Changes in autopsy rates among cancer patients and its impact from the public health point of view

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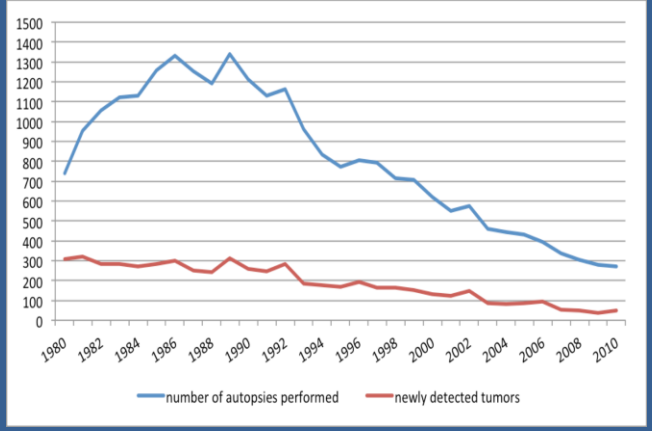
Introduction

During the last decades, autopsy rates have dramatically decreased in frequency in many countries. The Cancer Registry Zurich, which exists since 1980, provides the opportunity to address to what extent the number of autopsies in cancer patients have changed over a longer period of time and to what extent autopsies provide the diagnosis of clinical undetected cancer.

Table 1. : Total number of autopsies performed broken down by sex and the proportion of the total number of autopsies performed broken down by gender from 1980 to 2010. Each patient occurs only once, regardless of whether he was initially attributed to one or more tumor diagnoses.

Year	Cancer deaths	Autopsy performed	Autopsy performed in %	Cancer deaths in men	Autopsy in men	Autopsy in men in % related to all male patients	Cancer deaths in female	Autopsy in women	Autopsy in women in % related to all female patients
1980	1127	680	60.34	663	426	64.25	464	254	54.74
1981	1802	871	48.34	1068	538	50.37	734	333	45.37
1982	2144	965	45.01	1209	567	46.90	935	398	42.57
1983	2422	1023	42.24	1380	618	44.78	1042	405	38.87
1984	2520	1032	40.95	1386	607	43.80	1134	425	37.48
1985	2623	1127	42.97	1494	672	44.98	1129	455	40.30
1986	2711	1179	43.49	1537	716	46.58	1174	463	39.44
1987	2857	1084	37.94	1571	617	39.27	1286	467	36.31
1988	2911	1051	36.10	1629	606	37.20	1282	445	34.71
1989	2981	1127	37.81	1697	682	40.19	1284	445	34.66
1990	2981	1014	34.02	1689	600	35.52	1292	414	32.04
1991	2996	949	31.68	1662	559	33.63	1334	390	29.24
1992	3070	975	31.76	1715	548	31.95	1355	427	31.51
1993	3039	793	26.09	1663	466	28.02	1376	327	23.76
1994	3009	675	22.43	1640	378	23.05	1369	297	21.69
1995	2859	647	22.63	1568	415	26.47	1291	232	17.97
1996	2778	642	23.11	1518	392	25.82	1260	250	19.84
1997	3329	627	18.83	1817	372	20.47	1512	255	16.87
1998	3258	584	17.93	1813	369	20.35	1445	215	14.88
1999	3153	574	18.20	1767	356	20.15	1386	218	15.73
2000	3139	499	15.90	1687	289	17.13	1452	210	14.46
2001	3088	451	14.60	1685	271	16.08	1403	180	12.83
2002	3077	461	14.98	1666	274	16.45	1411	187	13.25
2003	3157	364	11.53	1748	215	12.30	1409	149	10.57
2004	3213	361	11.24	1734	224	12.92	1479	137	9.26
2005	3330	339	10.18	1840	207	11.25	1490	132	8.86
2006	3215	317	9.86	1778	210	11.81	1437	107	7.45
2007	3331	274	8.23	1788	171	9.56	1543	103	6.68
2008	3200	230	7.19	1785	151	8.46	1415	79	5.58
2009	3286	218	6.63	1762	140	7.95	1524	78	5.12
2010	3327	220	6.61	1860	135	7.26	1467	85	5.79

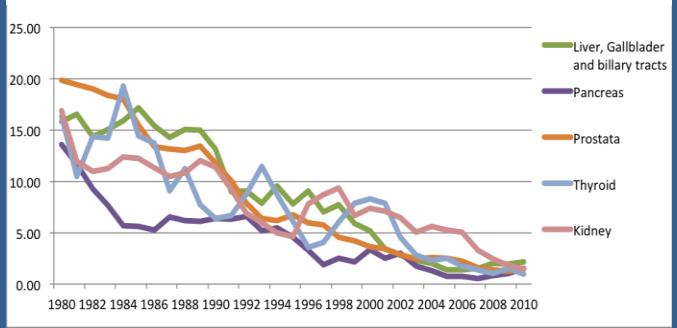
Figure 1. Newly detected tumors related to the total number of autopsies performed from 1980 to 2010. y-axis: number ; x-axis: year



Methods

- Data of the Cancer Registry Zurich, 1980 to 2010.
- 102,434 cancer cases in 89,933 deceased patients.
- 78,853 patients had one cancer diagnosis; 11,080 were diagnosed with more than one cancer.
- If an individual were diagnosed with two or more different malignant tumors within this period, each individual tumor localization of the respective group was included in the calculation of cancer prevalence, incidence and in the comparison between incidence and the impact of autopsy on incidence.
- Calculation of the overall autopsy number and rate was based only the tumor occurring first in time.

Figure 2. Development of the initial detection rate for tumor entities for which the autopsy was in the beginning of the data collection of a certain relevance for the incidence. Summarized with *„moving averages of 3 years“.* y-axis: incidence share of the autopsy in percentage; x-axis: year.



Results

- Autopsy rate declined from 60% in 1980 to 7% in 2010.
- Total number of autopsies performed decreased from a total of 1179 in 1986 to 220 in 2010.
- In 1980, the rate of newly detected tumours through autopsy was 42% compared with 2010, by which the rate has declined to 17%.

Conclusion

- A consequence of the reduced autopsy rate is the reduction of incidental findings at autopsy in cancer registration.
- This reduction has not negatively affected the total incidence of cancer.
- It seems that the state of the art diagnostic tools focusing on tumour detection are adequately reliable.

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