

**Ministry of Health and Health Authorities**  
**Immunization Coverage: Kindergarten**  
Notes

**Kindergarten Students with Up-to-date Immunizations**

**DATA SOURCE**

Summary reports by Health Service Delivery Areas and/or Health Authorities

**YEARS**

2002-2012

Data last updated September 5, 2012

**NOTES**

**1. Up-to-date for age definitions**

DaPTP

The proportion of students enrolled in Kindergarten as of June 30 who received their fourth or fifth dose of diphtheria/acellular pertussis/tetanus/polio-containing vaccine after their fourth birthday and by June 30.

**NOTE:** In 2005, the definition of up-to-date for age for DaPTP was changed from "The number of students enrolled in Kindergarten as of June 30 who received four or more doses of DaPTP vaccine by June 30" to specify that the fourth or fifth dose of DaPTP vaccine must have been received after the fourth birthday to be counted as up-to-date for age. As the definition changed in 2005, data from 2005 and subsequent years are not comparable to data from the previous years. The previous years are not included in this report.

Measles

The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles-containing vaccine by June 30. Valid doses must be given on or after the first birthday with a minimum of 28 days between doses. This may be in the form of two MMR vaccines, one MMR vaccine and one measles vaccine, or one MMR vaccine and one measles-rubella vaccine.

**NOTE:** In 2006, the definition of up-to-date for age for measles (requiring 2 doses) was separated from mumps/rubella (requiring 1 dose). The definition used for measles/mumps/rubella in previous years was "The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30 of the specified year".

Mumps

The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of mumps-containing vaccine by June 30. Valid doses must be given on or after the first birthday with a minimum of 28 days between doses. This may be in the format of MMR or other mumps-containing vaccines administered in another country.

**NOTE:** In 2006, the definition of up-to-date for age for mumps/rubella (requiring 1 dose) was separated from measles (requiring 2 doses). The definition used for measles/ mumps/ rubella in previous years was "The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30". From 2006 to 2009, the definition used for mumps/rubella was "The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of mumps- and rubella-containing vaccine". This revision to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher in 2006 than the proportions up-to-date for age for measles/ mumps/ rubella in previous years. In 2009, the immunization policy changed to require 2 doses of mumps-containing vaccine and assessment of coverage for mumps was separated from rubella. This revision to the definition resulted in the proportions of children up-to-date for age for mumps being lower in 2010 than the proportions up-to-date for age for mumps/rubella in previous years.

**Ministry of Health and Health Authorities**  
**Immunization Coverage: Kindergarten**  
Notes

**Kindergarten Students with Up-to-date Immunizations**

Rubella	<p>The proportion of students enrolled in Kindergarten as of June 30 who received at least one valid dose of rubella-containing vaccine by June 30, 2006. Valid doses must be given on or after the first birthday.</p> <p><b>NOTE:</b> In 2006, the definition of up-to-date for age for mumps/rubella (requiring 1 dose) was separated from measles (requiring 2 doses). The definition used for measles/mumps/rubella in previous years was "The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30 of the specified year". The revisions to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher in 2006 than the proportions up-to-date for age for measles/mumps/rubella in previous years. In 2009, the immunization policy changed to require 2 doses of mumps-containing vaccine and assessment of coverage for mumps was separated from rubella.</p>
Hepatitis B	<p>The proportion of students enrolled in Kindergarten as of June 30 who received a completed series of hepatitis B vaccine (3 doses) by June 30.</p>
Varicella	<p>The proportion of students enrolled in Kindergarten as of June 30 who reported a previous history of varicella disease or shingles or who received one valid dose of varicella vaccine by June 30. These children are only considered protected if disease or immunization occurred on or after the first birthday.</p> <p><b>NOTE:</b> In 2005, up-to-date for varicella was measured as "The proportion of students enrolled in Kindergarten as of June 30 who had no prior history of varicella or zoster disease and received one dose of varicella vaccine by June 30." Estimates from serosurveys carried out prior to varicella vaccine introduction indicate that approximately 48-55% of 5-year-olds were susceptible to varicella and were therefore eligible for vaccine. Since children protected by previous disease were not included in the 2005 definition, the proportions of children "up-to-date for age" for varicella is higher in subsequent years.</p>
Meningococcal C	<p>The proportion of students enrolled in Kindergarten as of June 30 who received 1 dose of meningococcal C conjugate vaccine on or after 12 months of age. Infants born on or after July 1, 2002 were the first cohort eligible for one dose of men C at 12 months.</p>

2. Unless otherwise indicated, the denominator used to calculate percent uptake was the number of students enrolled in Kindergarten as of June 30 of the specified year, according to class lists.

**Exception:**

- a. In 2004-2012, all Health Service Delivery Areas in the Interior Health Authority used the age cohort as identified in iPHIS as the denominator for their Kindergarten vaccine coverage.
- b. In 2002-2011, the Vancouver and Richmond Health Service Delivery Areas used the grade cohort as identified in PARIS as the denominator for their Kindergarten vaccine coverage. In 2012, the Vancouver and Richmond Health Service Delivery Areas and the Coastal Urban (North Vancouver and West Vancouver) regions used the grade cohort as identified in PARIS as the denominator for their Kindergarten vaccine coverage. Coastal Rural and Bella Coola used class lists.

3. The numerator used to calculate percent uptake was the number of students enrolled in Kindergarten as of June 30 of the specified year who were up-to-date for age for the vaccine in question (per up-to-date for age definitions outlined above).

4. Information requested regarding previous varicella disease or vaccination was not reported completely by parents in the first few years of the program. As a result, the proportions of children protected against varicella were likely underestimates.

**Ministry of Health and Health Authorities**  
**Immunization Coverage: Kindergarten**  
Notes

**Kindergarten Students with Up-to-date Immunizations**

5. In 2003 and 2004 the North Shore and Coast Garibaldi collected and reported their coverage data separately. In 2003 these data were combined at the Health Service Delivery Area level. In 2004 the North Shore could not determine the number of Kindergarten student vaccinated with DaPTP or measles/mumps/rubella due to difficulties reconciling electronic and paper data sources. Calculations of immunization coverage for North Shore / Coast Garibaldi, Vancouver Coastal Health Authority and the province of British Columbia did not include Kindergarten students from the North Shore in either the numerator or denominator in 2004.
  
6. In 2002 and 2003 data were submitted by the Health Authorities and compiled by the Prevention and Wellness Planning Division, BC Ministry of Health Services. For this report, data from 2002 and 2003 were obtained from the Health Data Warehouse, BC Ministry of Health Services. From 2004 onward, data were submitted by the Health Service Delivery Areas and/or Health Authorities and compiled by Epidemiology Services, BC Centre for Disease Control.
  
7. Data may not be comparable by Health Service Delivery Area and from year to year due to ongoing changes in data collection methods and changes in geographic health area boundaries. However, assuming consistency in reporting practices, overall trends in immunization coverage can be assessed by examining these data.

**8. Abbreviations**

Health Authorities:

FH	Fraser Health	VCH	Vancouver Coastal Health
IH	Interior Health	VIH	Vancouver Island Health
NH	Northern Health		

Health Service Delivery Areas:

EK	East Kootenay	VAN	Vancouver
KB	Kootenay Boundary	NSCG	North Shore / Coast Garibaldi
OK	Okanagan	SVI	South Vancouver Island
TCS	Thompson Cariboo Shuswap	CVI	Central Vancouver Island
FE	Fraser East	NVI	North Vancouver Island
FN	Fraser North	NW	Northwest
FS	Fraser South	NI	Northern Interior
RICH	Richmond	NE	Northeast

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: DaPTP**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR							
	2005	2006	2007	2008	2009	2010	2011	2012
<b>1 INTERIOR</b>	<b>75.1%</b>	<b>77.2%</b>	<b>79.8%</b>	<b>77.7%</b>	<b>76.3%</b>	<b>73.6%</b>	<b>75.6%</b>	<b>76.6%</b>
East Kootenay	84.8%	84.7%	84.1%	82.1%	76.6%	73.3%	81.6%	74.9%
Kootenay Boundary	72.2%	69.7%	67.6%	69.6%	70.2%	71.3%	68.6%	66.6%
Okanagan	74.2%	77.8%	81.9%	76.7%	75.5%	72.5%	74.6%	78.2%
Thompson Cariboo Shuswap	74.0%	76.1%	79.5%	80.4%	79.6%	76.2%	77.4%	78.7%
<b>2 FRASER</b>	<b>78.4%</b>	<b>80.2%</b>	<b>76.2%</b>	<b>76.8%</b>	<b>79.0%</b>	<b>75.3%</b>	<b>75.7%</b>	<b>73.8%</b>
Fraser East	81.7%	79.7%	79.0%	77.7%	79.5%	74.1%	74.3%	75.4%
Fraser North	82.2%	86.1%	78.3%	77.5%	79.1%	74.6%	76.8%	72.4%
Fraser South	74.4%	76.2%	73.7%	76.0%	78.8%	76.2%	75.5%	74.1%
<b>3 VANCOUVER COASTAL</b>	<b>89.5%</b>	<b>87.1%</b>	<b>82.0%</b>	<b>82.9%</b>	<b>80.2%</b>	<b>81.3%</b>	<b>78.2%</b>	<b>78.4%</b>
Richmond	97.2%	95.0%	89.5%	92.3%	86.2%	89.1%	91.7%	93.5%
Vancouver	90.3%	88.7%	82.0%	83.5%	82.5%	82.5%	82.3%	81.9%
North Shore / Coast Garibaldi	83.3%	79.1%	77.0%	75.6%	72.2%	74.3%	62.0%	63.5%
<b>4 VANCOUVER ISLAND</b>	<b>79.2%</b>	<b>82.1%</b>	<b>80.4%</b>	<b>79.2%</b>	<b>74.9%</b>	<b>73.2%</b>	<b>68.3%</b>	<b>69.2%</b>
South Vancouver Island	75.1%	79.2%	78.0%	76.4%	75.9%	70.7%	70.8%	69.3%
Central Vancouver Island	86.3%	86.6%	84.0%	83.6%	70.0%	71.1%	66.4%	67.9%
North Vancouver Island	75.5%	81.1%	79.5%	77.8%	82.3%	84.6%	65.2%	71.5%
<b>5 NORTHERN</b>	<b>91.3%</b>	<b>90.4%</b>	<b>89.7%</b>	<b>88.6%</b>	<b>88.7%</b>	<b>88.8%</b>	<b>87.4%</b>	<b>87.8%</b>
Northwest	91.3%	88.0%	88.4%	84.8%	83.4%	81.7%	83.5%	86.9%
Northern Interior	92.7%	93.1%	91.8%	93.0%	92.7%	93.3%	90.9%	92.1%
Northeast	88.1%	88.0%	86.7%	84.4%	86.5%	87.0%	84.6%	80.8%
<b>BRITISH COLUMBIA</b>	<b>81.4%</b>	<b>82.4%</b>	<b>79.7%</b>	<b>79.5%</b>	<b>79.0%</b>	<b>77.0%</b>	<b>76.0%</b>	<b>75.5%</b>

See data sources and notes on accompanying cover pages.

BC has experienced a downward trend in DaPTP coverage, with a 6.9% drop in coverage from 2006 to 2012.

