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Indicators of Data Quality at the Cancer Registry Zurich and Zug in Switzerland

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Abstract: Data quality is an important issue in cancer registration. This paper provides a comprehensive overview of the four main data quality indicators (comparability, validity, timeliness, and completeness) for the Cancer Registry Zurich and Zug (Switzerland). We extracted all malignant cancer cases (excluding non-melanoma skin cancer) diagnosed between 1980 and 2014 in the canton of Zurich. Methods included the proportion of morphologically verified cases (MV%), the proportion of DCN and DCO cases (2009-2014), cases with primary site uncertain (PSU%), the stability of incidence rates over time, age-specific incidence rates for childhood cancer, and mortality:incidence (MI) ratios. The DCO rate decreased from 6.4% in 1997 to 0.8% in 2014 and was <5% since 2000. MV% was 95.5% in 2014. PSU% was <3% over the whole period. The incidence rate of all tumours increased over time with site-specific fluctuations. The overall M:I ratio decreased from 0.58 in 1980 to 0.37 in 2014. Overall, data quality of the Cancer Registry Zurich and Zug was acceptable according to the methods presented in this review. Most indicators improved over time with low DCO rates, high MV%, low PSU%, relatively low M:I ratios and age-specific incidence of childhood cancer within reference ranges.

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Supplementary Material Table 1. Comparison of number of cases registered for selected types of cancer as published in different annual reports, Cancer Registry Zurich and Zug, Switzerland

Localisation	ICD10	Incidence year	Annual report 2014 ¹⁾	Annual report 2015 ²⁾	Annual report 2016 ³⁾	Diff. 2014-2015	%	Diff. 2015-2016	%
Men									
Prostate	C61	2012	942	985	997	43	4.4	12	1.2
	C61	2013		925	953			28	2.9
Lung	C33-C34	2012	423	433	435	10	2.3	2	0.5
	C33-C34	2013		393	403			10	2.5
Colon/Rectum	C18-C20	2012	361	372	377	11	3.0	5	1.3
	C18-C20	2013		381	389			8	2.1
Melanoma	C43	2012	329	330	334	1	0.3	4	1.2
	C43	2013		295	297			2	0.7
Leukaemia	C91-C95	2012	78	87	93	9	10.3	6	6.5
	C91-C95	2013		89	95			6	6.3
Pancreas	C25	2012	104	106	106	2	1.9	0	0.0
	C25	2013		116	118			2	1.7
Liver	C22	2012	86	89	91	3	3.4	2	2.2
	C22	2013		68	75			7	9.3
Urinary tract	C64-C66, C68	2012	85	88	90	3	3.4	2	2.2
	C64-C66, C68	2013		119	125			6	4.8
Bladder	C67	2012	166	170	172	4	2.4	2	1.2
	C67	2013		149	151			2	1.3
Women									
Breast	C50	2012	1101	1107	1114	6	0.5	7	0.6
	C50	2013		1034	1054			20	1.9
Lung	C33-C34	2012	281	290	295	9	3.1	5	1.7
	C33-C34	2013		293	306			13	4.2
Colon/Rectum	C18-C20	2012	306	313	315	7	2.2	2	0.6
	C18-C20	2013		341	344			3	0.9

Localisation	ICD10	Incidence year	Annual report 2014 ¹⁾	Annual report 2015 ²⁾	Annual report 2016 ³⁾	Diff. 2014-2015	%	Diff. 2015-2016	%
Melanoma	C43	2012	275	277	279	2	0.7	2	0.7
	C43	2013		258	261			3	1.1
Leukaemia	C91-C95	2012	73	81	84	8	9.9	3	3.6
	C91-C95	2013		77	80			3	3.8
Pancreas	C25	2012	116	120	121	4	3.3	1	0.8
	C25	2013		125	131			6	4.6
Liver	C22	2012	40	43	44	3	7.0	1	2.3
	C22	2013		45	48			3	6.3
Urinary tract	C64-C66, C68	2012	60	62	64	2	3.2	2	3.1
	C64-C66, C68	2013		71	72			1	1.4
Bladder	C67	2012	52	55	56	3	5.5	1	1.8
	C67	2013		47	47			0	0.0
Men and women									
All tumours	C00-C97 (except C44)	2012	6883	7055	7154	172	2.4	99	1.4
		2013		6856	7046			190	2.7

¹⁾ published in spring 2015, reports mainly on incidence year 2012

²⁾ published in spring 2016, reports mainly on incidence year 2013

³⁾ published in spring 2017, reports mainly on incidence year 2014