

Delivery of Health Care at the End of Life in Cancer Patients from Four Swiss Cantons (SAKK 89/09)

Klazien Matter-Walstra ^{1,2}, Rita Achermann ^{3a}, Roland Rapold ³, Dirk Klingbiel ², Andrea Bordoni ⁴, Silvia Dehler ⁵, Gernot Jundt ⁶, Isabelle Konzelmann ⁷, Kerri Clough-Gorr ⁸, Thomas Szucs ^{1,3}, Matthias Schwenkglenks ¹, Bernhard C. Pestalozzi ⁹

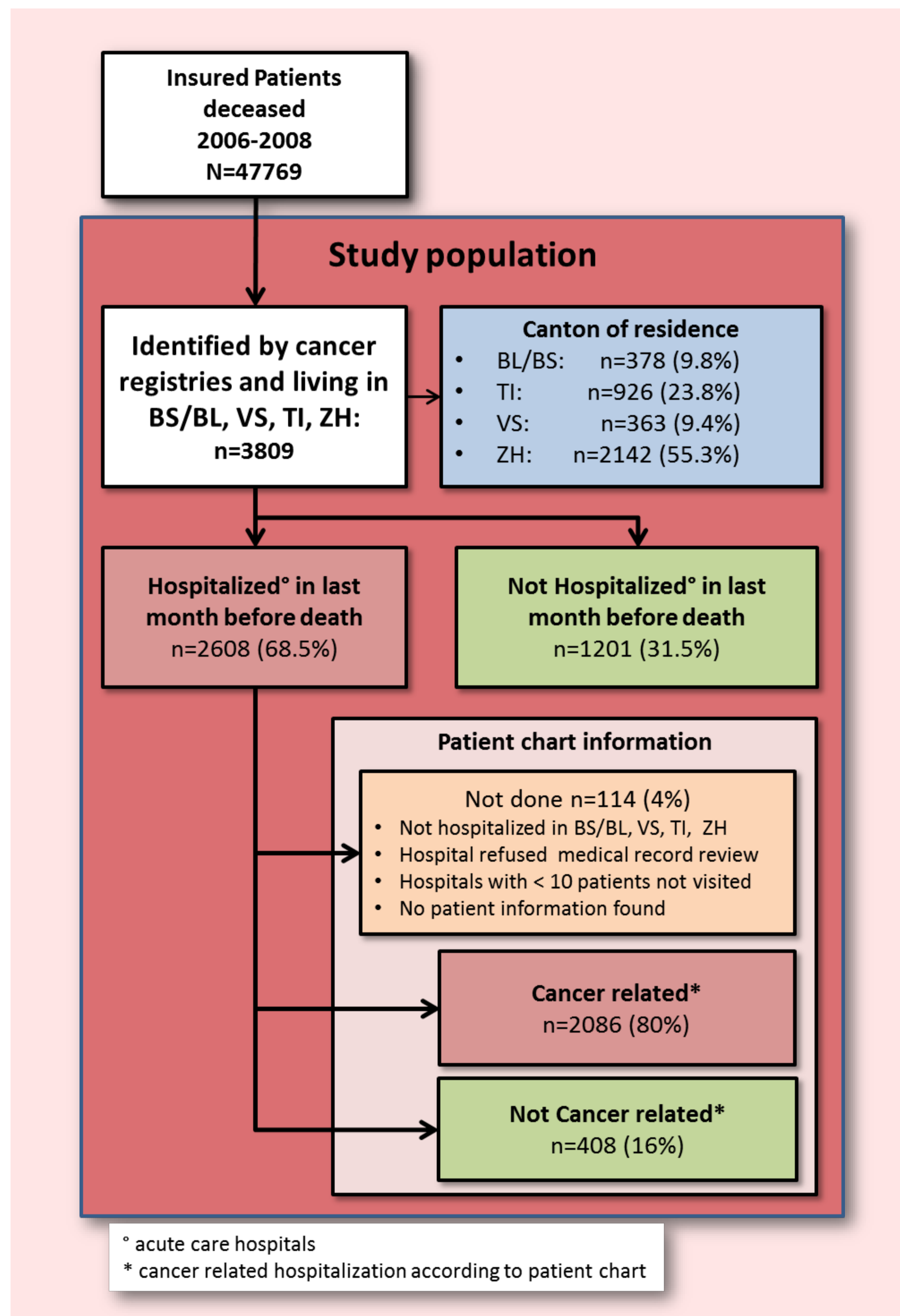
1) Institute for Pharmaceutical Medicine (ECPM), University Basel, 2) Swiss Group for Clinical Cancer Research (SAKK) Coordinating Center, Bern, 3) Helsana Group, (a: formerly), 4) Cancer Registry Ticino, 5) Cancer Registry Zürich and Zug, University Hospital Zürich, 6) Cancer Registry Baselstadt and Baseland, University Hospital Basel, 7) Cancer Registry Valais, Sion, 8) National Institute for Cancer Epidemiology and Registration, Zürich, 9) President Network Outcomes Research, SAKK, University Hospital, Zürich