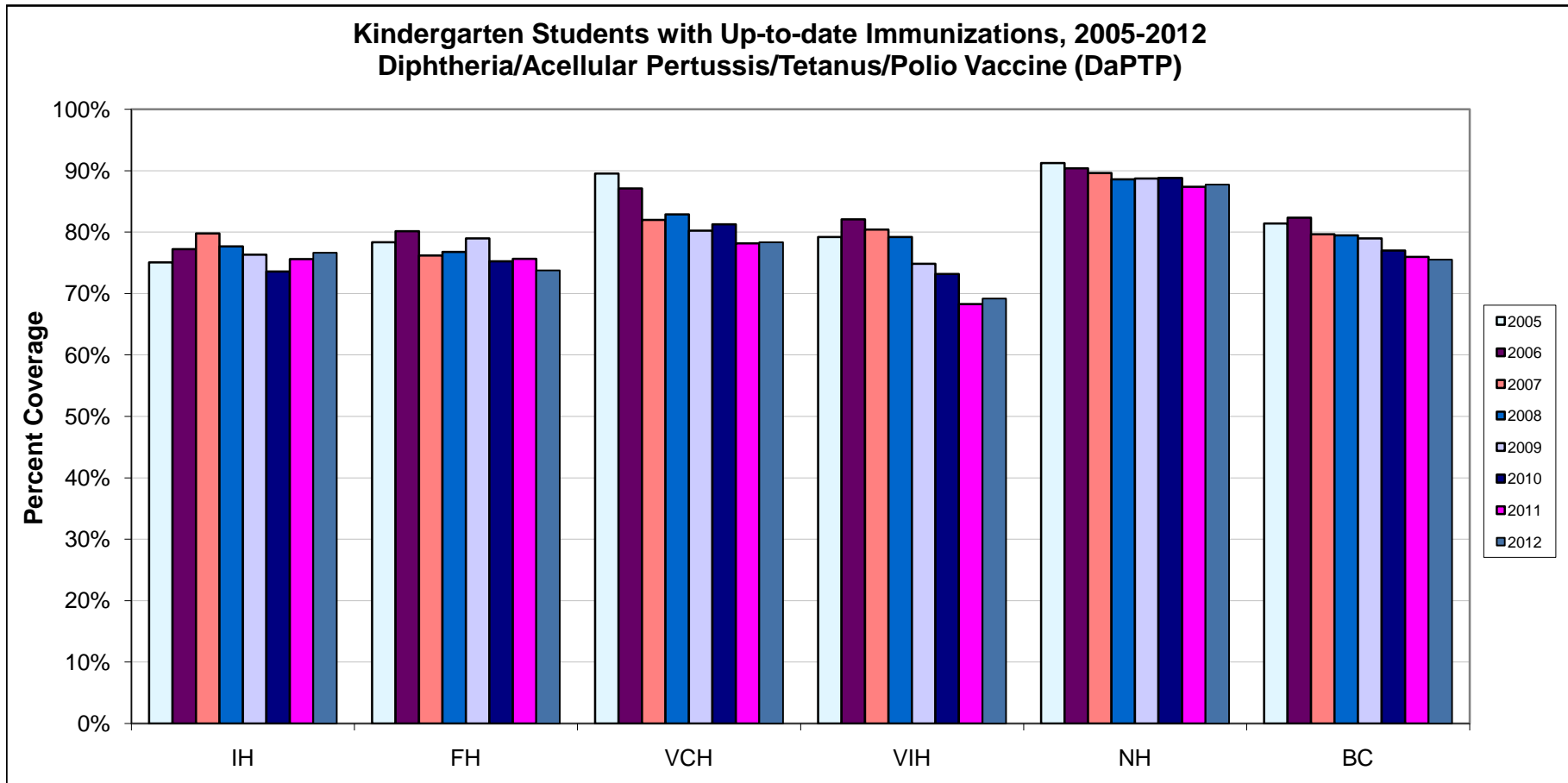
There were slight increases in DaPTP coverage in NHA, VIHA and VCH in 2012. IHA demonstrated increases in DaPTP coverage in 2011 and 2012.

Rates and trends varied by Health Service Delivery Area.

In 2012, DaPTP coverage rates in the Health Service Delivery Areas ranged from 63.5% to 93.5%.

Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

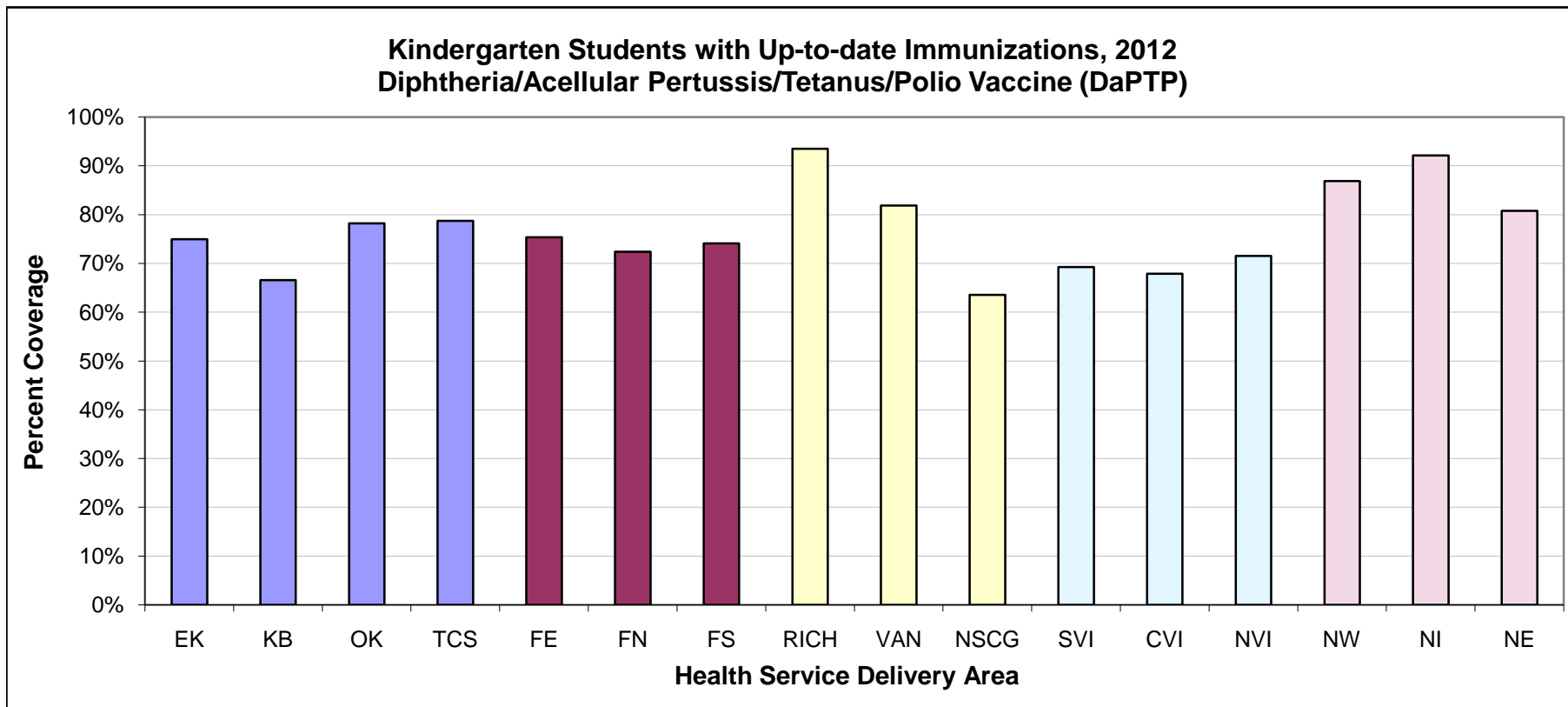
**Kindergarten Students with Up-to-date Immunizations: DaPTP**



See data sources and notes on accompanying cover pages.

Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: DaPTP**



See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Measles**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>1 INTERIOR</b>	<b>90.9%</b>	<b>91.7%</b>	<b>90.4%</b>	<b>88.2%</b>	<b>89.1%</b>	<b>89.2%</b>	<b>88.0%</b>	<b>88.4%</b>	<b>88.1%</b>	<b>88.3%</b>	<b>88.1%</b>
East Kootenay	90.1%	84.2%	89.0%	90.3%	91.3%	92.0%	88.2%	87.2%	90.2%	89.8%	88.9%
Kootenay Boundary	85.2%	81.4%	79.8%	80.2%	78.4%	74.2%	79.1%	78.6%	78.9%	77.0%	77.8%
Okanagan	90.4%	92.9%	89.9%	88.2%	89.1%	90.0%	88.0%	88.6%	87.9%	88.1%	87.2%
Thompson Cariboo Shuswap	93.7%	95.7%	95.1%	90.2%	92.1%	92.5%	91.0%	92.1%	91.1%	92.2%	93.3%
<b>2 FRASER</b>	<b>83.8%</b>	<b>84.1%</b>	<b>85.4%</b>	<b>84.5%</b>	<b>84.1%</b>	<b>83.3%</b>	<b>84.4%</b>	<b>87.2%</b>	<b>88.0%</b>	<b>87.7%</b>	<b>86.6%</b>
Fraser East	88.4%	88.4%	88.3%	87.7%	85.8%	87.1%	85.5%	88.6%	87.8%	88.9%	88.1%
Fraser North	85.7%	84.8%	84.5%	86.6%	85.9%	83.7%	82.8%	86.0%	87.6%	87.5%	84.9%
Fraser South	80.5%	81.7%	84.9%	81.7%	82.3%	81.4%	85.0%	87.6%	88.3%	87.3%	87.2%
<b>3 VANCOUVER COASTAL</b>	<b>84.1%</b>	<b>76.1%</b>	<b>83.3%</b>	<b>87.6%</b>	<b>84.6%</b>	<b>85.8%</b>	<b>88.6%</b>	<b>87.6%</b>	<b>88.6%</b>	<b>87.5%</b>	<b>87.8%</b>
Richmond	85.6%	84.8%	89.0%	94.2%	90.2%	91.9%	93.8%	91.2%	93.5%	95.7%	95.4%
Vancouver	84.3%	70.5%	79.7%	86.8%	84.7%	87.0%	90.1%	89.5%	89.4%	89.6%	90.8%
North Shore / Coast Garibaldi	82.8%	80.6%	90.9%	84.8%	80.8%	79.9%	82.2%	81.6%	84.1%	78.4%	78.1%
<b>4 VANCOUVER ISLAND</b>	<b>89.6%</b>	<b>89.8%</b>	<b>89.8%</b>	<b>90.9%</b>	<b>88.3%</b>	<b>88.5%</b>	<b>88.4%</b>	<b>86.8%</b>	<b>89.2%</b>	<b>84.7%</b>	<b>89.2%</b>
South Vancouver Island	91.7%	90.6%	90.2%	90.2%	87.7%	89.9%	88.4%	87.2%	89.9%	89.6%	90.3%
Central Vancouver Island	86.5%	90.2%	89.7%	90.3%	88.8%	86.6%	88.0%	86.6%	86.6%	76.2%	87.4%
North Vancouver Island	90.1%	87.1%	89.2%	93.6%	88.6%	88.7%	89.4%	85.9%	92.3%	89.0%	90.0%
<b>5 NORTHERN</b>	<b>94.2%</b>	<b>93.2%</b>	<b>94.1%</b>	<b>94.0%</b>	<b>93.3%</b>	<b>94.2%</b>	<b>92.5%</b>	<b>92.2%</b>	<b>92.0%</b>	<b>91.2%</b>	<b>91.5%</b>
Northwest	91.4%	92.0%	94.2%	92.7%	91.7%	92.8%	88.8%	89.7%	88.3%	89.1%	90.9%
Northern Interior	94.9%	93.2%	94.6%	94.9%	94.8%	95.2%	94.9%	94.0%	95.2%	93.2%	93.4%
Northeast	96.2%	94.8%	93.0%	93.5%	92.1%	93.4%	92.0%	91.3%	89.6%	89.6%	88.7%
<b>BRITISH COLUMBIA</b>	<b>86.8%</b>	<b>85.3%</b>	<b>87.3%</b>	<b>87.4%</b>	<b>86.3%</b>	<b>86.4%</b>	<b>87.1%</b>	<b>87.8%</b>	<b>88.6%</b>	<b>87.6%</b>	<b>87.8%</b>

**NOTE:** In 2006, the definition of up-to-date for age for mumps/rubella (requiring 1 dose) was separated from measles (requiring 2 doses). The definition used for measles/mumps/rubella in previous years was "The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30".

