

# **CIC 2014 CCI**

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## **A decade of trends in religious/conscientious and medical exemptions in Ontario: 2002-3 to 2012-13**

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# Disclosure Statement



- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

- Secular trends of increasing non-medical exemptions confirmed in the United States (US) <sup>1,2</sup>
  - Areas with high exemptions linked to VPD outbreaks <sup>3,4</sup>
  - Rate of increase linked to leniency/stringency of state policies <sup>5</sup>
- Why look at immunization exemptions in Ontario?
  - Enabling provincial legislation for surveillance of exemptions
  - Known to have several religious communities not accepting of immunization
  - Recent trends in Ontario: coverage lower among 7- versus 17-year olds<sup>6</sup>
    - 2012-13 school year: 2 dose measles coverage 88% at age 7; 95% at age 17

1. NEJM 2009 May 7;360(19):1981-8

2. Vaccine 2013 Jun 24;31(29):3009-13

3. Pediatrics 2013 Oct;132(4):624-30

4. Am J Epidemiol 2008;168(12):1389-96

5. NEJM 2012 Sep 20;367(12):1170-1

6. PHO 2012-13 Immunization Coverage Report

# Immunization of School Pupils Act<sup>1</sup>

- Annual immunization coverage assessment for school pupils in Ontario
  - Delivery-predominantly by healthcare providers in private offices with exception of 3 school-based adolescent programs
  - Immunization records are collected by Public Health Units (PHUs)
- 9 “designated diseases” under ISPA
  - Measles, mumps, rubella, diphtheria, tetanus and polio
  - Varicella, pertussis and invasive meningococcal disease added July 2014
- Students require documentation of immunization or exemption, or risk suspension
  - Documentation for exemptions also collected by PHUs
  - Entered in Immunization Records Information System (IRIS) at the time of this assessment



# Immunization exemptions in Ontario

- Statement of Conscience or Religious Belief<sup>1</sup>
  - Completed by parent/guardian or student (if > 16 years of age)
  - Requires notarization
  - Form does not ask for rationale for exemption (conscience versus religious belief)
  
- Statement of Medical Exemption<sup>2</sup>
  - Completed by a physician or nurse practitioner
  - Classifications: “detrimental to health” or lab confirmation of immunity (select diseases)
    - Clinical history accepted for varicella