Abstract: 1.493

Background

Using claims databases, cancer registries and cancer patient records, it has been shown that the use of chemotherapy at the end of life has increased over time in the USA and European countries. Given a paucity of Swiss data, the objective of this study was to describe delivery of health care during the last month before death of cancer patients in terms of use of medical resources.

Patient selection



Methods

In a retrospective cohort study claims data from a large health insurance company were linked with data from four cantonal cancer registries to identify patients with breast, colon, hematologic, lung, prostate and other cancers deceased in 2006 to 2008. Primary endpoints were hospitalization rates (acute care hospitals), delivery of anti-cancer drugs (ACD) and/or of radiotherapy (RT). Multivariate logistic regression was used to assess associations between these endpoints and explanatory variables representing patient and geographic characteristics as well as hospital supplementary insurance (HSI) type.

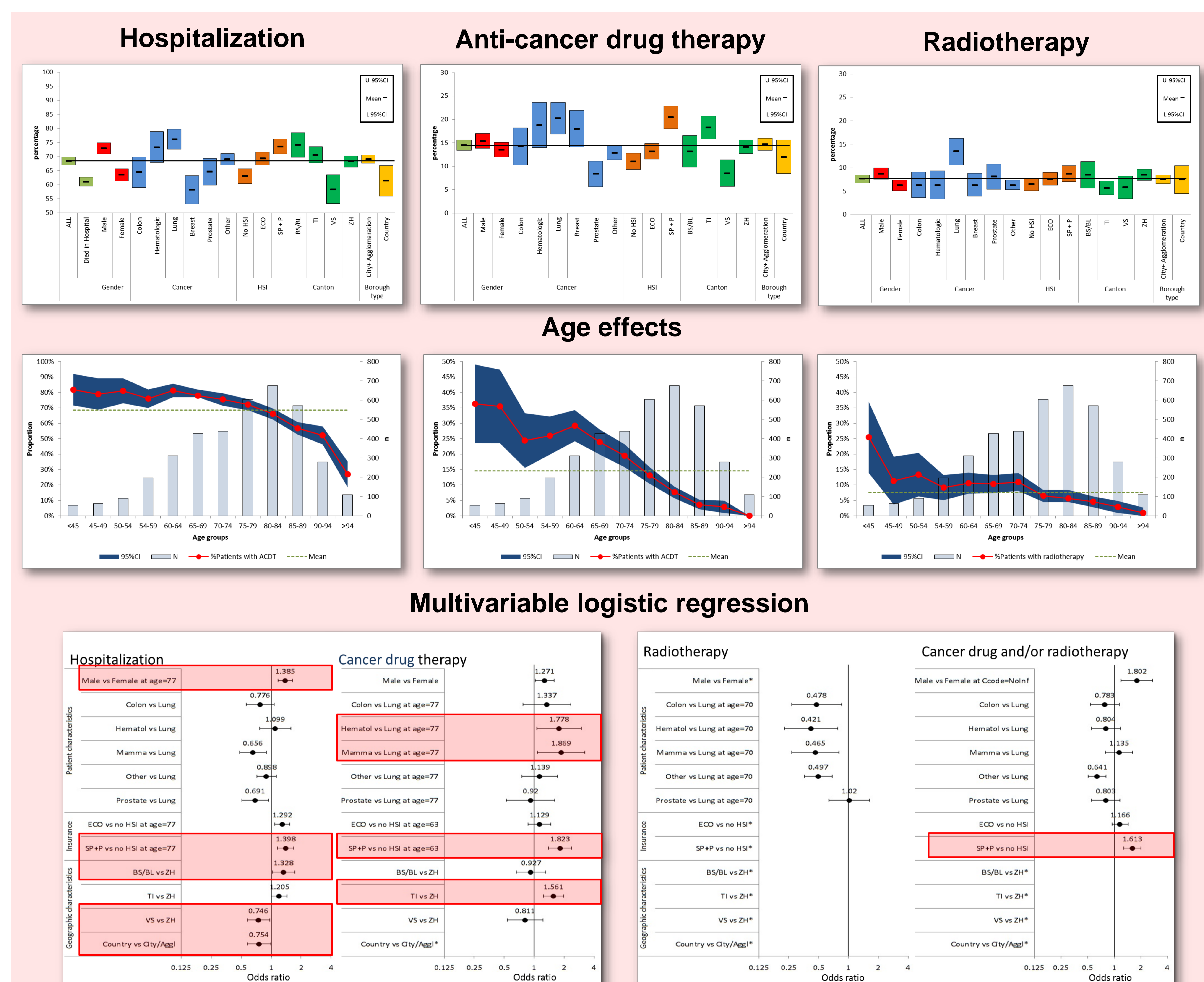
Results

Of 3809 eligible cancer patients (Basel (BS/BL) n=378, Ticino (TI) n=926, Valais (VS) n=363, Zürich (ZH) n=2142) 2608 (68.5%) were hospitalized in their last month of life, 553 (14.5%) received ACD and 293 received RT (7.7%). Hospitalization and treatment frequencies strongly decreased with age. Patients with breast cancer and hematologic cancers had a significantly higher probability of receiving ACD (ORs 1.87, 95% CI 1.08–3.22 and 1.78, 95% CI 1.06–2.99, respectively, compared to lung cancer patients). ACD use was higher in patients with a private HSI (OR 1.83, 95% CI 1.40–2.38; reference: no HSI) or living in canton TI (OR 1.56, 95% CI 1.24–1.96; reference: canton ZH). Hospitalization rate and receiving RT were also significantly associated with several patient and geographic characteristics and HSI type.

Demographics

	All	Min ; Canton	Max ; Canton