See data sources and notes on accompanying cover pages.

Measles vaccine coverage in BC peaked at 88.6% in 2010 then dropped in 2011 and remained steady in 2012.

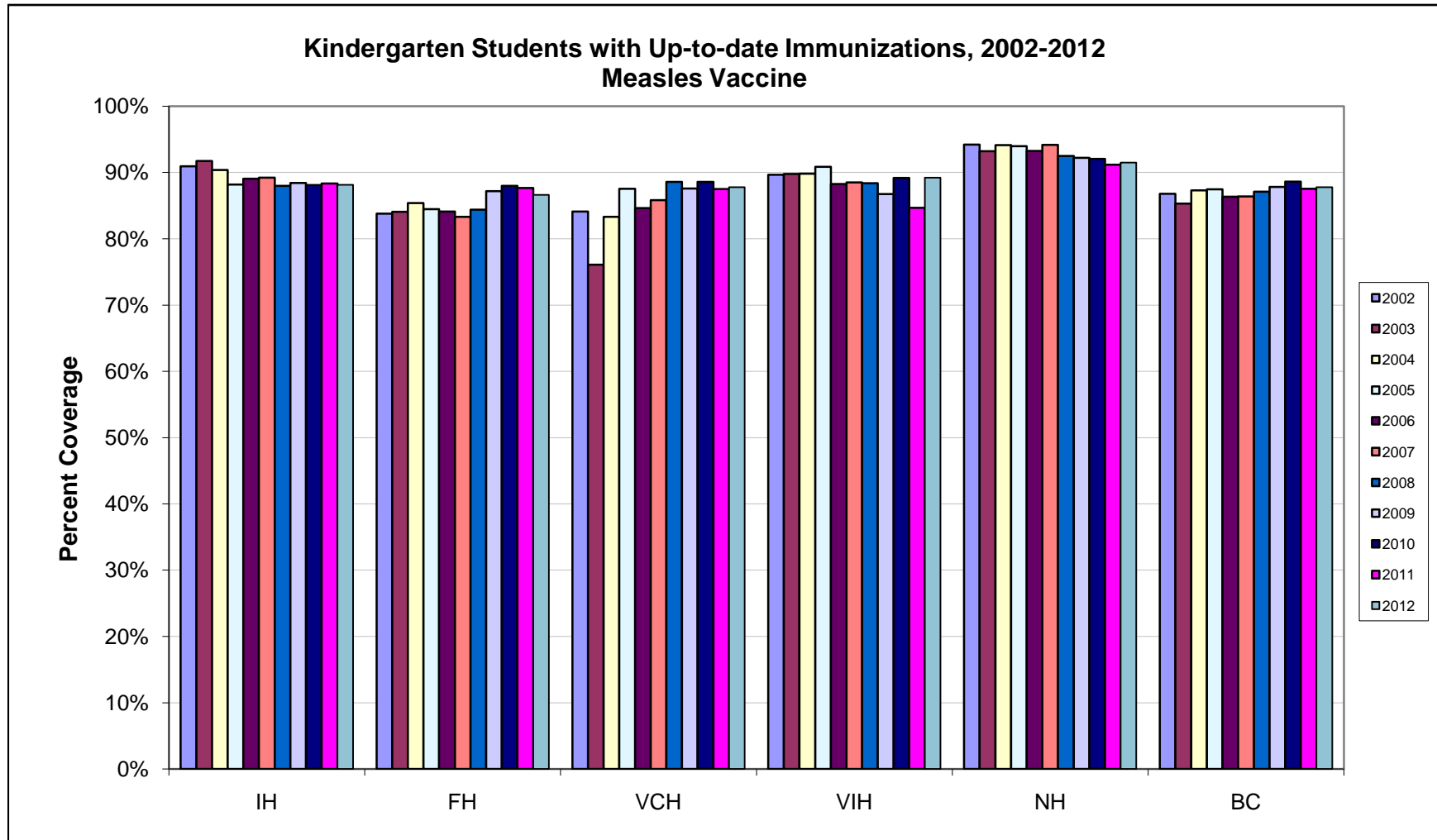
Measles coverage in VIHA increased by 4.6% in 2012, after dropping 4.5% in 2011. Measles coverage in IHA has been stable over the past 5 years. NHA experienced a 0.8% drop in 2011 followed by a slight increase in 2012. In FHA measles coverage peaked in 2010. VCHA has no observable trend.

Rates and trends varied by Health Service Delivery Area.

In 2012, measles coverage rates in the Health Service Delivery Areas ranged from 77.8% to 95.4%.

Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

Kindergarten Students with Up-to-date Immunizations: Measles



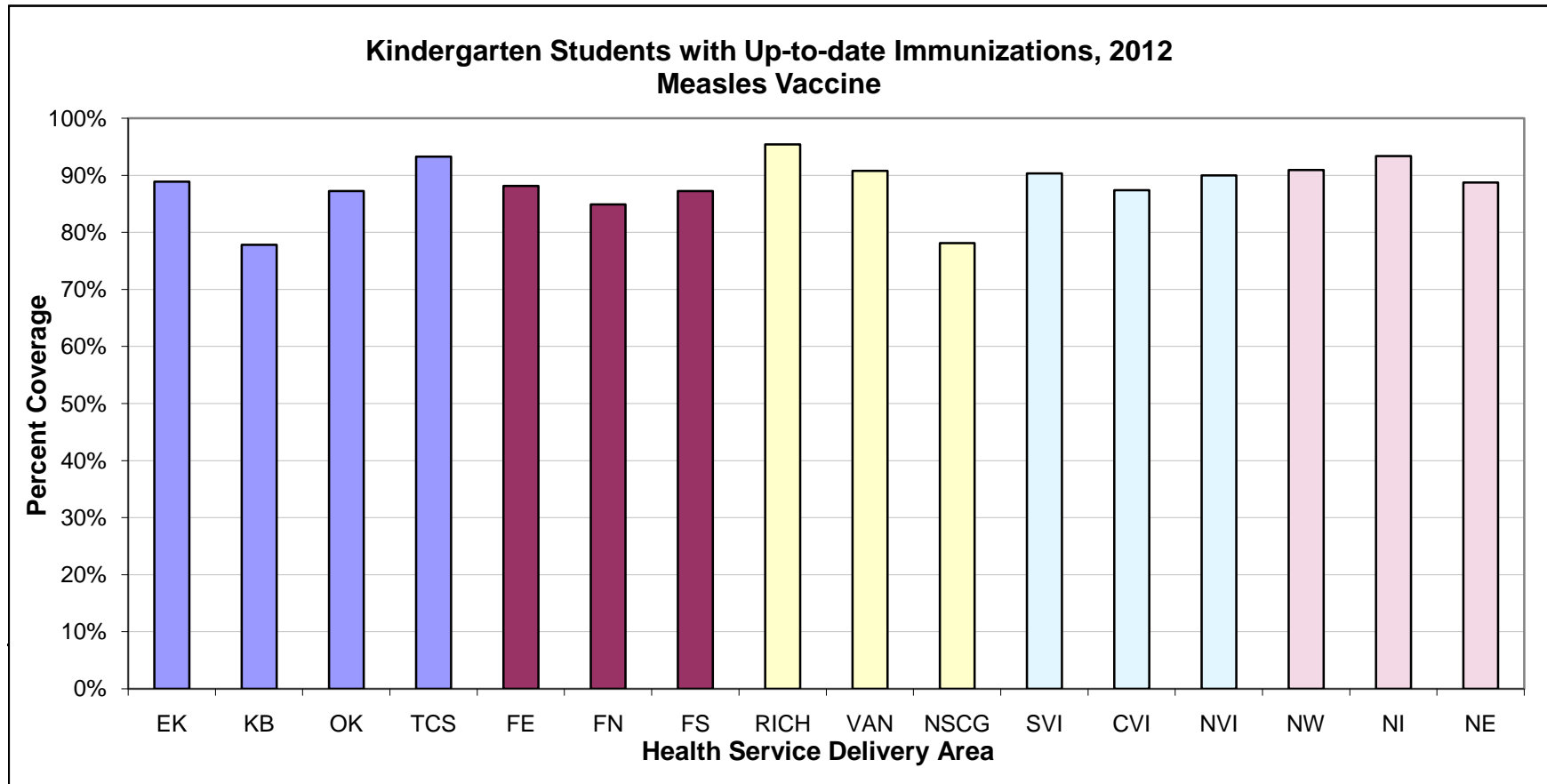
**NOTE:** In 2006, the definition of up-to-date for age for mumps/rubella (requiring 1 dose) was separated from measles (requiring 2 doses). The definition used for measles/mumps/rubella in previous years was "The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30 of the specified year".

See data sources and notes on accompanying cover pages.



Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Measles**



See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Mumps**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR										
	2002 <sup>a</sup>	2003 <sup>a</sup>	2004 <sup>a</sup>	2005 <sup>a</sup>	2006 <sup>b</sup>	2007 <sup>b</sup>	2008 <sup>b</sup>	2009 <sup>b</sup>	2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>
<b>1 INTERIOR</b>	<b>90.9%</b>	<b>91.7%</b>	<b>90.4%</b>	<b>88.2%</b>	<b>91.9%</b>	<b>92.1%</b>	<b>91.6%</b>	<b>92.0%</b>	<b>88.1%</b>	<b>88.3%</b>	<b>88.1%</b>
East Kootenay	90.1%	84.2%	89.0%	90.3%	93.0%	94.4%	92.2%	91.7%	90.2%	89.8%	88.9%
Kootenay Boundary	85.2%	81.4%	79.8%	80.2%	81.6%	79.0%	83.3%	83.1%	78.9%	77.0%	77.8%
Okanagan	90.4%	92.9%	89.9%	88.2%	92.5%	92.9%	92.0%	92.5%	87.9%	88.1%	87.2%
Thompson Cariboo Shuswap	93.7%	95.7%	95.1%	90.2%	94.4%	95.0%	93.6%	94.4%	91.1%	92.2%	93.3%
<b>2 FRASER</b>	<b>83.8%</b>	<b>84.1%</b>	<b>85.4%</b>	<b>84.5%</b>	<b>90.4%</b>	<b>89.5%</b>	<b>91.0%</b>	<b>92.2%</b>	<b>87.6%</b>	<b>87.7%</b>	<b>86.2%</b>
Fraser East	88.4%	88.4%	88.3%	87.7%	89.7%	91.4%	91.0%	91.7%	87.9%	88.9%	88.1%
Fraser North	85.7%	84.8%	84.5%	86.6%	92.7%	90.9%	90.0%	91.6%	86.4%	87.4%	84.9%
Fraser South	80.5%	81.7%	84.9%	81.7%	88.9%	87.8%	91.8%	92.8%	88.3%	87.4%	86.3%
<b>3 VANCOUVER COASTAL</b>	<b>84.1%</b>	<b>76.1%</b>	<b>83.3%</b>	<b>87.6%</b>	<b>92.6%</b>	<b>93.0%</b>	<b>93.5%</b>	<b>91.8%</b>	<b>88.4%</b>	<b>87.3%</b>	<b>87.4%</b>
Richmond	85.6%	84.8%	89.0%	94.2%	96.6%	96.2%	97.6%	96.3%	93.2%	95.2%	94.6%
Vancouver	84.3%	70.5%	79.7%	86.8%	92.9%	93.6%	94.4%	94.1%	89.0%	89.4%	90.3%
North Shore / Coast Garibaldi	82.8%	80.6%	90.9%	84.8%	89.5%	89.8%	88.9%	84.6%	84.1%	78.3%	78.0%
<b>4 VANCOUVER ISLAND</b>	<b>89.6%</b>	<b>89.8%</b>	<b>89.8%</b>	<b>90.9%</b>	<b>92.5%</b>	<b>92.3%</b>	<b>91.6%</b>	<b>90.5%</b>	<b>89.1%</b>	<b>84.7%</b>	<b>88.5%</b>
South Vancouver Island	91.7%	90.6%	90.2%	90.2%	92.8%	93.0%	91.5%	90.3%	89.8%	89.6%	88.8%
Central Vancouver Island	86.5%	90.2%	89.7%	90.3%	91.8%	91.2%	90.7%	90.0%	86.6%	76.2%	87.4%
North Vancouver Island	90.1%	87.1%	89.2%	93.6%	92.9%	92.9%	93.3%	92.1%	92.3%	89.0%	90.0%
<b>5 NORTHERN</b>	<b>94.2%</b>	<b>93.2%</b>	<b>94.1%</b>	<b>94.0%</b>	<b>95.4%</b>	<b>95.5%</b>	<b>94.1%</b>	<b>94.4%</b>	<b>92.1%</b>	<b>91.3%</b>	<b>91.3%</b>
Northwest	91.4%	92.0%	94.2%	92.7%	93.9%	95.2%	91.2%	92.1%	88.3%	89.6%	90.5%
Northern Interior	94.9%	93.2%	94.6%	94.9%	96.3%	96.8%	95.7%	95.6%	95.4%	93.1%	93.4%
Northeast	96.2%	94.8%	93.0%	93.5%	95.2%	95.9%	94.3%	94.3%	89.6%	89.6%	88.5%
<b>BRITISH COLUMBIA</b>	<b>86.8%</b>	<b>85.3%</b>	<b>87.3%</b>	<b>87.4%</b>	<b>91.8%</b>	<b>91.6%</b>	<b>92.0%</b>	<b>92.0%</b>	<b>88.4%</b>	<b>87.5%</b>	<b>87.5%</b>

The definition of up-to-date for age for mumps has changed with immunization policy changes. The definitions used for coverage assessment each year are:

- The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30.
- The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of mumps- and rubella-containing vaccine. This revision to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher than the proportions up-to-date for age for measles/mumps/rubella in previous years.
- The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of mumps-containing vaccine by June 30. This revision to the definition resulted in the proportions of children up-to-date for age for mumps being lower than the proportions up-to-date for age for mumps/rubella in previous years.

See data sources and notes on accompanying cover pages.

## Ministry of Health and Health Authorities Immunization Coverage: Kindergarten

### ***Kindergarten Students with Up-to-date Immunizations: Mumps***

The drop in mumps coverage in BC between 2009 and 2010 was a result of the change in policy requiring children to have two doses of mumps-containing vaccine to be considered up-to-date. Prior to this change in policy, BC mumps coverage was steady at ~92%. With the change in measurement, coverage dropped by 3.6% and followed by a small drop the following year.

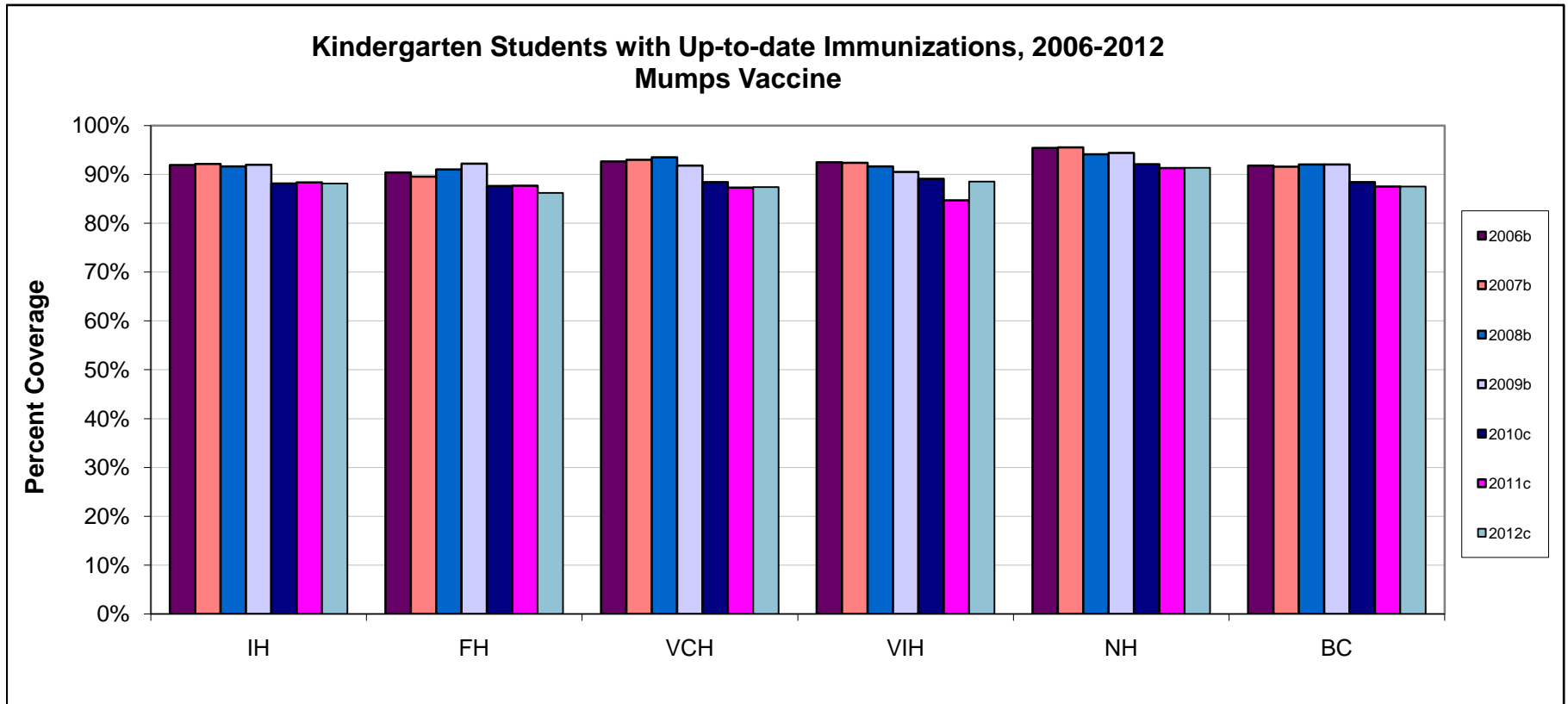
Mumps coverage in VIHA increased by 3.8% in 2012, after dropping 4.4% in 2011. Mumps coverage in IHA and NHA has been stable over the past 3 years. VCH has plateaued after experiencing a downward trend in mumps coverage over 3 years. FHA had a slight increase in 2011, followed by a slightly larger decrease in 2012.

Rates and trends varied by Health Service Delivery Area.

In 2012, mumps coverage rates in the Health Service Delivery Areas ranged from 77.8% to 94.6%.

Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

Kindergarten Students with Up-to-date Immunizations: Mumps



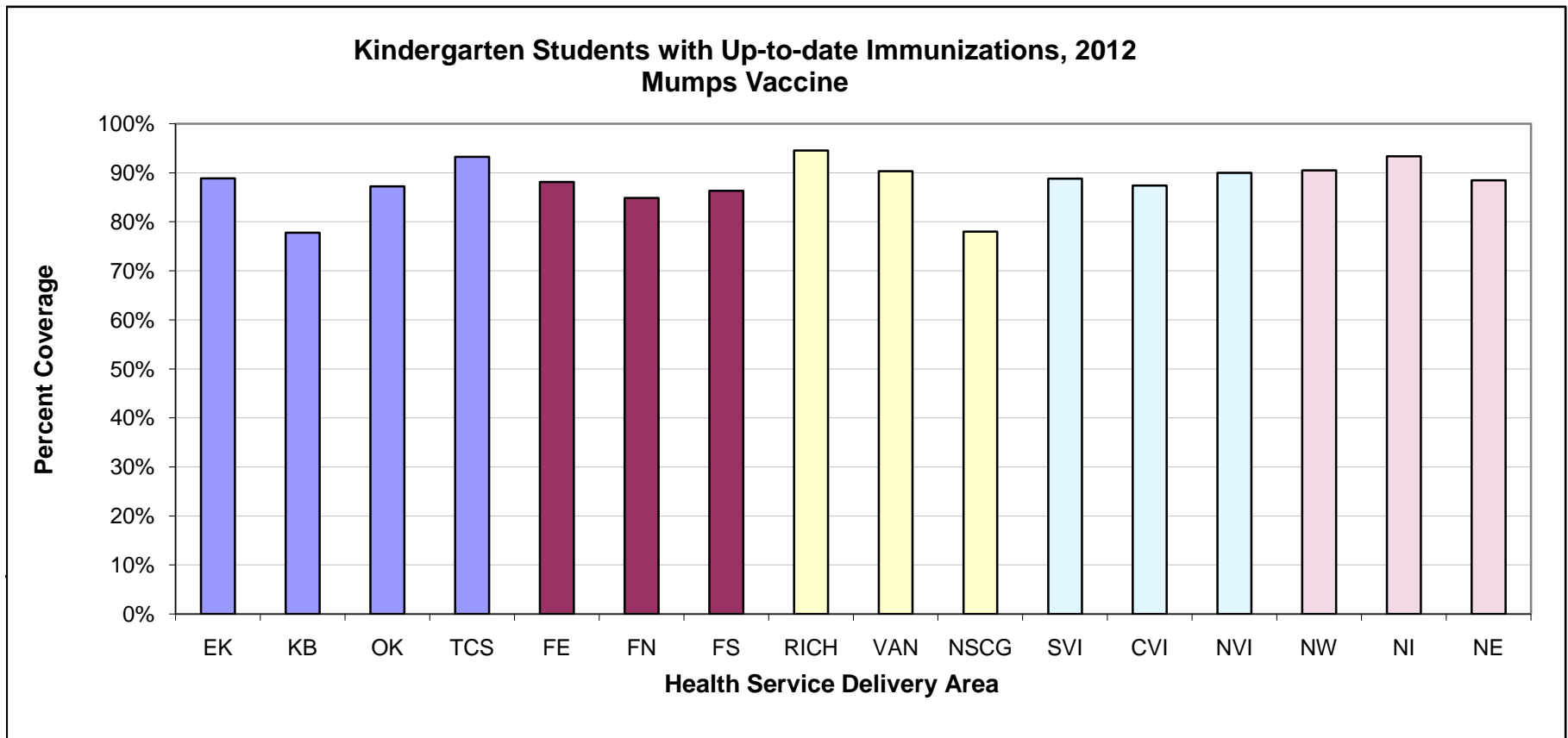
The definition of up-to-date for age for mumps has changed with immunization policy changes. The definitions used for coverage assessment each year are:

- The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30.
- The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of mumps- and rubella-containing vaccine. This revision to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher than the proportions up-to-date for age for measles/mumps/rubella in previous years.
- The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of mumps-containing vaccine by June 30. This revision to the definition resulted in the proportions of children up-to-date for age for mumps being lower than the proportions up-to-date for age for mumps/rubella in previous years.

