

Delayed isolation precautions for varicella-zoster virus have minimal impact on healthcare workers:

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Management and outcomes in a high-prevalence area

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INTRODUCTION

Delayed airborne isolation of hospital patients with varicella-zoster virus (VZV) infection usually triggers an investigation of potential transmission to exposed healthcare workers (HCW). Our aim was to describe these investigations at Bern University Hospital, Switzerland, from 2004-2014.

METHODS

Setting:

- University Hospital of Bern, a 950-bed tertiary care hospital

Methods:

- Retrospective descriptive analysis

Study population:

- Index patients and corresponding HCW contacts were identified via records of the infection prevention program and the occupational health service.

Data collection:

- For the contacts, history of prior VZV disease or vaccination, results of current and previous VZV IgG tests, and measures taken by the occupational health service (vaccination and/or work restriction) were determined

RESULTS

- During the 11-year study period there were 81 index cases and 2106 HCW contacts, for 972 (46.2%) of which a VZV IgG result was available (see Figure 1).
- Of these 972, 965 (99.3%) were VZV IgG-seropositive and most of them, 851 (87.5%), had been known as such before.
- In multivariable linear regression, increasing study years correlated positively with the proportion of HCW with previously documented VZV IgG ($R=0.11$, $p<0.001$) but not with the annual number of contact tracings ($R=0.01$, $p=0.12$) (see Figure 2).
- Among the seven (0.7%) HCW contacts with negative VZV IgG, four (57%) were known from previous testing. Five of these seven contacts received active VZV vaccination within a median of 10 days (range, 1-30) but 2 out of 5 (40%) became symptomatic despite vaccination (see Table 1).

CONCLUSIONS

A very small number of VZV IgG-seronegative HCW were identified in this 11-year analysis of contact tracings and clinical consequences were even fewer. Efficacy of active VZV vaccination in this "real-life" setting was poor. Although the proportion of contacts with documented VZV IgG prior to exposure increased over the study period, the overall number of evaluated contacts remained high. Based on this analysis we suggest that in countries with high levels of VZV immunity, HCW should be offered screening/vaccination upon employment; however, contact tracing of HCW following VZV exposition can be omitted.