Overall (expected)	N=3809 (2869)	N=363 (252)	N=2142 (1773)
		9.4% (8.8%) ; VS	55.3% (61.8%) ; ZH
Gender	Male 52.7%	50.4% ; ZH	57.1% ; BS/BL
Cancer Diagnose	Colon 7.9%	5.5% ; VS	8.5% ; BS/BL
	Hematologic 6.7%	1.4% ; VS	9.1% ; TI
	Lung 14.6%	13.3% ; TI	17.1% ; VS
	Breast 9.9%	7.2% ; VS	11.2% ; ZH
	Prostate 10.4%	7.9% ; BS/BL	11.7% ; ZH
	Other 50.5%	47.1% ; ZH	60.6% ; VS
Hospital supplementary Insurance	No HSI 32.1%	26.5% ; TI	38.8% ; VS
	ECO 39.9%	34.9% ; BS/BL	50.2% ; VS
	Semi Pr. + Private 28.0%	11.0% ; VS	30.4% ; ZH
Borough type	City+Agglomerat. 91.9%	65.0% ; VS	97.0% ; ZH
	Country 8.1%	3.0% ; ZH	35.0% ; VS
Age	Mean / Median 75.5 / 77.3	74.8 / 76.8 ; ZH	76.8 / 78.6 ; TI
	SDEV 12.2	12.3	11.8
	Range 23 - 102	23 - 102	25 - 102

Results



* not significant > not included in the final multivariate model, BS/BL = Canton Basel (city and countryside), ECO = basic supplementary hospital insurance, HSI = Hospital supplementary insurance, NolnF = no information on reason for hospitalization, RT = radiotherapy, SP+P = semi private and private supplementary hospital insurance, TI = Canton Ticino, VS = Canton Valais, ZH = Canton Zürich

Discussion and Conclusion

Study weaknesses and strengths:

- Cause of death was not available. Inclusion of some patients who did not die of cancer may have diluted some effects.
- Possibility of selection bias: data collection restricted to one insurance company, four cantons.
- No information on supplementary insurance for those patients who hold such an insurance from another company
- Feasibility of study design demonstrated, involving merging of data from several sources

Hospitalization rates and cancer targeted therapies during the last month before death showed substantial variation unexplained by chance. Significant geographic and insurance status variations should motivate discussions in Swiss Oncology Centers and among Oncologists. However, the interpretation of the data has to be cautious because there is no benchmark representing optimal treatment intensity.