See data sources and notes on accompanying cover pages.

Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Mumps**



See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Rubella**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR										
	2002 <sup>a</sup>	2003 <sup>a</sup>	2004 <sup>a</sup>	2005 <sup>a</sup>	2006 <sup>b</sup>	2007 <sup>b</sup>	2008 <sup>b</sup>	2009 <sup>b</sup>	2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>
<b>1 INTERIOR</b>	<b>90.9%</b>	<b>91.7%</b>	<b>90.4%</b>	<b>88.2%</b>	<b>91.9%</b>	<b>92.1%</b>	<b>91.6%</b>	<b>92.0%</b>	<b>91.6%</b>	<b>91.8%</b>	<b>91.6%</b>
East Kootenay	90.1%	84.2%	89.0%	90.3%	93.0%	94.4%	92.2%	91.7%	94.1%	93.0%	92.2%
Kootenay Boundary	85.2%	81.4%	79.8%	80.2%	81.6%	79.0%	83.3%	83.1%	83.0%	81.6%	80.8%
Okanagan	90.4%	92.9%	89.9%	88.2%	92.5%	92.9%	92.0%	92.5%	92.1%	92.0%	91.7%
Thompson Cariboo Shuswap	93.7%	95.7%	95.1%	90.2%	94.4%	95.0%	93.6%	94.4%	93.2%	94.6%	95.2%
<b>2 FRASER</b>	<b>83.8%</b>	<b>84.1%</b>	<b>85.4%</b>	<b>84.5%</b>	<b>90.4%</b>	<b>89.5%</b>	<b>91.0%</b>	<b>92.2%</b>	<b>89.8%</b>	<b>89.8%</b>	<b>89.0%</b>
Fraser East	88.4%	88.4%	88.3%	87.7%	89.7%	91.4%	91.0%	91.7%	90.1%	89.5%	88.9%
Fraser North	85.7%	84.8%	84.5%	86.6%	92.7%	90.9%	90.0%	91.6%	88.1%	90.1%	88.8%
Fraser South	80.5%	81.7%	84.9%	81.7%	88.9%	87.8%	91.8%	92.8%	90.8%	89.6%	89.3%
<b>3 VANCOUVER COASTAL</b>	<b>84.1%</b>	<b>76.1%</b>	<b>83.3%</b>	<b>87.6%</b>	<b>92.6%</b>	<b>93.0%</b>	<b>93.5%</b>	<b>91.8%</b>	<b>93.2%</b>	<b>90.6%</b>	<b>92.5%</b>
Richmond	85.6%	84.8%	89.0%	94.2%	96.6%	96.2%	97.6%	96.3%	97.4%	98.1%	98.1%
Vancouver	84.3%	70.5%	79.7%	86.8%	92.9%	93.6%	94.4%	94.1%	94.2%	94.2%	94.3%
North Shore / Coast Garibaldi	82.8%	80.6%	90.9%	84.8%	89.5%	89.8%	88.9%	84.6%	88.9%	79.2%	86.3%
<b>4 VANCOUVER ISLAND</b>	<b>89.6%</b>	<b>89.8%</b>	<b>89.8%</b>	<b>90.9%</b>	<b>92.5%</b>	<b>92.3%</b>	<b>91.6%</b>	<b>90.5%</b>	<b>91.1%</b>	<b>87.0%</b>	<b>90.8%</b>
South Vancouver Island	91.7%	90.6%	90.2%	90.2%	92.8%	93.0%	91.5%	90.3%	92.3%	92.0%	91.9%
Central Vancouver Island	86.5%	90.2%	89.7%	90.3%	91.8%	91.2%	90.7%	90.0%	88.3%	78.1%	89.3%
North Vancouver Island	90.1%	87.1%	89.2%	93.6%	92.9%	92.9%	93.3%	92.1%	93.7%	92.0%	91.1%
<b>5 NORTHERN</b>	<b>94.2%</b>	<b>93.2%</b>	<b>94.1%</b>	<b>94.0%</b>	<b>95.4%</b>	<b>95.5%</b>	<b>94.1%</b>	<b>94.4%</b>	<b>92.3%</b>	<b>93.9%</b>	<b>93.3%</b>
Northwest	91.4%	92.0%	94.2%	92.7%	93.9%	95.2%	91.2%	92.1%	89.5%	92.9%	91.2%
Northern Interior	94.9%	93.2%	94.6%	94.9%	96.3%	96.8%	95.7%	95.6%	93.5%	94.9%	94.7%
Northeast	96.2%	94.8%	93.0%	93.5%	95.2%	95.9%	94.3%	94.3%	92.9%	92.9%	92.9%
<b>BRITISH COLUMBIA</b>	<b>86.8%</b>	<b>85.3%</b>	<b>87.3%</b>	<b>87.4%</b>	<b>91.8%</b>	<b>91.6%</b>	<b>92.0%</b>	<b>92.0%</b>	<b>91.2%</b>	<b>90.2%</b>	<b>90.7%</b>

The definition of up-to-date for age for rubella has changed with immunization policy changes. The definitions used for coverage assessment each year are:

- a. The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30.
- b. The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of mumps- and rubella-containing vaccine. This revision to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher than the proportions up-to-date for age for measles/mumps/rubella in previous years.
- c. The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of rubella-containing vaccine by June 30.

See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

***Kindergarten Students with Up-to-date Immunizations: Rubella***

Rubella coverage in BC was ~92% in 2006-2009. Coverage dropped slightly in 2010 and again in 2011 before increasing by 0.5% in 2012.

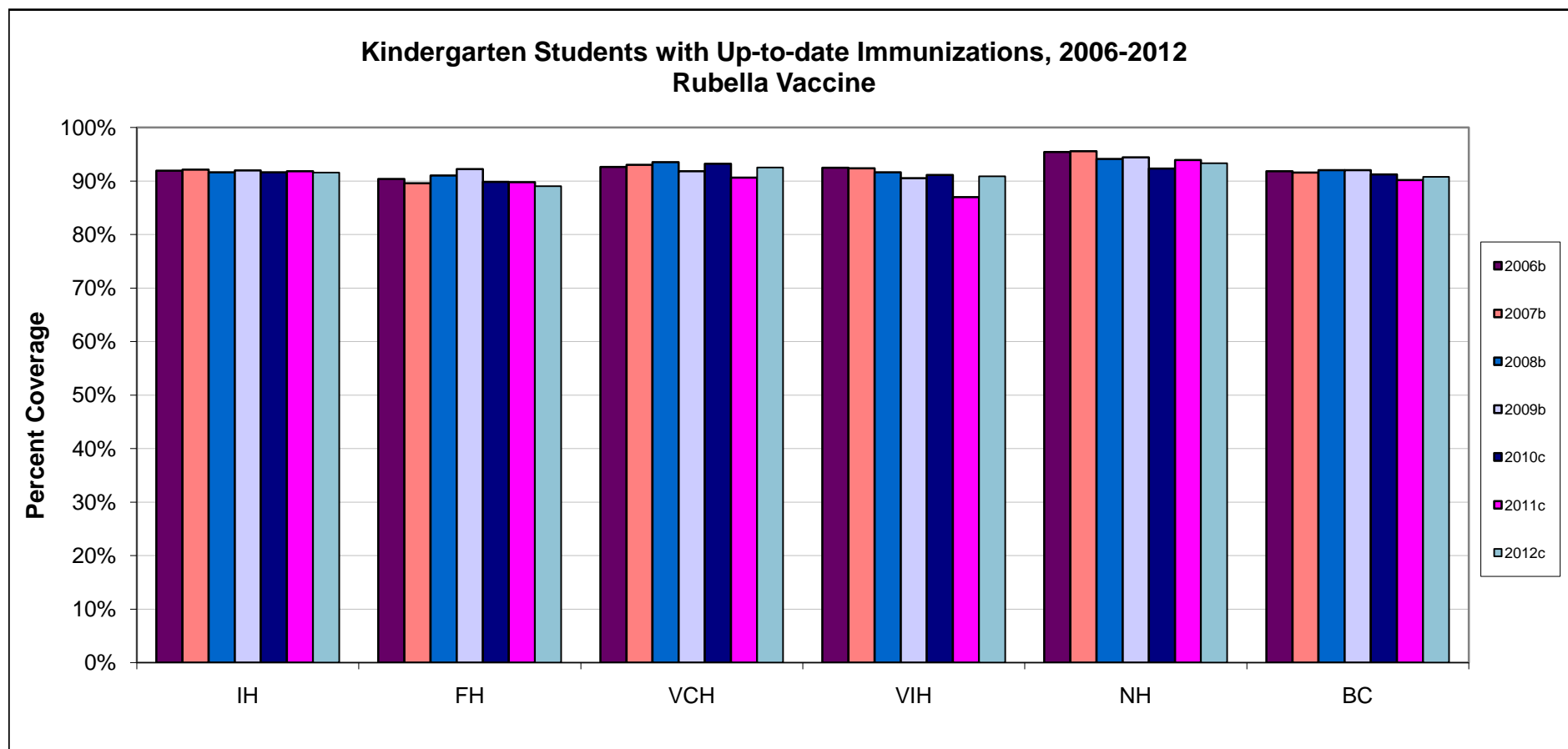
Rubella coverage in IHA has consistently remained close to 92% in recent years in IHA. There are no observable trends in the other Health Authorities.

Rates and trends varied by Health Service Delivery Area.

In 2012, rubella coverage rates in the Health Service Delivery Areas ranged from 80.8% to 98.1%.

Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Rubella**



The definition of up-to-date for age for rubella has changed with immunization policy changes. The definitions used for coverage assessment each year are:

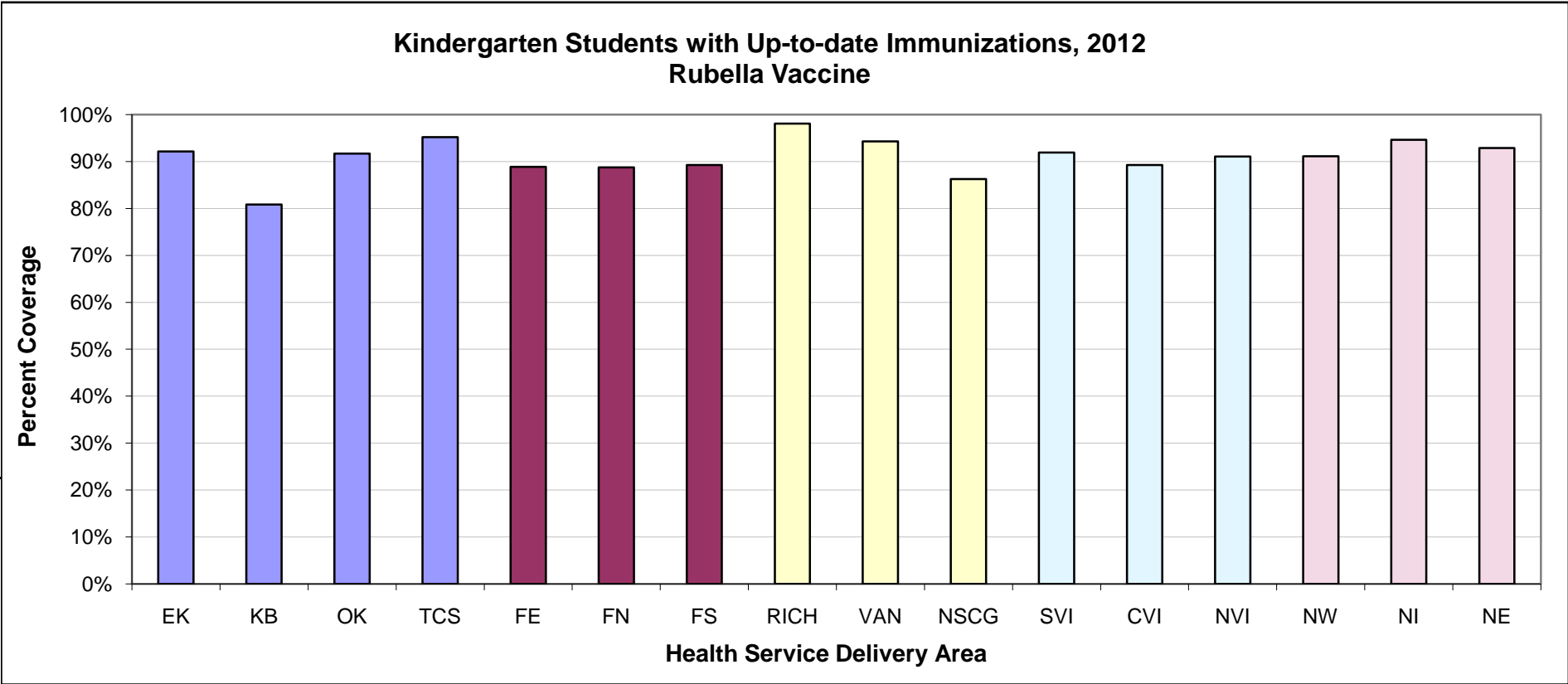
- a. The proportion of students enrolled in Kindergarten as of June 30 who received two valid doses of measles/mumps/rubella vaccine by June 30.
- b. The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of mumps- and rubella-containing vaccine. This revision to the definition resulted in the proportions of children up-to-date for age for mumps/rubella being higher than the proportions up-to-date for age for measles/mumps/rubella in previous years.
- c. The proportion of students enrolled in Kindergarten as of June 30 who received one valid dose of rubella-containing vaccine by June 30.

See data sources and notes on accompanying cover pages.



Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Rubella**



See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Hepatitis B**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR					
	2007	2008	2009	2010	2011	2012
<b>1 INTERIOR</b>	<b>84.9%</b>	<b>84.9%</b>	<b>85.7%</b>	<b>85.6%</b>	<b>86.9%</b>	<b>87.2%</b>
East Kootenay	84.0%	82.7%	83.3%	84.4%	88.1%	85.5%
Kootenay Boundary	68.8%	75.0%	73.7%	74.4%	75.6%	76.0%
Okanagan	85.9%	84.9%	85.8%	85.6%	86.3%	87.1%
Thompson Cariboo Shuswap	89.7%	89.2%	90.7%	90.2%	91.4%	92.3%
<b>2 FRASER</b>	<b>81.0%</b>	<b>85.9%</b>	<b>88.4%</b>	<b>88.9%</b>	<b>89.8%</b>	<b>88.9%</b>
Fraser East	84.0%	87.2%	89.7%	88.2%	90.2%	89.9%
Fraser North	82.5%	86.0%	86.5%	88.4%	89.6%	86.9%
Fraser South	78.8%	85.3%	89.2%	89.5%	89.8%	89.9%
<b>3 VANCOUVER COASTAL</b>	<b>87.7%</b>	<b>89.1%</b>	<b>89.0%</b>	<b>90.1%</b>	<b>88.0%</b>	<b>88.7%</b>
Richmond	92.8%	94.4%	92.6%	94.6%	94.7%	95.6%
Vancouver	88.8%	90.6%	90.6%	90.3%	90.5%	90.6%
North Shore / Coast Garibaldi	82.4%	82.7%	83.7%	86.7%	79.2%	81.4%
<b>4 VANCOUVER ISLAND</b>	<b>83.9%</b>	<b>87.1%</b>	<b>87.2%</b>	<b>88.0%</b>	<b>87.1%</b>	<b>89.4%</b>
South Vancouver Island	85.8%	88.0%	86.8%	88.5%	89.1%	89.9%
Central Vancouver Island	81.7%	87.7%	88.0%	85.9%	83.9%	88.1%
North Vancouver Island	83.7%	83.9%	86.6%	90.9%	88.1%	90.6%
<b>5 NORTHERN</b>	<b>88.9%</b>	<b>89.9%</b>	<b>91.2%</b>	<b>90.5%</b>	<b>91.1%</b>	<b>91.3%</b>
Northwest	90.1%	89.1%	89.6%	87.7%	89.2%	89.6%
Northern Interior	91.7%	93.0%	93.6%	93.3%	93.9%	94.4%
Northeast	82.6%	85.3%	88.5%	88.0%	87.6%	87.5%
<b>BRITISH COLUMBIA</b>	<b>84.1%</b>	<b>86.9%</b>	<b>88.1%</b>	<b>88.6%</b>	<b>88.7%</b>	<b>88.9%</b>

See data sources and notes on accompanying cover pages.

Hepatitis B immunization coverage in BC has gradually increased from 84.1% in 2007 to 88.9% in 2012.

This trend is evident in all Health Authorities, except VCH. Hepatitis B coverage in VCH increased from 2007 to 2010, followed by a 2.1% drop in 2011 and a 0.7% increase in 2012. The drop in 2011 reflects a 7.5% decrease in one Health Service Delivery Area.

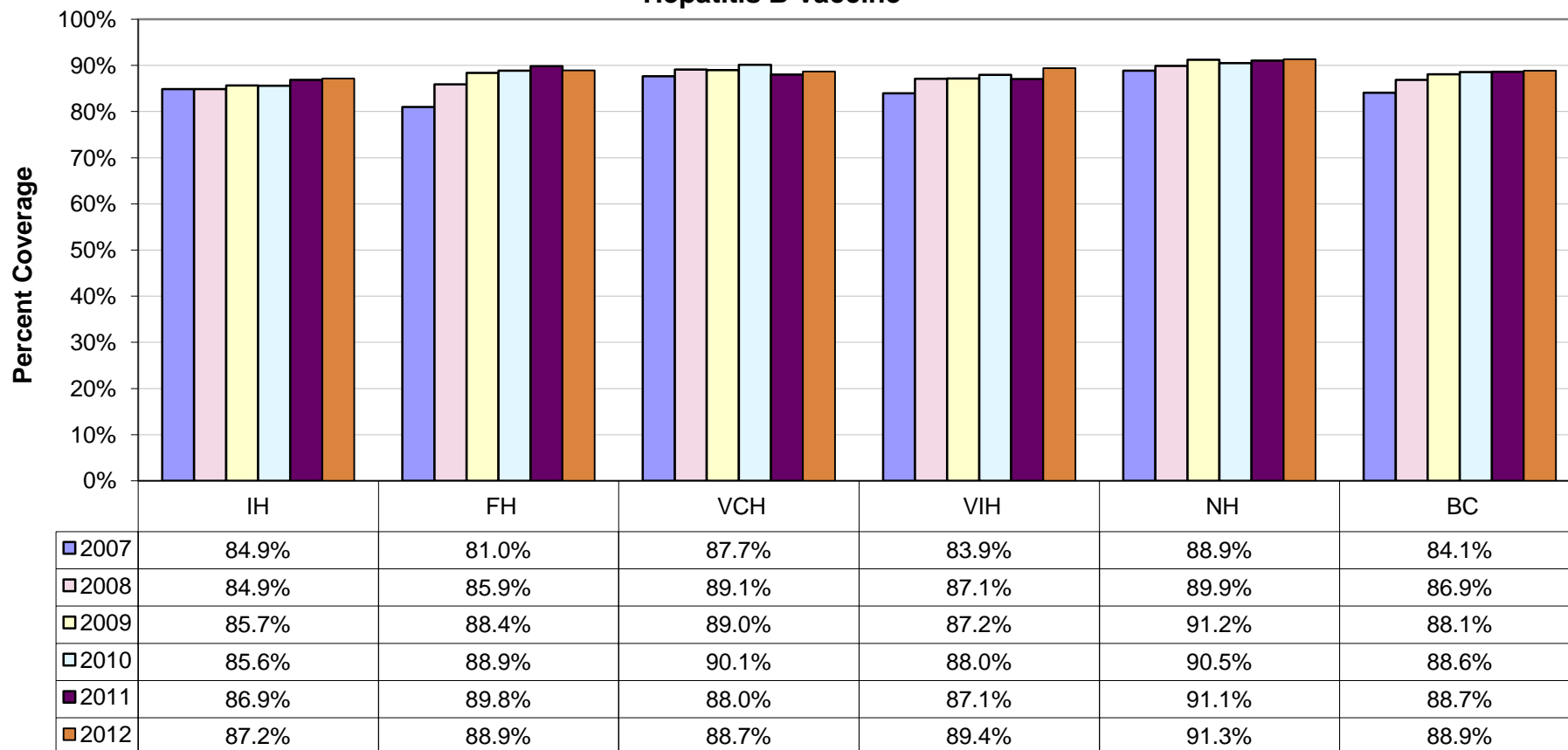
Rates and trends varied by Health Service Delivery Area.