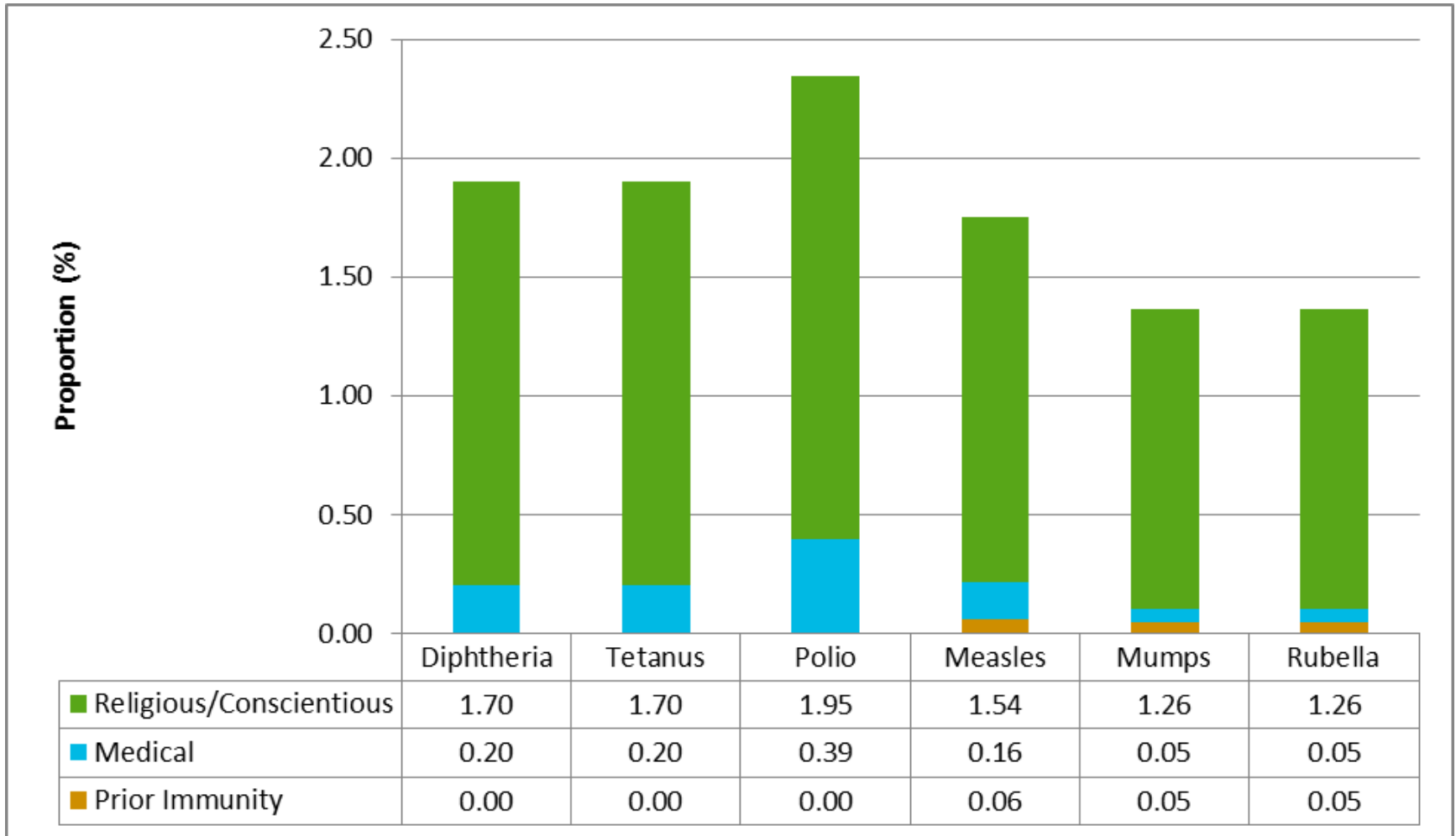
1. [http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/014-4897-64E~1/\\$File/4897-64E.pdf](http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/014-4897-64E~1/$File/4897-64E.pdf)

2. [http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/014-4895-64E~1/\\$File/4895-64E.pdf](http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/014-4895-64E~1/$File/4895-64E.pdf)

- **Immunization exemptions among 7-year-olds in 2012-2013**
  - Data source: exemptions entered into the Immunization Records Information System (IRIS) as of June 30 2013
  - PHU-specific data compiled to derive provincial estimates after data validation
  - Examined all 6 ISPA antigens across all exemption classifications
  - Rank ordered PHUs (non-nominally) based on % 7-year-olds with religious/conscientious belief (R/CB) exemptions for measles

