	24	180	114-299	129	83-192
		Larynx	11	219	121-445	153	76-274
		Lung and bronchi	146	170	126-235	119	100-140
		Other respiratory organs	7	263	129-630	184	74-380
		Bladder	23	194	123-325	143	91-215
		Other urinary organs	15	191	112-354	133	74-219
		Other blood and lymph organs	32	212	140-336	151	103-213
		Secondary or without localization	15	185	109-342	134	75-221
		Other malignant neoplasms	15	175	103-325	126	70-208
477	Other metal workers	Rectum	87	153	121-197	135	108-166
		Lung and bronchi	580	141	122-164	123	113-133
		Other respiratory organs	31	251	176-372	220	149-312
485	Watchmakers	Secondary or without localization	53	139	105-190	123	92-161
		Stomach	23	86	54-144	66	42-99
		Lung and bronchi	110	140	103-196	100	82-121
		Skin	10	202	109-423	146	70-269
		Breast	2	548	172-2958	419	50-1512
		Prostate	67	140	100-203	114	88-145
490	Jewellery makers	Other blood and lymph organs	10	74	40-154	54	26-99
		Larynx	3	..	..	586	121-1723
<i>Building trades</i>							
500	Masons	Mouth and pharynx	35	258	181-381	183	127-254
		Esophagus	29	190	130-290	146	98-210
		Stomach	52	142	104-198	117	87-153
		Liver and gallbladder	22	159	104-257	124	78-188
		Pancreas	10	54	30-108	42	20-77
		Larynx	15	234	142-414	172	96-284
		Lung and bronchi	242	212	173-264	158	139-179
		Skin	3	42	16-157	31	6-91
509	Roofers	Mouth and pharynx	6	..	..	330	121-720
510	Plasterers	Mouth and pharynx	5	304	127-947	152	49-356
		Lung and bronchi	55	406	249-711	215	162-280
		Other urinary organs	6	496	218-1416	264	96-576
514	Construction laborers	Mouth and pharynx	19	215	134-372	100	60-156
		Esophagus	39	377	259-571	194	138-265
		Stomach	55	218	155-316	123	93-160
		Liver and gallbladder	16	174	105-313	92	53-149
		Larynx	14	332	195-619	161	88-270
		Lung and bronchi	165	223	170-298	109	93-127
		Bladder	23	192	123-317	108	68-162
		Leukemia	15	179	106-328	98	55-162
		Other blood and lymph organs	44	109	64-204	56	31-94
		Brain	2	46	15-247	19	2-69
		Secondary or without localization	19	253	157-436	135	81-211
		Benign neoplasms	10	254	138-525	151	72-278
515	Other building trades	Mouth and pharynx	27	171	111-279	178	117-259
		Stomach	49	134	93-201	140	104-185
		Lung and bronchi	159	129	96-177	134	114-157
		Brain	2	22	7-120	23	3-83
		Secondary or without localization	4	35	14-110	36	10-93
520	Painters	Mouth and pharynx	24	204	136-321	168	108-250

(continued)

Table 5. Continued.