Figure 1 Overview of health care workers with varicella-zoster virus exposure

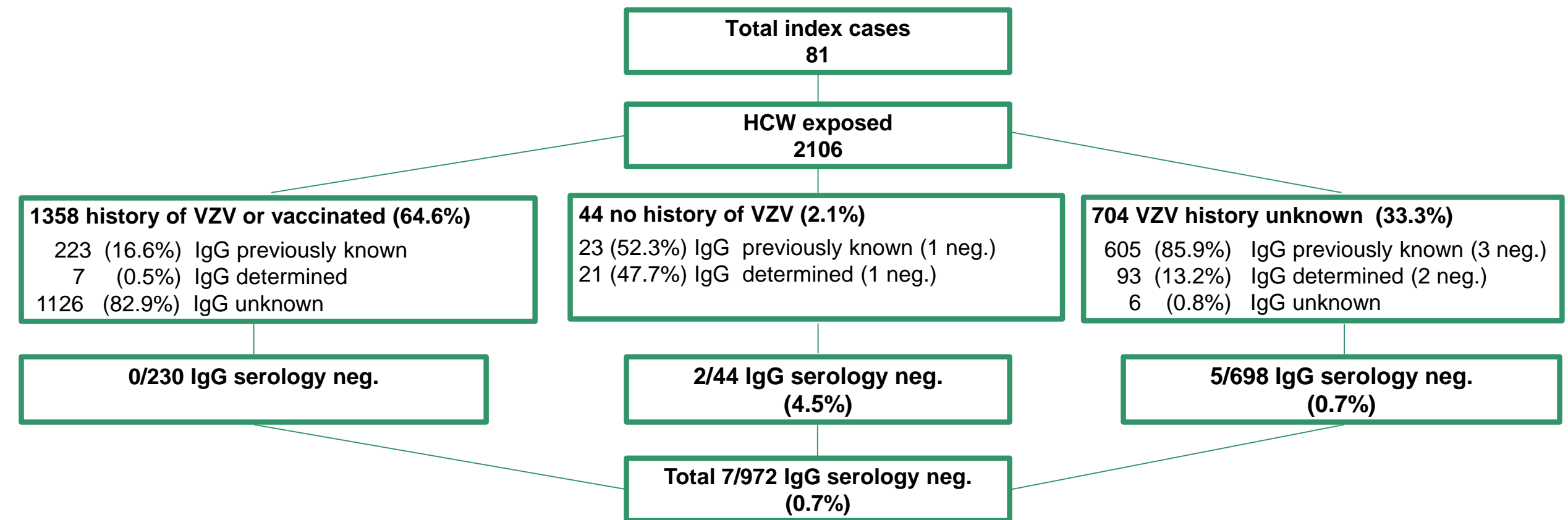
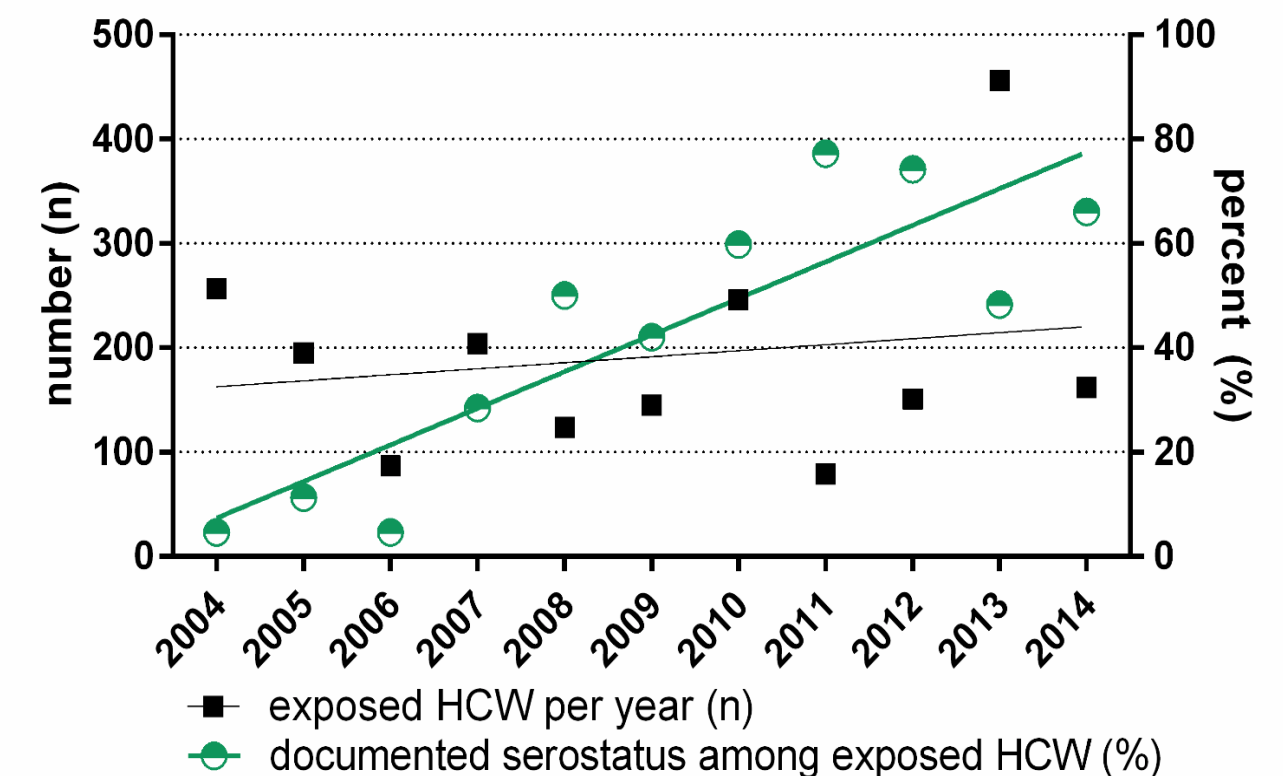


Table 1 VZV IgG – seronegative HCW (n=7)

Serostatus previously known	Received active VZV vaccination	Days from first contact with index patient to vaccination	Developed active VZV	Days from first contact with index patient to disease	Work restriction
No	Yes	30	No	na	Yes
No	Yes	1	Yes	10	No
No	Unknown	na	Unknown	Unknown	Yes
Yes	Yes	≥ 4	Unknown	Unknown	Unknown
Yes	Yes	15	Yes	15	Yes
Yes	No	na	No	na	No
Yes	Yes	3	Unknown	Unknown	Unknown

VZV: Varicella-zoster virus
HCW: Healthcare worker
na: not available

Figure 2 Annual number of contacts tracing and documented serostatus



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