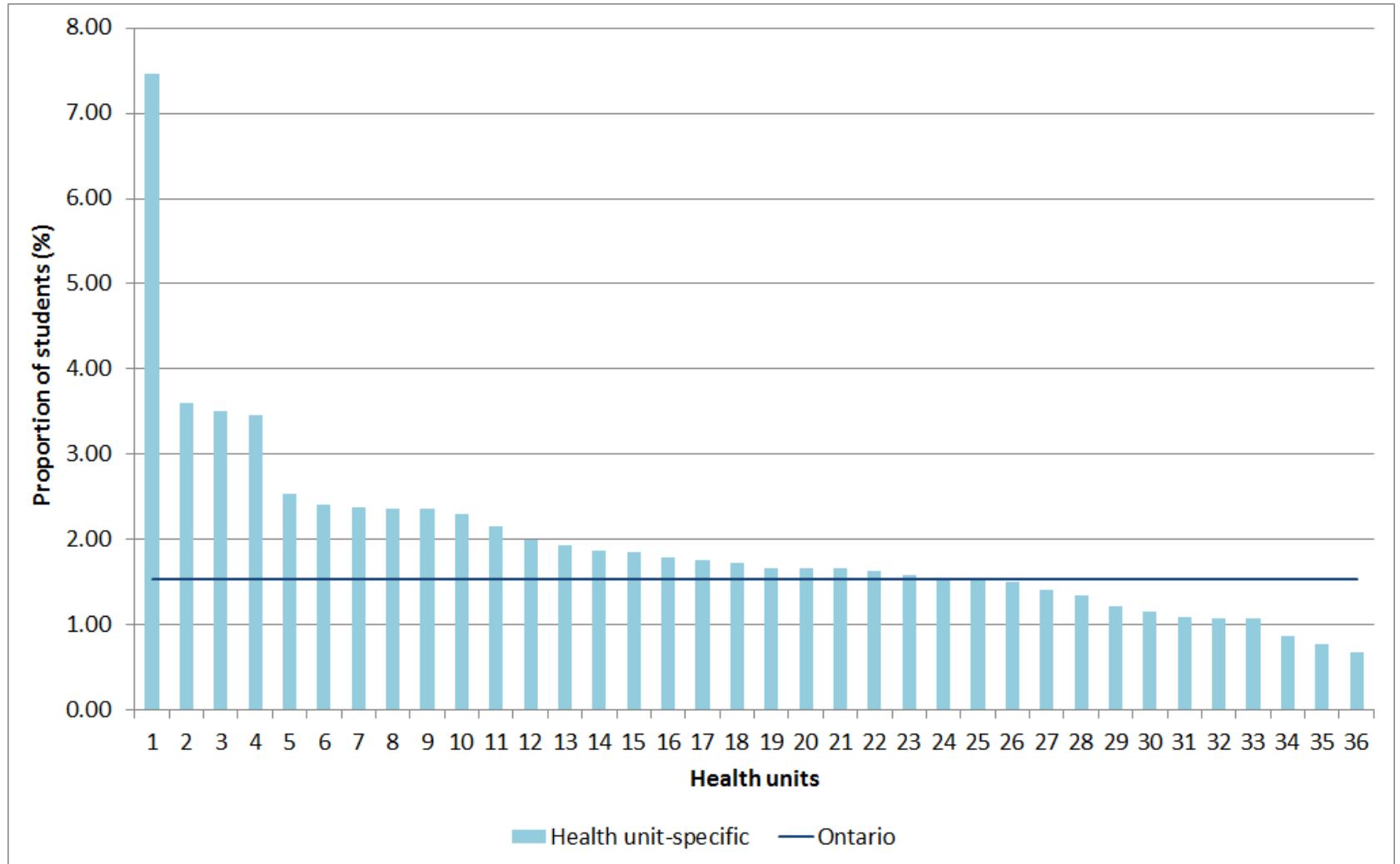
- **Temporal trends in immunization exemptions**
  - Reviewed IRIS coverage/exemption reports: 2002-3 to 2012-13
  - Age groups: 7- and 17-year old students; Focus: measles/MMR
  - Exemption classifications: medical, prior immunity and religious/conscientious beliefs
  - Temporal trends assessed by school year and by birth cohort
  - Statistical significance of temporal trends: Poisson distribution, two-sided test with an alpha of 5%