Code ^a	Description of occupation	Description of cancer	Number of deaths	SMR _c	95% confidence interval	PMR	95% confidence interval
		Pancreas	25	161	108–251	138	89–204
		Lung and bronchi	172	171	139–213	144	123–167
		Prostate	61	134	101–183	122	93–157
		Benign neoplasms	—	0	0–72	0	0–62
524	Other painting occupations	Other urinary organs	4	..	..	566	154–1455
	<i>Architects and engineers</i>						
600	Architects	Lung and bronchi	19	..	..	64	39–100
		Skin	6	..	..	289	106–630
		Other urinary organs	3	..	..	11	2–32
601	Civil, machine and electrical engineers	Mouth and pharynx	1	..	..	13	0–72
		Colon	32	..	..	192	131–271
		Prostate	45	..	..	149	109–199
		Other urinary organs	14	..	..	251	137–421
610	Technicians	Leukemia	13	..	..	199	106–340
		Larynx	—	0	0–57	0	0–66
	<i>Technical occupations</i>						
620	Technical managers	Colon	12	49	27–97	65	34–114
		Other blood and lymph organs	19	113	69–200	166	100–259
624	Draftsmen	Bladder	9	..	..	330	151–627
634	Excavator and crane operators	Lung and bronchi	65	223	126–437	179	138–228
639	Other technical occupations	Mouth and pharynx	14	45	26–84	86	47–144
		Esophagus	14	49	29–93	91	50–153
		Stomach	30	53	35–84	95	64–136
		Colon	31	61	40–97	109	74–155
		Liver and gallbladder	21	88	55–151	161	100–246
		Lung and bronchi	128	58	43–80	107	89–127
		Prostate	45	60	41–90	103	75–138
		Bladder	13	48	28–93	87	46–149
		Leukemia	9	42	22–91	79	36–150
		Secondary or without localization	19	97	60–170	179	108–280
	<i>Managers</i>						
640	Entrepreneurs, directors	Mouth and pharynx	14	30	18–56	36	20–60
		Esophagus	21	47	30–77	54	33–83
		Colon	98	115	88–154	127	103–155
		Pancreas	52	100	73–142	223	167–292
		Lung and bronchi	237	70	56–89	81	71–92
		Bones and connective tissues	11	183	103–360	213	106–381
		Prostate	168	120	94–155	126	108–147
		Other urinary organs	45	145	104–210	169	123–226
641	Chief officials	Secondary or without localization	40	128	91–189	146	104–199
		Breast	1	589	130–8105	673	20–3751
642	Association secretaries	Other malignant neoplasms	—	0	0–92	0	0–99
		Skin	2	..	..	985	119–3555
	<i>Employees, trade and commerce</i>						
650	Commercial and administrative employees	Esophagus	58	83	63–113	73	55–94
		Stomach	135	88	71–111	79	66–93
		Colon	178	129	106–160	116	100–134
		Rectum	110	151	120–193	135	111–163
		Pancreas	108	132	105–169	117	96–141
		Prostate	287	122	102–148	111	99–125
		Other urinary organs	70	146	112–195	128	100–162
		Leukemia	83	155	121–204	138	110–171
		Other blood and lymph organs	122	138	110–174	121	100–144
		Brain	60	150	113–203	128	98–165
651	Bookkeepers, cashiers	Lung and bronchi	39	41	23–81	64	46–87
653	Cost accountants	Lung and bronchi	6	31	14–86	59	22–129
670	Merchant employees	Lung and bronchi	17	38	20–82	63	37–101
	<i>Sales occupations</i>						
673	Pharmacy assistants	Colon	9	334	183–678	320	146–608
		Other respiratory organs	2	684	220–3511	635	77–2292
		Brain	3	450	171–1647	389	80–1144
678	Sales representatives	Colon	44	137	86–231	144	105–193
		Liver and gallbladder	26	181	109–327	189	123–277
		Pancreas	28	144	87–256	150	100–217
679	Gas station attendants	Lung and bronchi	9	..	..	229	104–435
		Colon	75	158	116–220	128	101–160
683	Other sales occupations	Liver and gallbladder	31	153	103–239	125	85–177
		Bones and connective tissues	7	234	116–552	191	77–394
		Other blood and lymph organs	45	157	110–232	129	94–173
695	Service salesmen	Larynx	7	..	..	302	121–623
		Lung and bronchi	21	..	..	52	32–79
		Prostate	27	..	..	157	103–228
	<i>Transportation occupations</i>						
700	Railway engine drivers	Breast	1	912	207–11402	1151	34–6414
703	Professional drivers	Mouth and pharynx	37	218	152–327	134	94–185
		Esophagus	33	207	142–316	131	90–184
		Stomach	57	172	125–243	111	84–144
		Colon	43	145	102–212	94	68–127
		Liver and gallbladder	27	200	133–315	126	83–183
		Pancreas	38	207	144–308	131	93–180
		Lung and bronchi	279	228	181–291	142	126–160

(continued)

Table 5. Continued.

