



# MEASLES CONTAINING VACCINE COVERAGE AMONG ADOLESCENTS IN SWITZERLAND: DO SCHOOL VACCINATION PROGRAMS MATTER?

P. Lang\*, F. Valeri+, U. Piller\*, L. Held\*, C. Hatz\*

\* ISPM, Zürich & +ISPM, Bern

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## Overview

- Methods
  - SNVCS database
- Results
  - Measles containing vaccine (MCV) coverage, 1999-2010
  - Factors affecting MMR vaccine coverage
- Conclusions



## The Swiss National Vaccination Coverage Survey (SNVCS)

- Funded by the FOPH and the Health Departments in the Cantons
- To determine vaccination coverage for children living in Switzerland in all 26 Cantons
- Target population: 2, 8 and 16 years of age
- Period of data collection: 1999-2003, **2005-07, 2008-10**



## Methodology

- 3-year rolling cycle
- Sampling depends on sampling frame:  
Cluster sampling vs. Simple random sampling
- Contact municipalities / office of registration for information on selected families
- Families are contacted directly:  
2X per mail, 1X per telephone (5-6 attempts)
- Exceptions: BS, JU, VD- school health nurses

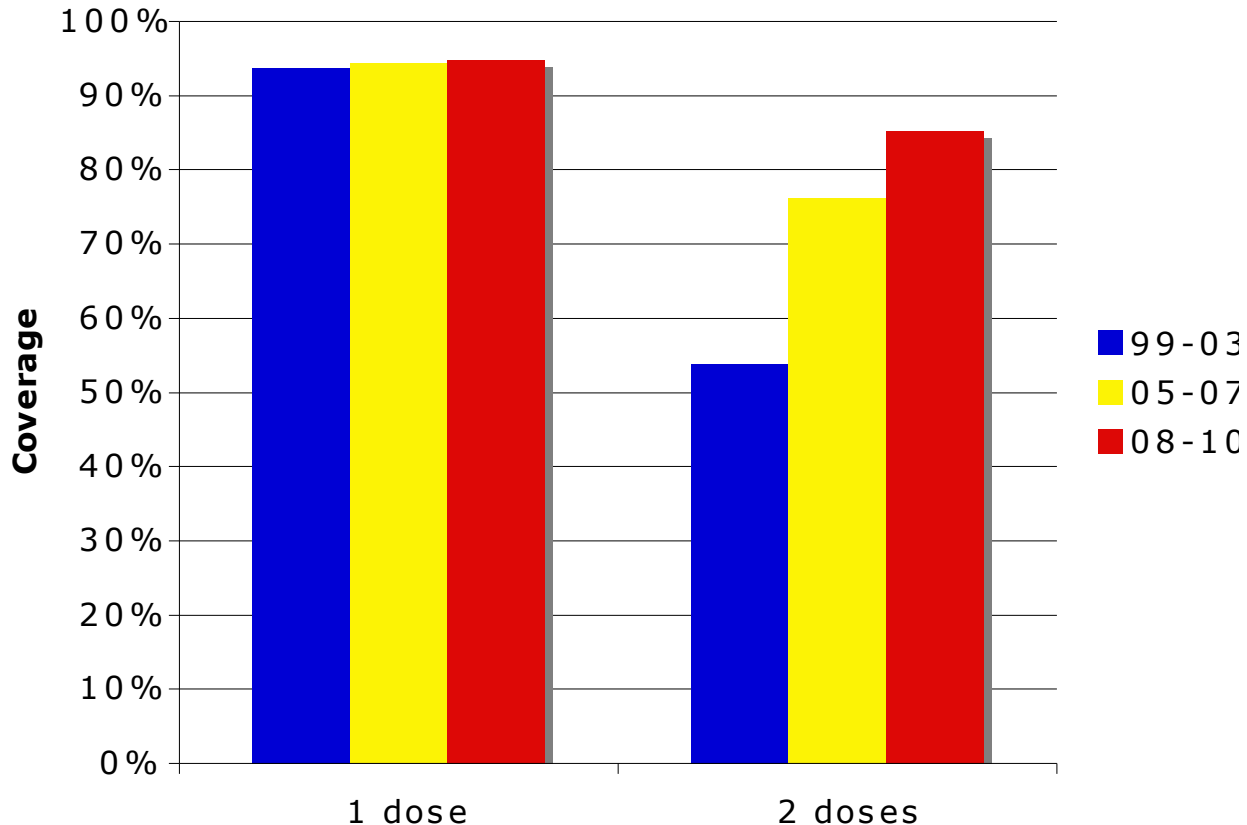


## Participation for the adolescents in the SNVCS for the 3 survey periods

	Cantons n	Sample n	Participation %	Cantonal Range %
1999-2003	25	13246	58	7 - 92
2005-2007	25	11776	79	58 - 97
2008-2010	25	10761	77	47 - 94