# Exemptions by classification, among 7-year-olds in Ontario, 2012-13

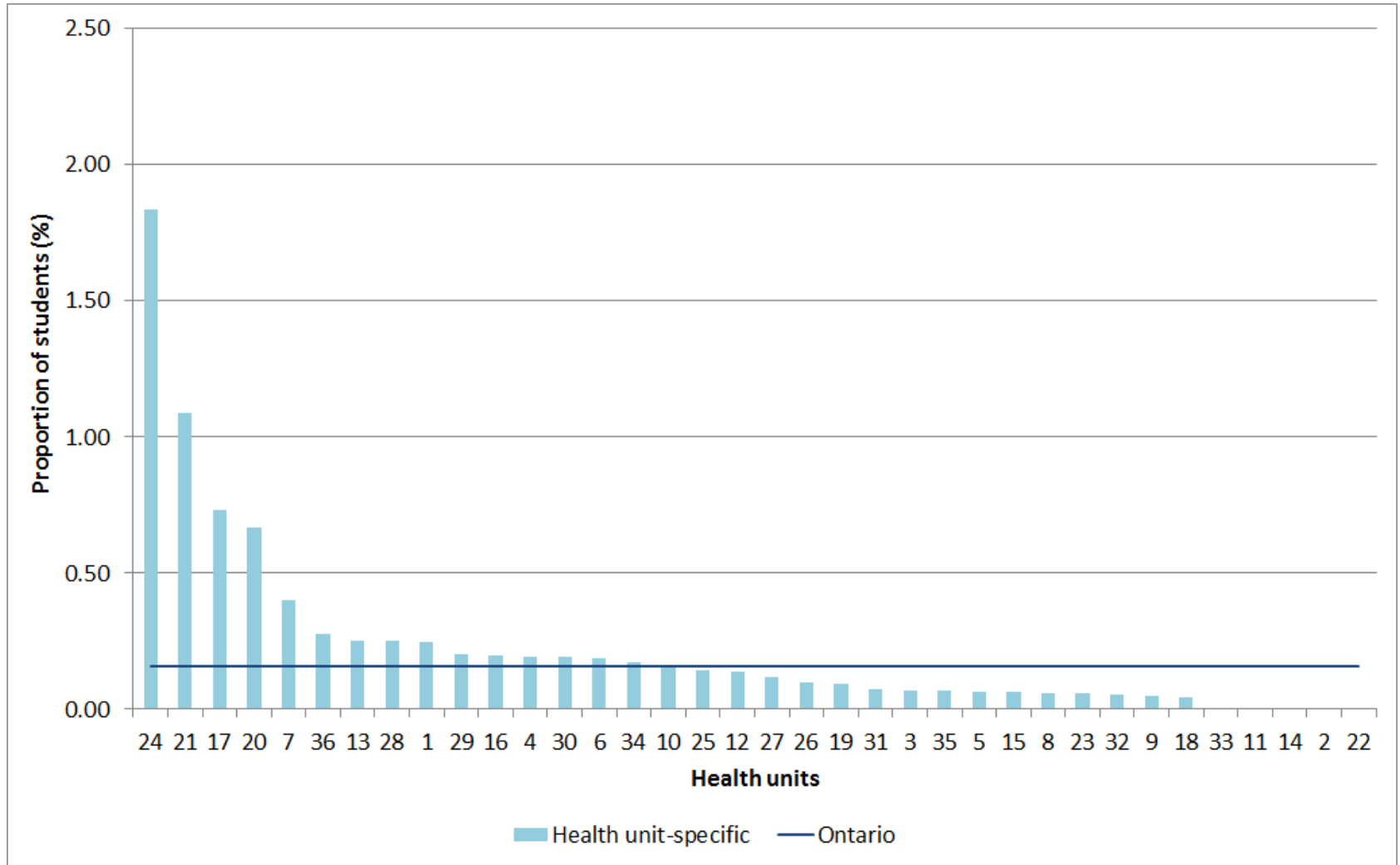