Code ^a	Description of occupation	Description of cancer	Number of deaths	SMR _c	95% confidence interval	PMR	95% confidence interval
		Prostate	68	144	107—200	98	76—124
		Bladder	31	197	134—303	128	87—182
710	Station masters	Brain	18	167	104—288	100	59—158
		Esophagus	—	0	0—87	0	0—97
		Bones and connective tissues	2	376	109—2430	506	61—1826
712	Train conductors	Esophagus	10	223	113—515	201	96—370
		Colon	4	46	18—159	39	11—100
		Bladder	12	259	135—566	220	114—385
720	Other railway occupations	Esophagus	20	170	104—302	148	90—229
721	Water traffic occupations	Other respiratory organs	2	1895	583—10676	1221	147—4407
723	Air traffic occupations	Lung and bronchi	9	..	..	223	102—424
		Mouth and pharynx	5	36	16—100	41	13—96
730	Communication occupations	Breast	3	722	268—2772	707	146—2078
740	Other transport occupations	Colon	19	177	104—329	159	96—248
		Other malignant neoplasms	8	224	110—533	192	83—379
<i>Hostellery and restaurants</i>							
750	Innkeepers and hotel managers	Mouth and pharynx	25	184	120—298	148	96—218
		Stomach	18	59	36—102	53	31—84
		Liver and gallbladder	29	240	160—379	297	199—427
		Larynx	16	265	160—474	217	124—352
		Secondary or without localization	23	234	150—385	202	128—303
751	Owners and managers of pensions	Mouth and pharynx	3	..	..	973	200—2860
759	Cooks	Mouth and pharynx	12	332	180—688	271	140—474
		Liver and gallbladder	8	246	122—583	226	97—446
		Larynx	7	435	208—1089	376	151—776
		Lung and bronchi	20	70	42—129	62	38—96
770	Other occupations in hostellery	Colon	7	284	131—750	151	60—312
		Lung and bronchi	18	200	111—399	101	60—160
		Leukemia	3	327	116—1372	164	34—482
		Benign neoplasms	2	488	148—2858	256	31—924
<i>Cleaning services</i>							
780	Chimney sweeps	Lung and bronchi	15	220	130—408	188	105—310
		Breast	1	3501	799—43184	3254	95—18134
		Other malignant neoplasms	2	318	100—1716	321	39—1159
		Benign neoplasms	2	609	191—3290	591	71—2133
784	Laundrymen	Bladder	2	..	..	1145	138—4133
		Lung and bronchi	108	137	101—191	141	116—170
787	Other cleaning and maintenance occupations	Bladder	19	194	119—337	199	120—311
<i>Law</i>							
815	Lawyers, notaries, judges, public prosecutors	Lung and bronchi	22	49	28—93	62	39—94
<i>Medicine</i>							
830	Physicians	Colon	19	157	102—256	219	132—342
		Lung and bronchi	9	19	10—38	30	14—57
<i>Scientists</i>							
850	Chemists	Stomach	1	..	..	18	1—100
		Brain	7	..	..	385	154—795
854	Mathematicians	Other blood and lymph organs	5	..	..	405	131—948
858	Writers, humanists	Lung and bronchi	18	48	26—98	85	50—134
		Other urinary organs	—	0	0—98	0	0—155
		Brain	6	186	81—535	304	111—663
866	Other scientific occupations	Leukemia	5	..	..	1393	449—3261
<i>Artists</i>							
870	Painters, potters, musicians and actors	Rectum	10	382	190—897	276	132—508
		Lung and bronchi	30	174	102—323	129	87—184
		Skin	4	352	137—1234	250	68—643
		Bladder	6	230	101—654	167	61—364
886	Other artists	Larynx	6	249	111—694	314	115—685
<i>Teachers and clergy</i>							
901	Intermediate school teachers	Colon	21	143	89—244	169	105—258
		Lung and bronchi	21	36	23—62	48	30—73
		Brain	9	169	89—367	252	115—479
903	Primary school teachers	Stomach	7	36	18—86	45	18—93
		Lung and bronchi	30	51	34—80	68	46—97
913	Other occupations in education	Other urinary organs	4	..	..	393	107—1010
		Other blood and lymph organs	7	..	..	372	149—768
920	Ordained clergymen	Liver and gallbladder	—	0	0—88	0	0—91
		Lung and bronchi	14	42	21—96	52	28—87
		Bones and connective tissue	2	350	103—2192	419	50—1512
		Other blood and lymph organs	14	252	127—581	304	166—510
		Benign neoplasms	5	331	134—1095	354	114—829
923	Other clergy	Lung and bronchi	2	..	..	27	3—97
		Brain	4	..	..	890	243—2288
<i>Not well classified</i>							
930	Not otherwise classified occupations	Mouth and pharynx	43	..	..	162	117—218
		Secondary or without localization	32	..	..	172	118—243
938	Laborers	Esophagus	46	..	..	150	110—200
		Colon	44	..	..	73	53—98
		Skin	2	..	..	13	2—47
		Brain	5	..	..	28	9—66

^a Taken from reference 8.

ducers, gardeners" showed neither excess nor reduced cancer mortality risks. Investigations of the quality of coding indicated that for "wine growers" coding was not very reliable, while for "vegetable producers, gardeners" it was moderately reliable.