In 2012, hepatitis B coverage rates in the Health Service Delivery Areas ranged from 76.0% to 95.6%.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Hepatitis B**

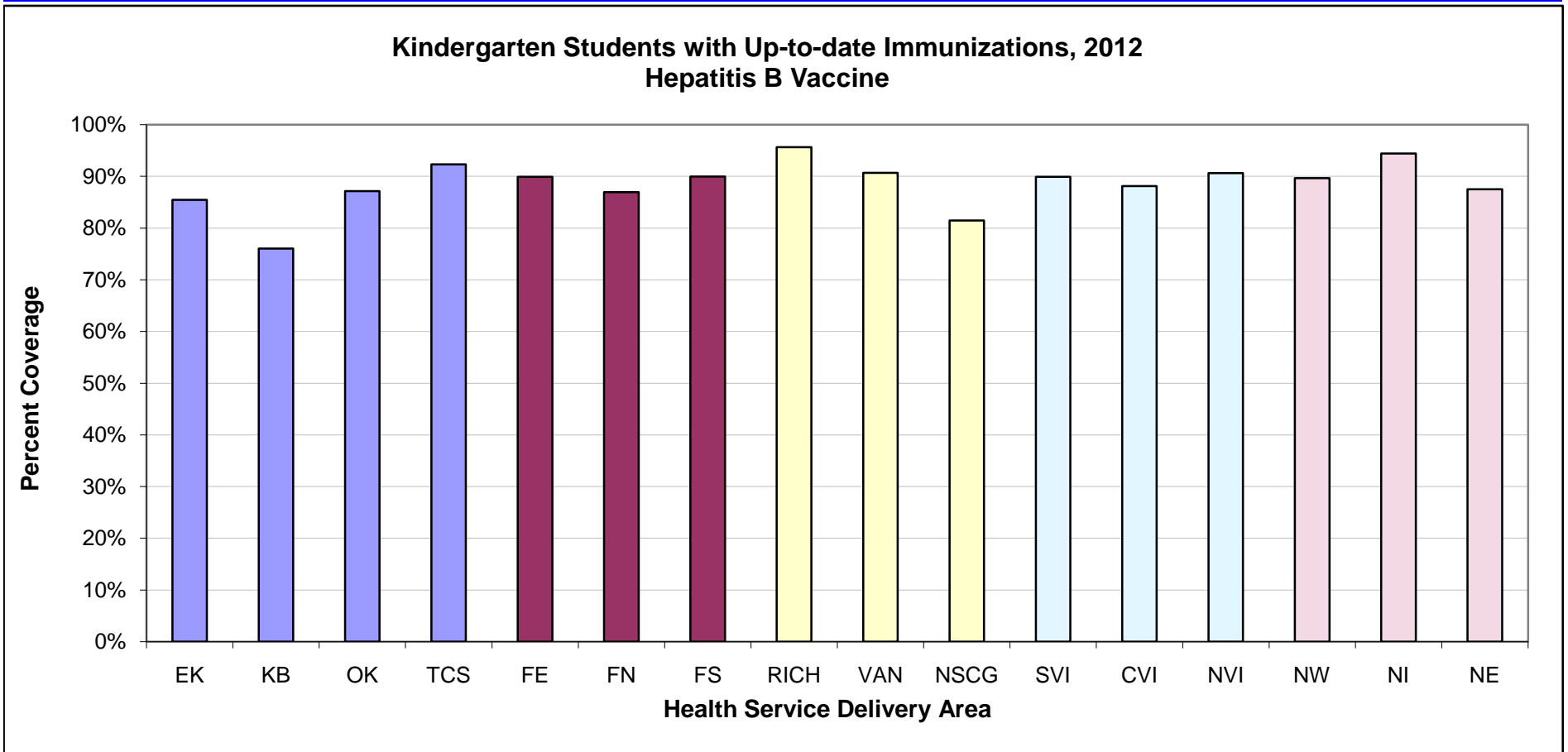
**Kindergarten Students with Up-to-date Immunizations, 2007-2012  
Hepatitis B Vaccine**



See data sources and notes on accompanying cover pages.

Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Hepatitis B**



See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Protection: Varicella**

HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR							
	2005	2006	2007	2008	2009	2010	2011	2012
<b>1 INTERIOR</b>	<b>27.1%</b>	<b>69.0%</b>	<b>73.6%</b>	<b>75.6%</b>	<b>81.4%</b>	<b>86.8%</b>	<b>87.5%</b>	<b>88.4%</b>
East Kootenay	34.4%	76.3%	79.2%	78.7%	81.5%	87.8%	88.0%	88.4%
Kootenay Boundary	23.3%	62.0%	57.2%	64.1%	66.9%	73.0%	74.6%	75.1%
Okanagan	27.9%	68.5%	74.9%	74.4%	81.5%	87.9%	87.5%	89.2%
Thompson Cariboo Shuswap	24.3%	69.6%	75.6%	80.2%	86.5%	90.2%	91.7%	92.3%
<b>2 FRASER</b>	<b>24.1%</b>	<b>60.9%</b>	<b>68.1%</b>	<b>71.9%</b>	<b>79.2%</b>	<b>86.9%</b>	<b>89.6%</b>	<b>88.7%</b>
Fraser East	18.4%	59.4%	71.6%	72.5%	81.6%	87.5%	89.7%	88.7%
Fraser North	29.3%	64.2%	64.9%	71.7%	78.3%	85.4%	89.4%	87.2%
Fraser South	23.1%	59.1%	68.9%	71.7%	78.9%	87.7%	89.7%	89.7%
<b>3 VANCOUVER COASTAL</b>	<b>39.2%</b>	<b>75.9%</b>	<b>84.9%</b>	<b>86.7%</b>	<b>86.4%</b>	<b>90.2%</b>	<b>88.7%</b>	<b>89.1%</b>
Richmond	56.5%	89.2%	92.8%	94.2%	91.3%	94.5%	95.7%	97.1%
Vancouver	31.6%	72.5%	86.3%	88.7%	87.5%	89.7%	91.0%	91.3%
North Shore / Coast Garibaldi	42.2%	73.7%	77.4%	78.0%	81.1%	88.4%	80.2%	80.6%
<b>4 VANCOUVER ISLAND</b>	<b>33.0%</b>	<b>78.4%</b>	<b>75.4%</b>	<b>74.3%</b>	<b>81.9%</b>	<b>88.2%</b>	<b>89.0%</b>	<b>90.8%</b>
South Vancouver Island	37.6%	78.0%	77.2%	77.3%	84.1%	89.2%	89.9%	91.5%
Central Vancouver Island	30.2%	81.7%	71.6%	70.6%	79.5%	87.1%	86.3%	89.5%
North Vancouver Island	26.9%	73.4%	78.1%	73.8%	81.3%	88.0%	92.3%	91.4%
<b>5 NORTHERN</b>	<b>26.1%</b>	<b>80.7%</b>	<b>82.0%</b>	<b>83.1%</b>	<b>85.2%</b>	<b>88.9%</b>	<b>91.3%</b>	<b>92.1%</b>
Northwest	12.2%	74.8%	78.2%	81.6%	82.5%	84.7%	88.8%	89.1%
Northern Interior	35.8%	82.2%	82.8%	84.7%	87.8%	91.4%	91.5%	95.7%
Northeast	20.4%	83.7%	83.9%	81.9%	83.0%	88.2%	93.2%	88.4%
<b>BRITISH COLUMBIA</b>	<b>29.3%</b>	<b>69.6%</b>	<b>74.6%</b>	<b>76.9%</b>	<b>81.9%</b>	<b>88.0%</b>	<b>89.1%</b>	<b>89.3%</b>

**NOTE:** In 2005, up-to-date for varicella was measured as "The proportion of students enrolled in Kindergarten as of June 30 who had no prior history of varicella or zoster disease and received one dose of varicella vaccine by June 30." Estimates from serosurveys carried out prior to varicella vaccine introduction indicate that approximately 48-55% of 5-year-olds were susceptible to varicella and were therefore eligible for vaccine. Since children protected by previous disease were not included in the 2005 definition, the proportions of children "up-to-date for age" for varicella is higher in subsequent years.

See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

***Kindergarten Students with Up-to-date Protection: Varicella***

The proportion of children protected against varicella in BC increased from 69.6% in 2006 to 89.3% in 2012. Some of the increase, particularly in the early years of the program, may be due to improved capture of data on history of previous varicella disease. Despite difficulty obtaining history of previous disease in the first few years of the program, the proportion of children reporting varicella disease has dropped annually from 24.5% in 2006 to 1.7% in 2012.

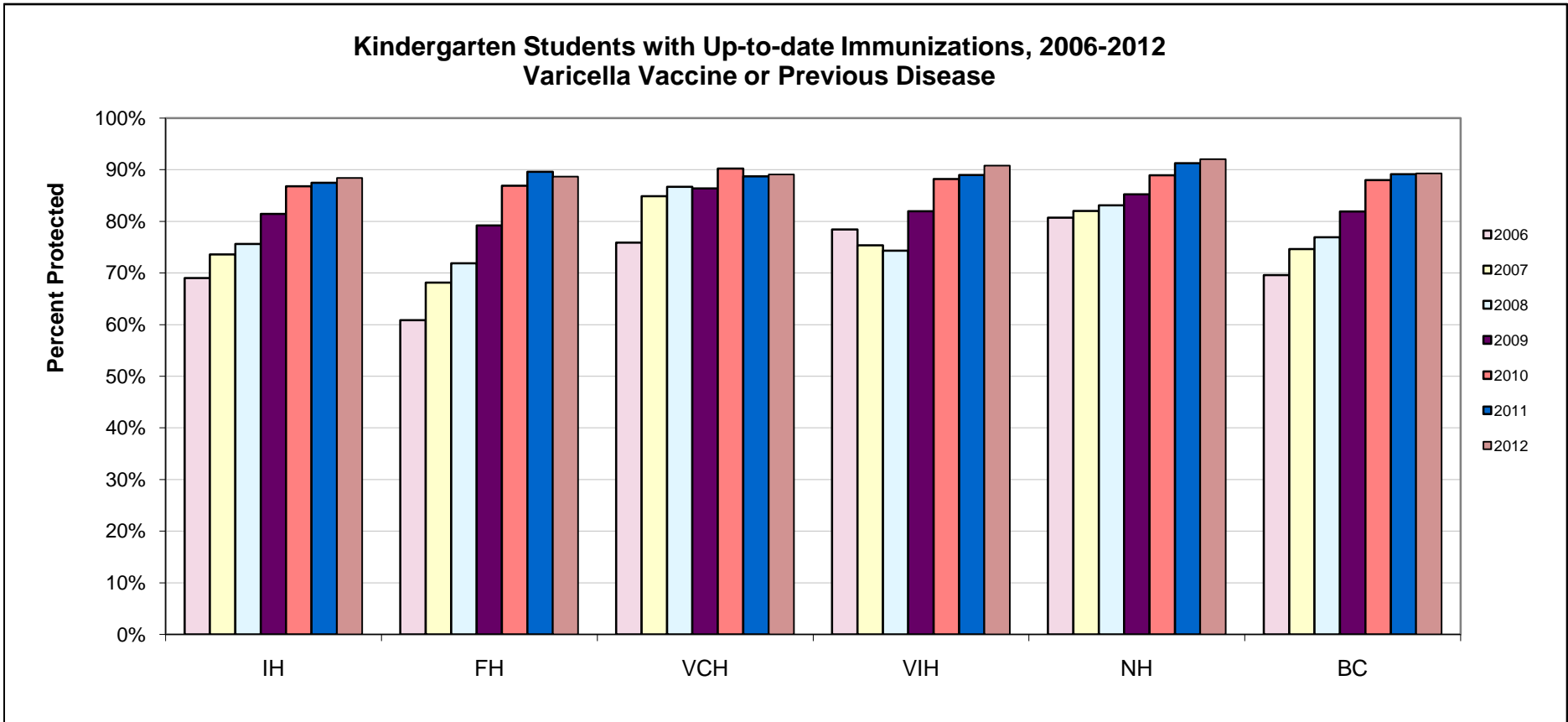
The increasing trend in varicella protection is evident in all Health Authorities, except VCH. Varicella protection in VCH plateaued in 2010-12.