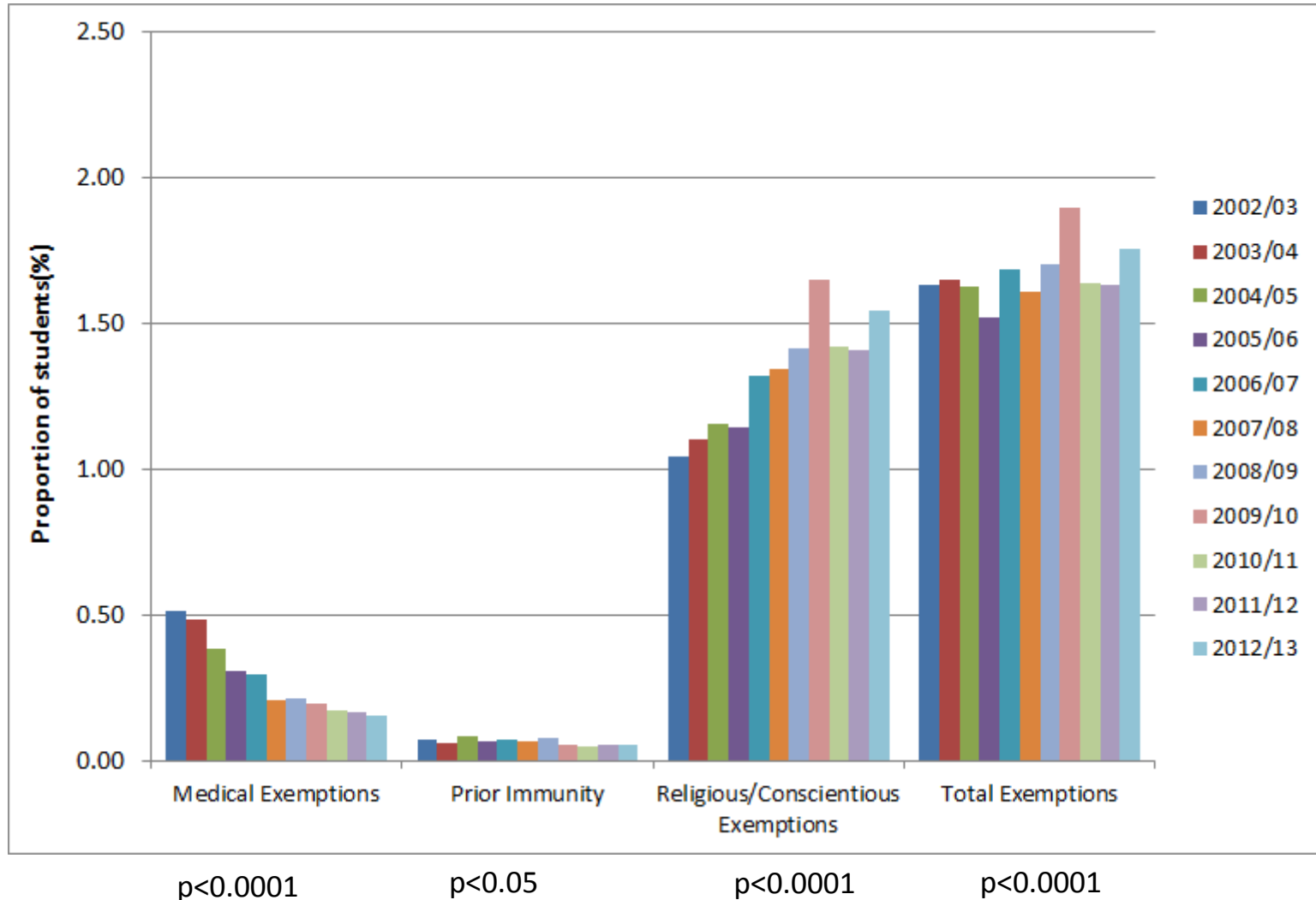
# Measles religious/conscientious exemptions by PHU: 7-year-olds, 2012-13