"Foresters" and "forestry workers" did not show any remarkable cancer mortality risks, apart from excess cancer of the lung and bronchi among "forestry workers." The numbers were fairly small, and coding was excellent for "foresters," but not satisfactory for "forestry workers."

Food industry (212—240)

Despite respectable numbers, "bakers" did not show any excessive cancer mortality risks, and there was an indication of reduced lung cancer mortality. "Other occupations in food processing" exhibited no significant elevations of SMR or PMR values. The quality of occupational coding for these occupations was fairly low, with the exception of that for "bakers."

Textile industry (250—273)

The occupations of the textile industry showed a somewhat confusing picture, probably largely because of the small numbers. No two occupations showed a similar pattern of significant SMR or PMR values. If one considers the direction of risk only, there was an elevated risk for stomach cancer in all five textile occupations, none being significant. The combination, however, was significant. Occupational coding was at best moderately reliable for these occupations.

Wood working and furniture industry (304—313)

"Carpenters" had high SMR values for cancer of the mouth and pharynx, esophagus, bladder, and leukemias. An elevated PMR for cancer of the esophagus was also present for "other occupations of wood and cork processing." "Furniture makers" exhibited the well-known risk of cancer of the respiratory organs other than the lung and bronchi. Occupation was registered not very reliably for "carpenters," moderately reliably for "other occupations of wood and cork processing," and reliably for "furniture makers."

Paper manufacturing and graphic industry (330—345, 624)

"Paper makers" had a significantly elevated PMR for cancer of the rectum. "Typesetters" had a high mortality from carcinoma of the colon, pancreas and urinary tract, except for the bladder. They also had an excess mortality from cancer of the blood-forming and

lymphatic organs, except for leukemias. "Draftsmen" (624) showed a high mortality from bladder cancer. "Printers" showed significant excess SMR values for carcinoma of the colon and rectum, prostate, and secondary and ill-defined tumors. "Other graphic arts" had high mortality risks from cancer of the liver and gallbladder, prostate, and other tumor sites. The occupational description of "paper makers," "draftsmen," and "printers" was unreliable, while it was reliable for "typesetters," and moderately reliable for "other graphic arts."

Leather processing (360)

The "occupations of leather processing" had a low PMR for cancer of the urinary tract, excluding the bladder. The category was registered reliably.

Chemical workers (370)

"Chemical workers" showed an elevated risk for stomach cancer. The occupational coding was not very reliable.

Occupations of stone and earth processing (390—406)

"Occupations of stone and earth processing" had excess risks of cancer of the stomach, as well as low rates of bladder cancer. Occupational coding was not reliable for these occupations.

Foundry workers (410)

As in other studies, "foundry workers" exhibited elevated mortality risks for cancer of the esophagus and, not significant for the period considered, lung and bronchi. An investigation of the quality of the occupational coding showed that the occupation "foundry worker" was used too frequently on the death certificates.

Occupations of metal processing (426—456, 477)

"Metal turners" showed no excess risk, but reduced PMR values for prostate cancer and leukemias were found. "Mechanics" showed elevated SMR values for bladder cancer and cancer of the respiratory organs, except for the lung and bronchi. "Other metal workers" had elevated risks for cancer of the rectum, lung and bronchi, other respiratory organs, and secondary and ill-defined tumors. The coding was moderately reliable for "mechanics" and "other metal workers" and not reliable for "metal turners."

Electricians (472)

"Electricians" showed up as one of the groups with considerable excess mortality from many types of cancer. High SMR values for cancer of the colon; pancreas; larynx; lung, bronchi and other respiratory organs; bladder; other urinary organs; blood-forming and lymphatic organs, except leukemias; secondary and ill-defined and rare types of cancer were observed. The occupational coding was not very reliable.

Jewellery making and watchmaking (485—490)

"Watchmakers" exhibited excess mortality from cancer of the lung and bronchi, skin, and prostate. The PMR values were low for stomach cancer and neoplasms of the blood-forming and lymphatic organs, except for leukemias. "Jewellery makers" had excess risk for laryngeal cancer. Occupational coding was not reliable for "watchmakers" but moderately reliable for "jewellery makers."