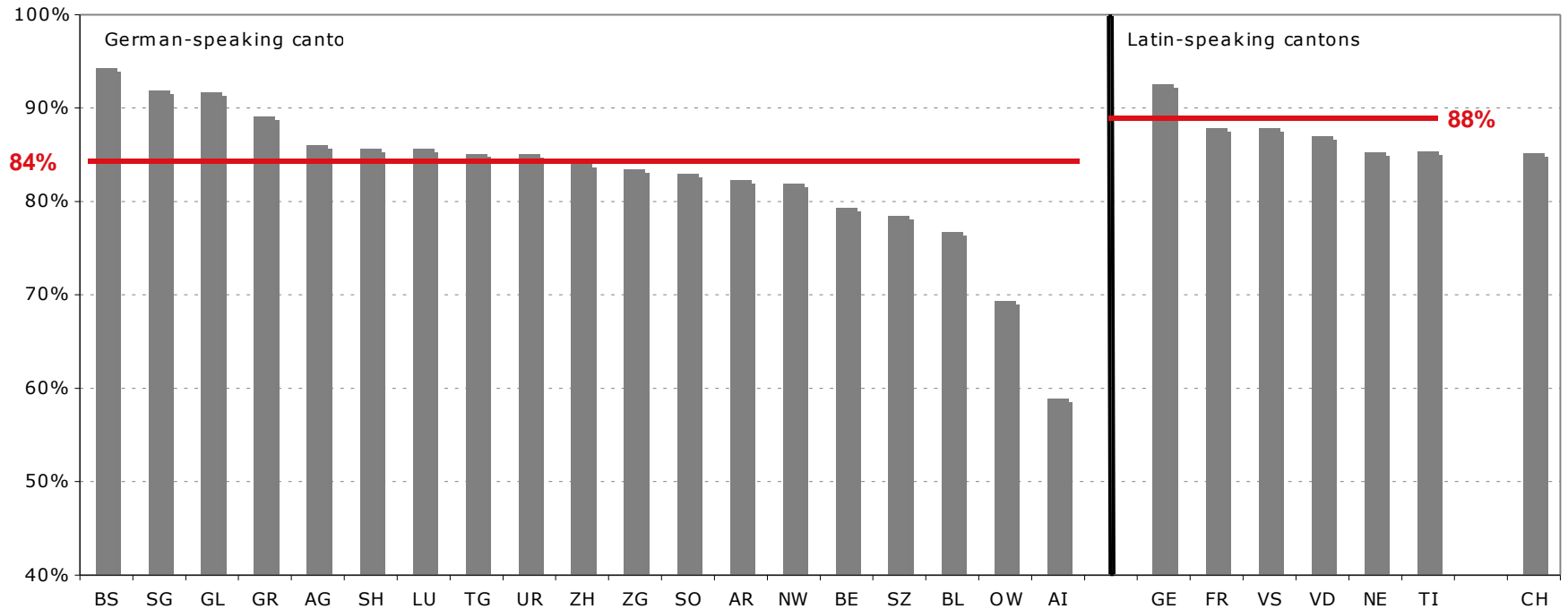


## MCV coverage (%) for the 16 year old adolescents for the 3 survey periods



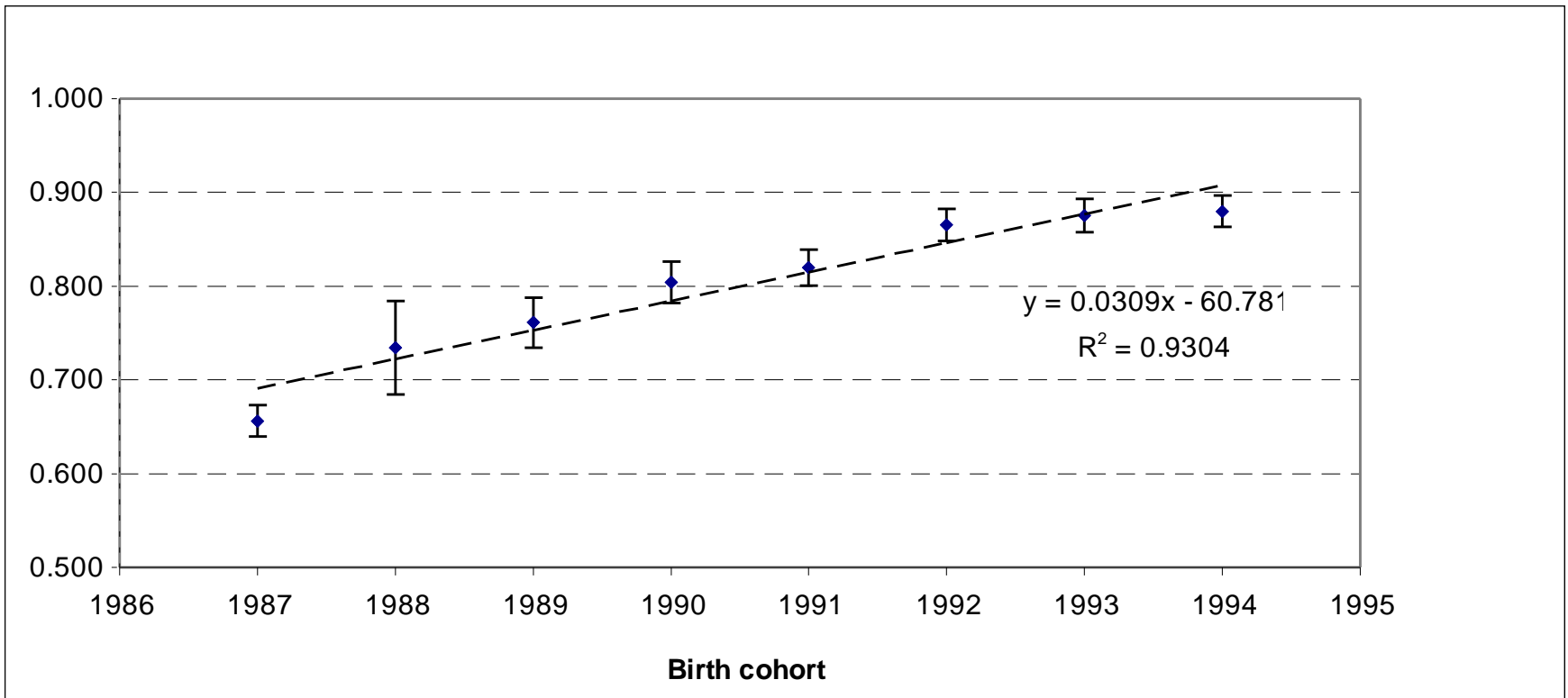


# MCV coverage (%) at 2 doses for the 16 year old adolescents in the Cantons, 2008-





## MCV coverage (%) for the 16 year old adolescents by year of birth, 1987-1994







**Summary of cantonal school vaccination policy in regards to whether vaccination is provided in the schools during 2005-07 and 2008-2010.**

	vaccinates in the schools	does NOT vaccinate in the schools	OCCASIONALLY vaccinates in the schools	ONLY checks and vaccinates in the practice
German-speaking	AR/BS/AG/SH/SZ/NW/GL/SG-S/BE-S/ZH-S (10)	TG/SO/AI/GR/UR/ZO/LU/BL (8)	ZH-L/SG-L/BE-L (3)	OW
French-speaking	VD/NE-S/JU/VS (4)	NE-L/GE	FR	
Italian-speaking		TI		

TG: belonged to occasionally vaccinate in the schools in 2005-07.