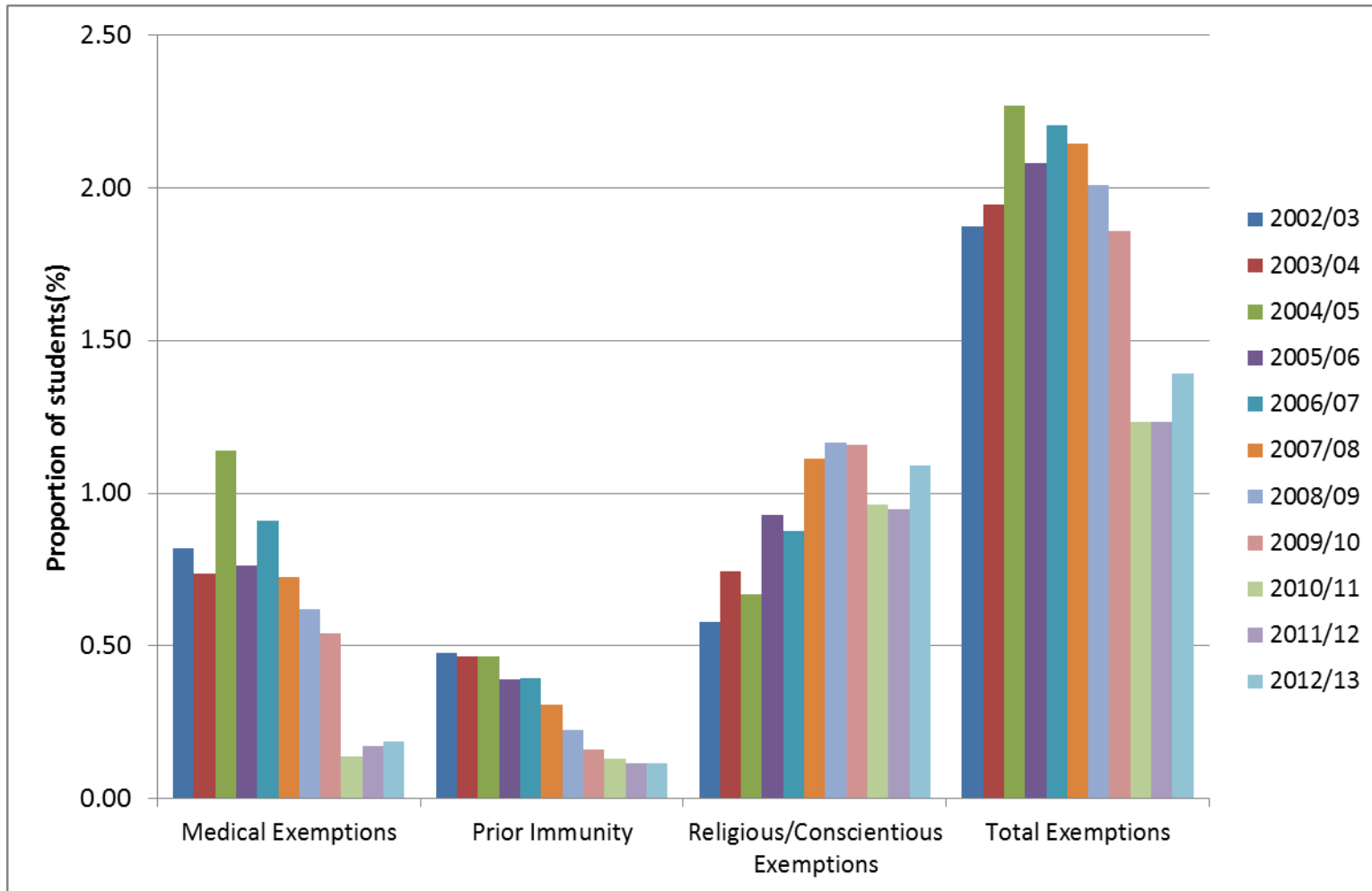
# Measles medical exemptions: 7-year-olds by PHU, 2012-13