Building trades (500—515)

"Masons," "roofers," "plasterers," "construction laborers," and "other building trades" all had elevated SMR values for cancer of the mouth and pharynx. "Masons" and "construction laborers" also had elevated SMR values for cancer of the esophagus and larynx.

Cancer of the lung and bronchi occurred excessively among "masons," "plasterers," "construction laborers" and "other building trades." For "plasterers," there was a high mortality risk from cancer of the urinary tract (other than the bladder).

In addition, "masons" and "construction laborers" suffered from excess mortality from cancer of the stomach and liver and gallbladder. "Construction laborers" also experienced excess mortality from cancer of the bladder, blood-forming and lymphatic systems, secondary and ill-defined tumors, and benign neoplasms, while "other building trades" had excess mortality from stomach cancer and (marginally) benign neoplasms.

"Masons" had reduced mortality from pancreas and skin cancer. "Construction laborers" and "other building trades" had low mortality from neoplasms of the brain, and the "other building trades" also had low mortality from secondary and ill-defined tumors. The coding was moderately reliable for "masons," "roofers," and "plasterers," whereas it was poor for "construction laborers" and "other building trades."

Painters (520, 524)

"Painters" had high SMR values for cancer of the mouth and pharynx, pancreas, lung and bronchi, and

prostate. Cancer of the urinary tract, except for the bladder, was observed in excess for "other occupations of painting." "Painters" had reduced mortality from benign neoplasms. The analysis of occupational coding showed that the coding for "painters" was reliable. For "other occupations of painting," it was not reliable.

Architects (600)

"Architects" had low rates of lung and bronchial cancer and cancer of the urinary organs, except for the bladder, but they had high mortality from skin cancer. In this report they are part of a group of occupations with a high social class. The occupational coding was not reliable.

Engineers (601)

"Civil, machine and electrical engineers" showed excess mortality from cancer of the colon, prostate, the urinary organs excepting the bladder, and leukemias. They also had low mortality from cancer of the mouth and pharynx and, marginally, for cancer of the lung and bronchi. The occupational coding was not satisfactory.

Technical occupations (620, 639)

The technical occupations showed a common low mortality for colon cancer. The coding was not reliable.

Entrepreneurs, directors and chief officials (640, 641)

"Entrepreneurs and directors" had excess risks for cancer of the colon, pancreas, bone and connective tissues, prostate, other urinary organs, and secondary and ill-defined tumors. Mortality from cancer of the mouth and pharynx, esophagus, and lung and bronchi was low. Low cancer mortality for these same locations was also found for "chief officials," although not significantly so. These occupations were of low coding reliability.

Employees in trade and commerce, sales occupations (650—670, 678, 683—695)

"Commercial and administrative employees," "sales representatives," "service salesmen," and "other sales occupations" showed somewhat similar patterns of cancer mortality. They tended to have high SMR and PMR values for cancer of the colon and rectum (not always statistically significant), but low rates for cancer of the esophagus, stomach, and lung and bronchi, with the exception of "other sales occupations."

Low lung and bronchial cancer mortality applied also to "bookkeepers and cashiers," "cost accountants," and "merchant employees." The "other sales occupations" exhibited high SMR values for cancer of the liver and gallbladder, bones and connective tissues, and blood-forming and lymphatic organs other than leukemias. "Commercial and administrative employees" showed, somewhat similarly, elevated SMR values for cancer of the urinary tract (except for the bladder), leukemias, and cancer of the other blood-forming and lymphatic organs, as well as for brain tumors. They also had high SMR values for cancer of the pancreas and prostate. "Sales representatives" showed high SMR values for the liver and gallbladder and a high PMR for pancreatic cancer. "Service salesmen" on the other hand had high PMR values for larynx and prostate carcinoma.

The investigation of occupational coding showed that the results for the occupations mentioned were of low to poor reliability, except that for "cost accountants" (coding reliable).

Excavator and crane operators (634), professional drivers (703), gas station attendants (679)

The occupations mentioned in the title of this section all had an elevated risk for lung and bronchial cancer. These occupations also had consistently elevated mortality for cancer of the mouth and pharynx (only significant for "professional drivers"). The large occupational category of "professional drivers" had several other excess cancer risks. The occupational coding was not reliable.

