

Knowledge, Attitude and Practice of German Students aged 11-17y regarding Measles Vaccination

Cardinale M. (1), Burckhardt F. (2)

(1) Graduate of Gymnasium Neustadt, (2) Epidemiologist, Heidelberg

Background

Measles eradication through vaccination by 2010 remains an important if somewhat optimistic public health goal of WHO. It requires vaccination levels of at least 95% to ensure sufficiently high herd immunity for eradication.

We conducted a study among students from Hauptschule, Realschule and Gymnasium in Hassloch, Rhineland Palatinate with Hauptschule being the lowest education level and commonly associated with lower social stratum. Hassloch is frequently used in market research as its demography closely matches that of the rest of Germany.

We assessed students' knowledge, attitude and practice regarding measles vaccination in order to identify vaccination-gaps and their causes.

Methods

A structured questionnaire covering demographics, vaccination status and reasons for non-vaccination was handed out to 220 pupils from 5th and 9th grade. Descriptive analyses of vaccination rates depending on school type and grade, reasons for non-vaccination and information sources were complemented by a multivariable regression looking for factors conducive to vaccination.

Results

All 220 questionnaires were returned. Distribution of age/grade, sex and school type are shown in table 1.

n=220	5th grade		9th grade		total
	male	female	male	female	
Hauptschule	16	16	11	9	52
Realschule	24	24	6	23	77
Gymnasium	27	29	17	18	91

Table 1: Age/grade, sex and school type

One third of students (n=73) did not know that measles vaccination was offered free of charge.

Of 220 students:

- 201 were vaccinated
- 12 were not vaccinated because
 - 5 forgot
 - 3 no data
 - 2 fear of syringes
 - 2 medical issues or bad experience
- 7 had no vaccination records available

92% (122/132) of 5th-graders were vaccinated against measles compared with 98% (79/81) of 9th-graders while vaccination levels for Hauptschule were 90% (45/50), for Realschule 95% (69/73) and for Gymnasium 97% (87/90) (figure 1).

94 (96%) of males and 107 (93%) of females were vaccinated (figure 2).

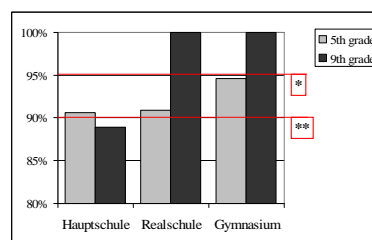


Figure 1: Vaccination against measles of 5th and 9th grade stratified by school type. *: 95% vaccination level needed for eradication; **: WHO-Europe goal of 90% coverage with at least one dose by January 2007

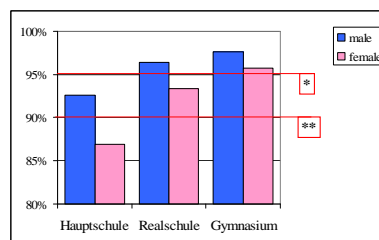


Figure 2: Vaccination against measles of male and females stratified by school type. *: 95% vaccination level needed for eradication; **: WHO-Europe goal of 90% coverage with at least one dose by January 2007

Students were in favour of vaccines. More students from Gymnasium than other school types agreed that "the public isn't informed adequately about vaccination complications" and that "vaccines contain too many additives" (figure 3).

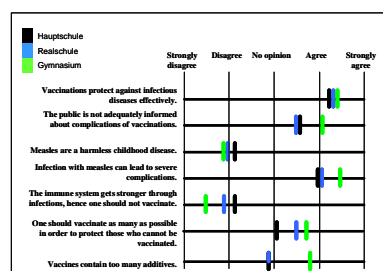


Figure 3: Likert-scale dis-/agreement on vaccination related opinions stratified by school type.

About a quarter (23%, n=51) of students named their GP as a source for information on measles followed by TV (17%, n=37) and school (14%, n=31). Internet was only named by five students (2%).

In multivariable regression, having tetanus vaccination, higher grade, being male and visiting a higher school type were positively associated with being vaccinated against measles, although only tetanus vaccination was statistically significant on the 0,05 level (table 2).

Variable	Odds Ratio	p value	95% Confidence interval
Tetanus vaccination	22.1	0.007	2.3 - 207.3
being 9th grade	2.4	0.279	0.5 - 12.3
visiting Realschule*	1.7	0.507	0.4 - 7.7
visiting Gymnasium*	3.1	0.178	0.6 - 15.9
being male	2.9	0.147	0.7 - 12.8

* visiting Hauptschule = baseline

Table 2: Multivariable logistic regression estimating the association of tetanus vaccination, sex, age/grade and school type on being vaccinated against measles

Recommendations

We observed different vaccination rates depending on sex, age/grade and school type.

Students had a positive attitude towards measles vaccination, the majority of non-vaccinations were simply forgotten. This emphasizes the importance of automated GP recall systems to bring vaccination levels above the 95% threshold needed for long-term eradication of measles.

The internet should be used more actively as a communication tool for informing and dispelling myths about vaccinations.

Vaccination campaigns should be socially inclusive with a focus on students of Hauptschule to improve health of the lower social stratum as well.

Literature

"Eliminating measles and rubella and preventing congenital rubella infection. WHO European Region strategic plan, 2005-2010", WHO Regional Office for Europe, Copenhagen, Denmark

Muscat M, Bang H, Wohlfahrt J, Glismann S, Mølbak K; EUVAC.NET Group. "Measles in Europe: an epidemiological assessment", Lancet, 2009 Jan 31;373(9661):383-9

Contact

Florian Burckhardt (corresponding author), florian@burckhardt.de

Mario Cardinale, marioc_go@hotmail.com

Poster available at www.burckhardt.de/measles.pdf