**Summary of cantonal school vaccination policy in regards to having nurses involved in reviewing MMR-vaccination records in the schools during 2005-07 and 2008-2010.**

	Nurses involved	Nurses not involved
German-speaking	BS/AG/SZ/NW/SG-S/BE-S/ZH-S (7)	TG/AI/GR/ZG/LU/BL/AR/G/OW/UR/SO/SH/BE-L/ZH-L/SG-L/ (15)
French-speaking	VD/JU/VS/GE/NE-S (5)	FR/ NE-L
Italian-speaking		TI



# Factors influencing being UTD for MMR vaccination at 2 doses for the 16 Y, 2005-10 (1)

## Logistic regression:

### Univariate analysis

Year of birth

Linguistic region

Nationality

Gender

School vaccination program

### Multivariate analysis

Adjusted for all 5 factors in the  
univariate analysis

Using variable canton as a random  
variable



## Factors influencing being UTD for MMR vaccination at 2 doses for the 16 Y, 2005-10 (2)

variable	N	Coverage	univariate analysis odds ratio (95% CI)	multivariate analysis odds ratio (95% CI)
year of birth	15882	NA	1.21 (1.19-1.24)	1.21 (1.19-1.24)
linguistic region				
German-speaking	12770	78%	1.00	1.00
French-speaking	4111	82%	1.17 (1.07-1.28)	0.91 (0.80-1.04)
Italian-speaking	539	77%	0.87 (0.71-1.07)	0.85 (0.66-1.10)
Romansch-speaking	75	73%	0.72 (0.43-1.21)	0.61 (0.35-1.06)
nationality				
Swiss	13556	79%	1.00	1.00
Northern Europe	411	83%	1.35 (1.03-1.78)	1.22 (0.91-1.63)
Eastern Europe	1429	74%	0.94 (0.82-1.08)	0.76 (0.66-0.89)
Southern Europe	977	86%	2.08 (1.69-2.56)	1.82 (1.46-2.26)
Remaining countries	334	65%	0.89 (0.69-1.16)	0.62 (0.46-0.83)
sex				
female	8302	80%	1.00	1.00
male	8844	77%	0.88 (0.82-0.95)	0.88 (0.81-0.95)



## Factors influencing being UTD for MMR vaccination at 2 doses for the 16 Y, 2005-10 (3)

variable	N	Coverage	univariate analysis odds ratio (95% CI)	multivariate analysis odds ratio (95% CI)
school vaccination program				
(0) no school vax program	324	62%	0.48 (0.38-0.60)	0.45 (0.34-0.59)
(1) yes, but does not vax	6116	77%	1.00	1.00
(2) yes, but occass. vax	3825	76%	1.21 (1.09-1.34)	1.28 (1.12-1.45)
(3) yes, does vax	5976	82%	1.54 (1.41-1.68)	0.99 (0.84-1.17)
(4) school nurse is not involved	10984	76%	1.00	1.00
(5) school nurse is involved	5257	83%	1.57 (1.45-1.70)	1.35 (1.12-1.62)

not included in analysis: 2005-07: JU,VD, NW; 2008-10: JU



## MMR vaccine coverage (%) for the 16 Y according to the different school vaccination programs in 4 cantons, detailed by linguistic regions, 2005-10

Canton	linguistic region	school vax program	school nurses involved	n	MMR vaccine coverage
FR	D	unclear	no	184	79.9%
FR	F	unclear	no	727	80.3%
VS	D	vax	yes	186	84.9%
VS	F	vax	yes	682	85.0%
NE-L	F	no vax	no	364	77.2%
NE-S	F	vax	yes	132	81.8%
ZH-L	D	unclear	no	609	73.6%
ZH-S	D	vax	yes	191	86.9%



## Conclusions

- MCV coverage at 2 doses for the adolescents is increasing.
- MMR vaccine coverage for adolescents is influenced by nationality, year of birth, gender and school vaccination program.
- The higher MMR vaccine coverage in the French-speaking region compared to the German-speaking region is most likely due to the different preventive measures implemented.



## Acknowledgements

- Swiss Federal Office of Public Health
- Chief Medical Officers and their Staff
- School Health Services
- School Doctors, School Nurses, „Lungenliga“ Nurses
- Municipalities / Offices of Data Protection
- Families of selected children





**Thank you for your attention!**