Railroad occupations (700—701, 710—720)

"Railway engine drivers" did not show any particularities in this study. "Station masters" had a low risk for esophageal cancer. "Train conductors" and "other railway occupations" showed elevated risks for cancer of the esophagus. In addition the "train conductors" had high mortality from bladder cancer. "Train attendants" had a nearly significant excess lung cancer risk. The occupational coding was reliable for "railway engine drivers," moderately reliable for "train conductors," and of low reliability for all of the other railroad occupations.

Occupations in communications (730)

The "occupations of communication" had low mortality from cancer of the mouth and pharynx. The category was reliably coded.

Air traffic occupations (723)

"Air traffic occupations" had high mortality from lung and bronchial cancer. The coding quality of this category could not be judged from the available data.

Innkeepers, hotel managers, cooks (750—759)

"Innkeepers and hotel managers" and "cooks" had high SMR values for cancer of the mouth and pharynx, liver and gallbladder, and larynx. "Owners and managers of guest houses" had a high mortality from cancer of the mouth and pharynx. "Innkeepers and hotel managers" had elevated risks for secondary and ill-defined tumors and low rates for stomach cancer. "Cooks," on the other hand, had low rates of lung cancer. The occupational coding was reliable for "innkeepers and hotel managers" and "cooks" and poor for "owners and managers of guest houses."

Cleaning services (780—787)

"Chimney sweeps" and "other cleaning and maintenance occupations" had excess mortality from cancer of the lung and bronchi, and "laundrymen" had a low mortality rate for bladder cancer, as did "other cleaning and maintenance occupations." The occupational coding was reliable for "chimney sweeps" and of moderate to low reliability for the other two occupations.

Lawyers, notaries, judges and public prosecutors (815)

Due to incompatibilities between census and mortality records, the occupations of lawyers, notaries, judges, and public prosecutors were analyzed as one category. As a group, they showed a low SMR for cancer of the lung and bronchi, and a nearly significantly high PMR for skin cancer. The category was coded moderately reliably.

Physicians, dentists, veterinarians, pharmacists and pharmacy assistants (830, 831, 673)

Unfortunately, the occupational code on the Swiss death certificate does not permit the subdivision of the group "dentists, veterinarians, pharmacists." As a group they did not exhibit any peculiarities. "Physicians" and "pharmacy assistants" both had elevated mortality from colon cancer. "Physicians" in addition had low mortality from cancer of the lung and bronchi. The occupational categories of "physicians," and "dentists, veterinarians and pharmacists" were

recorded reliably, whereas the category of “pharmacy assistants” could not be judged from our data.

Chemists (850)

Graduated “chemists” exhibited an excess PMR for brain tumors; the occupation was not reliably coded.

Mathematicians (854)

“Mathematicians” had excess mortality from cancer of the blood-forming and lymphatic organs, except for leukemias. The occupation was not reliably coded.

Writers, journalists and humanists (858)

The occupational category of “writers, journalists and humanists” was reliably recorded and had low SMR values for cancer of the lung and bronchi and cancer of the urinary organs other than the bladder, as well as a high PMR for neoplasms of the brain (6 cases).

Artists (870, 886)

Substantially raised mortality risks from rectal cancer, cancer of the lung and bronchi, and bladder cancer were observed for “painters, potters, musicians and actors,” and “other artists” showed a high mortality for cancer of the larynx. The occupational coding was moderately reliable.

Teachers (900—913)

“University professors,” “primary school teachers,” and “intermediate school teachers” all showed a tendency towards low mortality from cancer of the lung and bronchi and, partially, stomach (both significantly low for “primary school teachers”). “Intermediate school teachers” had significantly high mortality from colon and brain tumors. The occupational categories of “primary school teachers” and “intermediate school teachers” were reliably coded, whereas “university professors” was less so.

Clergy (920—923)

“Ordained clergymen” and “other clergy” had strongly reduced SMR values for lung and bronchial cancer. “Ordained clergymen,” in addition, had a low mortality from cancer of the liver and gallbladder and an elevated mortality from cancer of the blood-forming and lymphatic organs except leukemias. “Ordained clergymen” were coded reliably. For “other clergy” the coding quality could not be assessed.

Laborers (938)

Due to problems with the quality of occupational coding for this occupation, only PMR values have been given. The laborers had high mortality from cancer of the esophagus and low mortality from cancer of the colon, skin, and brain. The coding quality was very low.