# Temporal trends in Provincial MMR/measles exemptions: 7-year-olds



# Temporal trends in Provincial MMR/measles exemptions: 17-year-olds



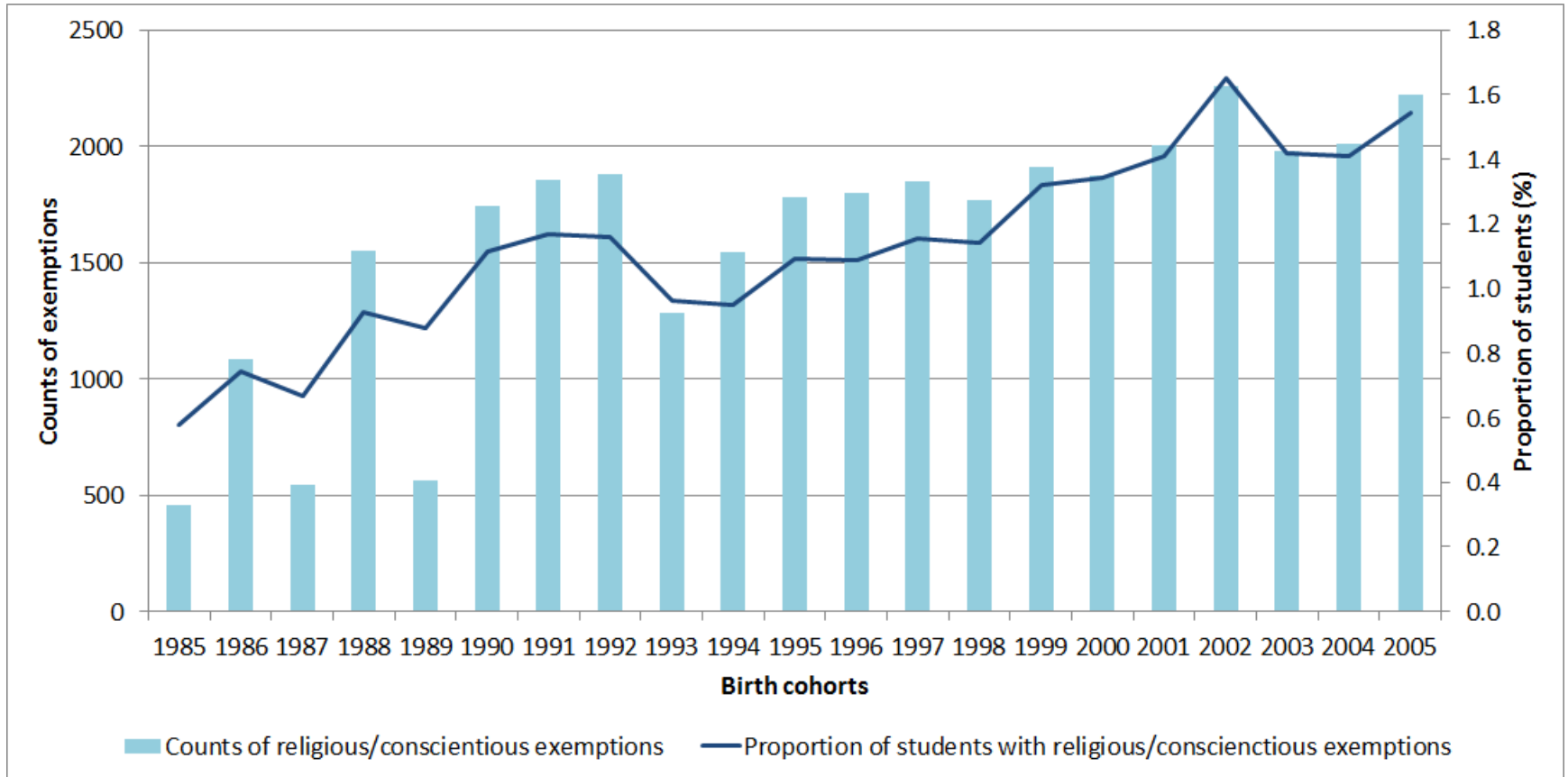
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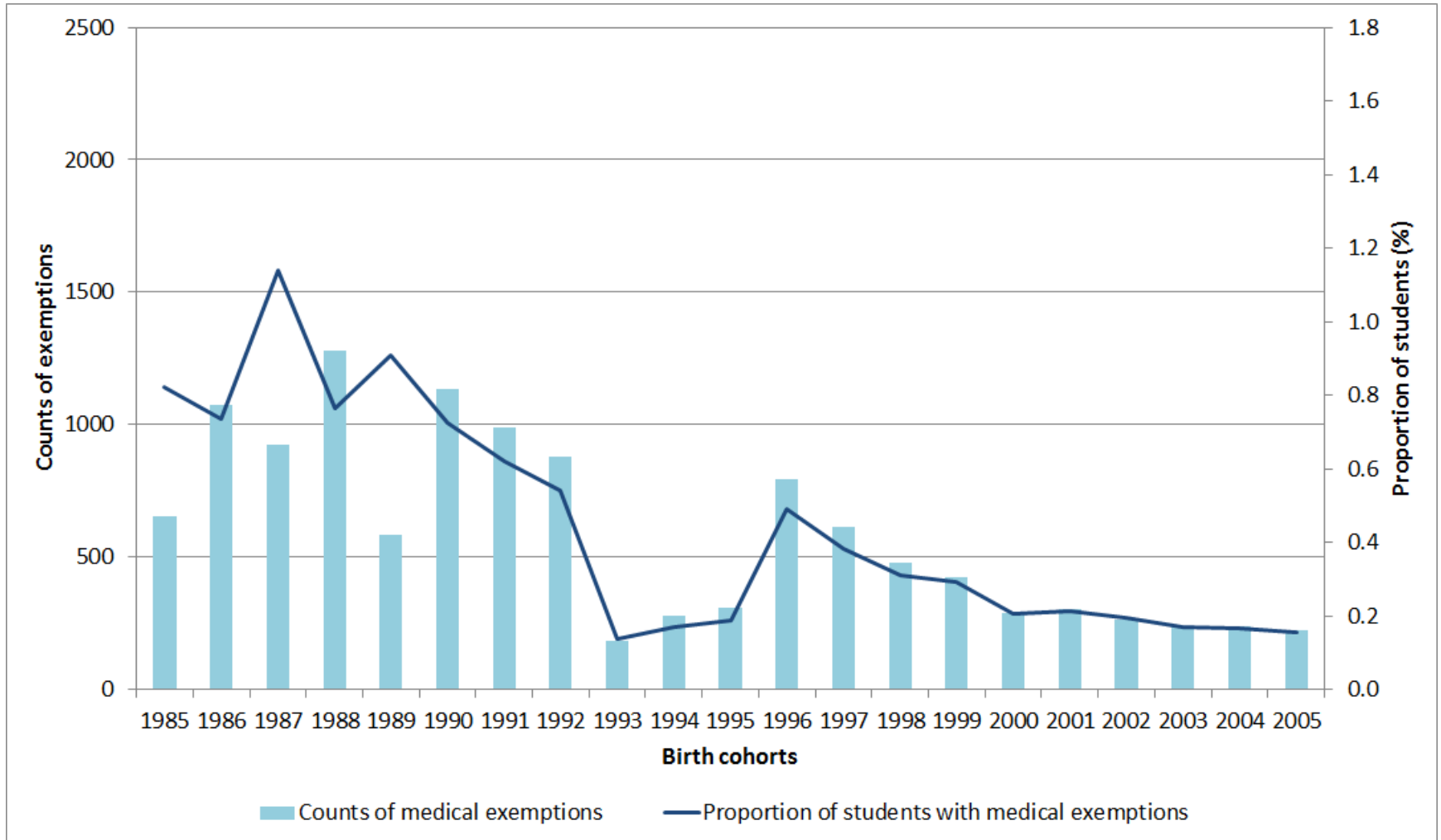
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# Birth cohort approach to religious/conscientious exemptions to MMR/measles (1985-2005)



# Birth cohort approach to medical exemptions to MMR/measles, (1985-2005)



- IRIS reports on immunization exemptions are at aggregate level:
  - Cannot validate with student immunization history
  - Cannot link to administrative data to explore socio-demographic predictors or spatial clustering
- Variation in PHU practices for registering exemptions
  - Secular changes in practices unknown
- Interpretation of future trends challenged by:
  - Transition from IRIS to Panorama
  - Changes in ISPA (2013): Improved access to exemption statements, changes in statement of medical exemption

# Interpretation & Conclusions

- Immunization exemptions due to religious/conscientious belief remain low in Ontario, but:
  - Slowly increased over time (consistent with literature)
  - Large regional variability (consistent with literature)
- Medical exemptions in Ontario have declined over time
  - Cannot be explained by decline in children with natural immunity
  - Due to CIG guidance? Or shift towards R/CB exemptions?
- Opportunities for further understanding:
  - Process evaluation of PHU implementation
  - Data linkage at individual level to explore predictors of exemptions
  - Qualitative research engaging families



# Acknowledgements

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