Rates and trends varied by Health Service Delivery Area.

In 2012, the proportions of children protected against varicella in the Health Service Delivery Areas ranged from 75.1% to 97.1%.

Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

Kindergarten Students with Up-to-date Protection: Varicella

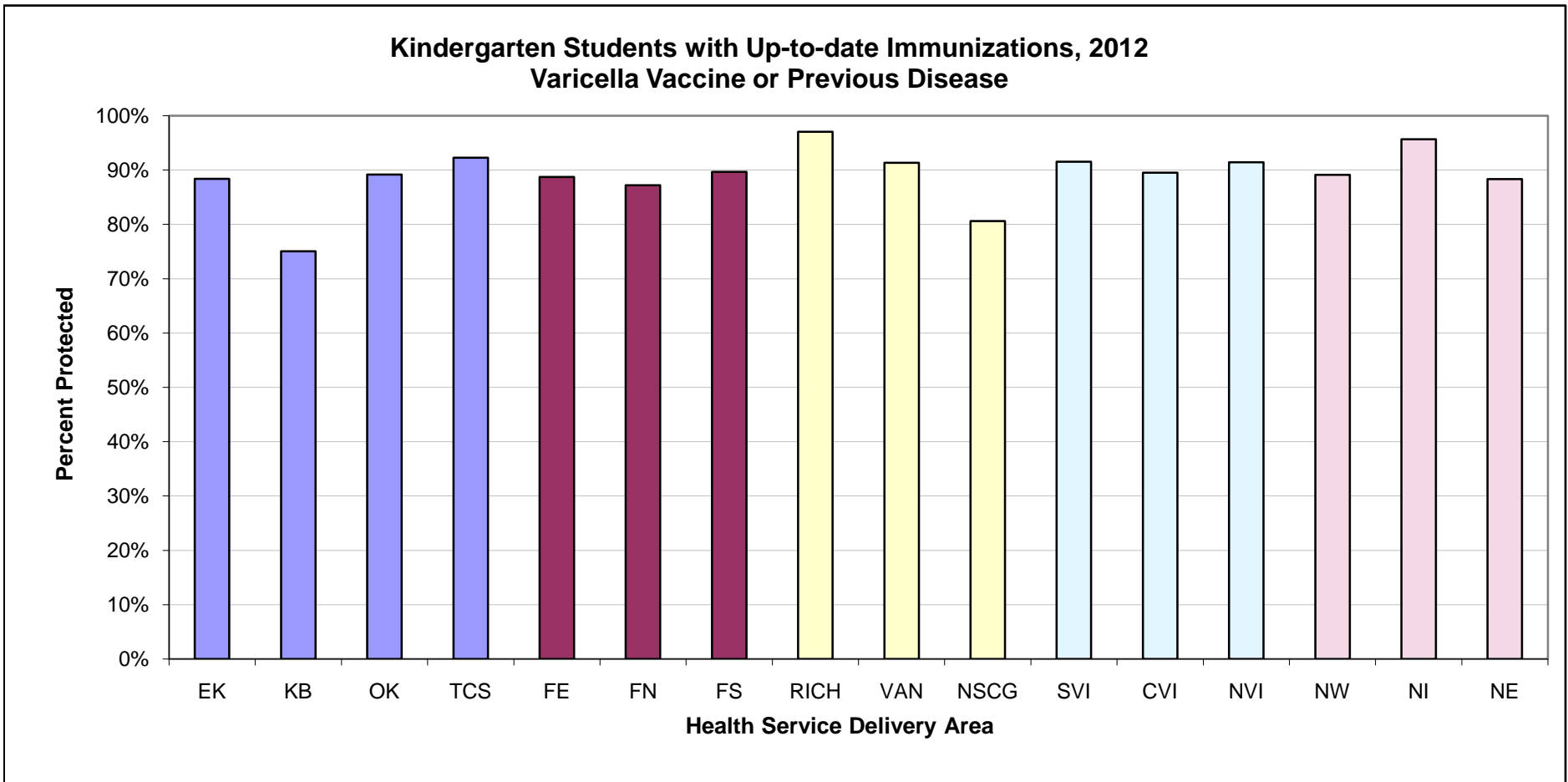


**NOTE:** In 2005, up-to-date for varicella was measured as "The proportion of students enrolled in Kindergarten as of June 30 who had no prior history of varicella or zoster disease and received one dose of varicella vaccine by June 30." Estimates from serosurveys carried out prior to varicella vaccine introduction indicate that approximately 48-55% of 5-year-olds were susceptible to varicella and were therefore eligible for vaccine. Since children protected by previous disease were not included in the 2005 definition, the proportions of children "up-to-date for age" for varicella is higher in subsequent years.

See data sources and notes on accompanying cover pages.

Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Protection: Varicella**



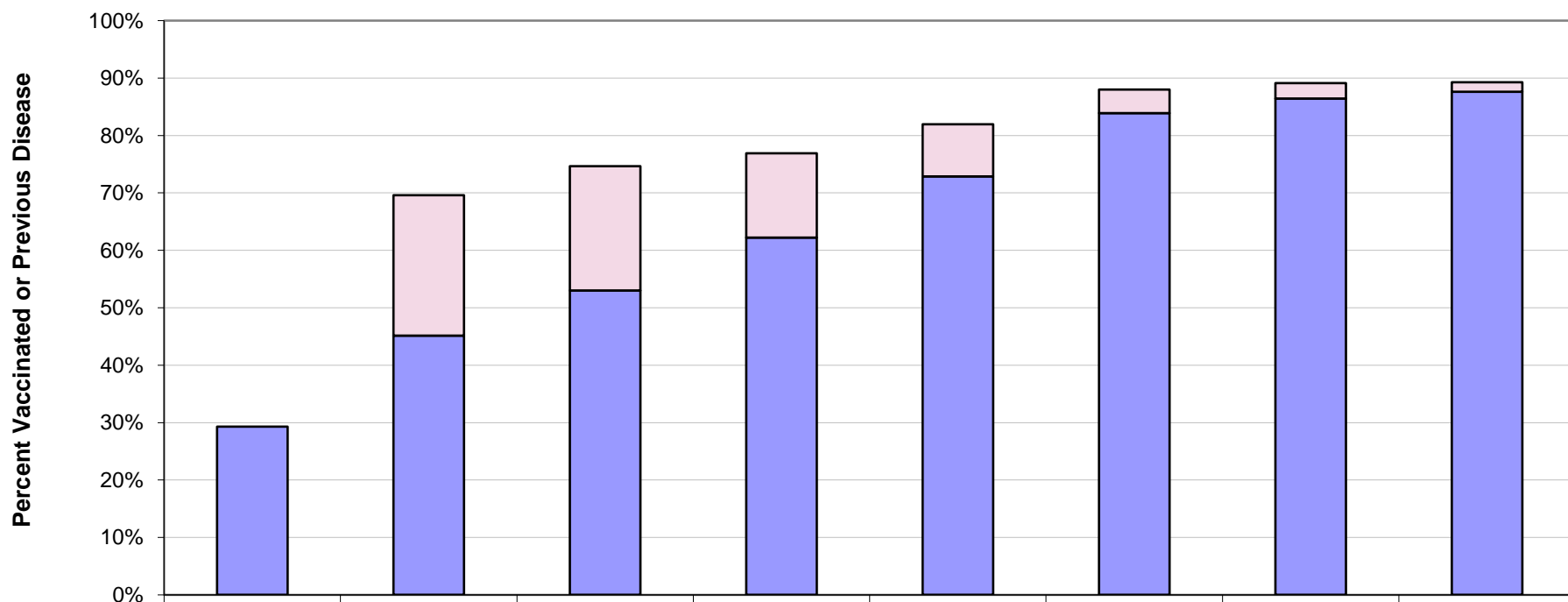
See data sources and notes on accompanying cover pages.



Ministry of Health and Health Authorities  
 Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Protection: Varicella**

**Kindergarten Students with Up-to-date Immunizations, 2005-2012  
 Varicella Vaccine and Previous Disease, British Columbia**



■ Disease History		24.5%	21.6%	14.7%	9.1%	4.1%	2.7%	1.7%
■ Vaccinated	29.3%	45.1%	53.0%	62.2%	72.9%	83.9%	86.4%	87.6%

**NOTE:** In 2005, up-to-date for varicella was measured as "The proportion of students enrolled in Kindergarten as of June 30 who had no prior history of varicella or zoster disease and received one dose of varicella vaccine by June 30." Estimates from serosurveys carried out prior to varicella vaccine introduction indicate that approximately 48-55% of 5-year-olds were susceptible to varicella and were therefore eligible for vaccine. Since children protected by previous disease were not included in the 2005 definition, the proportions of children "up-to-date for age" for varicella is higher in subsequent years.

See data sources and notes on accompanying cover pages.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Meningococcal C**

PROVINCE / HEALTH AUTHORITY / HEALTH SERVICE DELIVERY AREA	YEAR			
	2009	2010	2011	2012
<b>1 INTERIOR</b>	<b>86.4%</b>	<b>87.1%</b>	<b>88.2%</b>	<b>88.8%</b>
East Kootenay	82.8%	86.0%	86.9%	86.3%
Kootenay Boundary	77.2%	77.6%	76.7%	77.8%
Okanagan	86.9%	87.1%	88.1%	89.0%
Thompson Cariboo Shuswap	90.3%	91.0%	92.9%	93.8%
<b>2 FRASER</b>	<b>86.3%</b>	<b>88.0%</b>	<b>89.7%</b>	<b>89.4%</b>
Fraser East	89.2%	86.6%	91.8%	91.2%
Fraser North	85.0%	86.6%	88.9%	87.1%
Fraser South	85.9%	89.4%	89.4%	90.2%
<b>3 VANCOUVER COASTAL</b>	<b>85.4%</b>	<b>88.1%</b>	<b>87.7%</b>	<b>89.1%</b>
Richmond	90.9%	92.1%	95.9%	96.1%
Vancouver	87.2%	88.8%	90.0%	91.3%
North Shore / Coast Garibaldi	78.4%	84.4%	78.3%	81.4%
<b>4 VANCOUVER ISLAND</b>	<b>87.9%</b>	<b>90.1%</b>	<b>88.9%</b>	<b>91.4%</b>
South Vancouver Island	88.1%	91.8%	91.1%	91.7%
Central Vancouver Island	88.5%	86.4%	84.6%	90.7%
North Vancouver Island	86.2%	92.7%	91.7%	92.2%
<b>5 NORTHERN</b>	<b>87.8%</b>	<b>91.5%</b>	<b>92.9%</b>	<b>93.3%</b>
Northwest	88.1%	87.6%	92.3%	91.7%
Northern Interior	92.4%	93.5%	93.0%	95.0%
Northeast	79.0%	91.6%	93.5%	91.7%
<b>BRITISH COLUMBIA</b>	<b>86.5%</b>	<b>88.4%</b>	<b>89.1%</b>	<b>89.8%</b>

See data sources and notes on accompanying cover pages.

Meningococcal C immunization coverage in BC has gradually increased from 86.5% in 2009 to 89.8% in 2012.

This trend is evident in all Health Authorities.

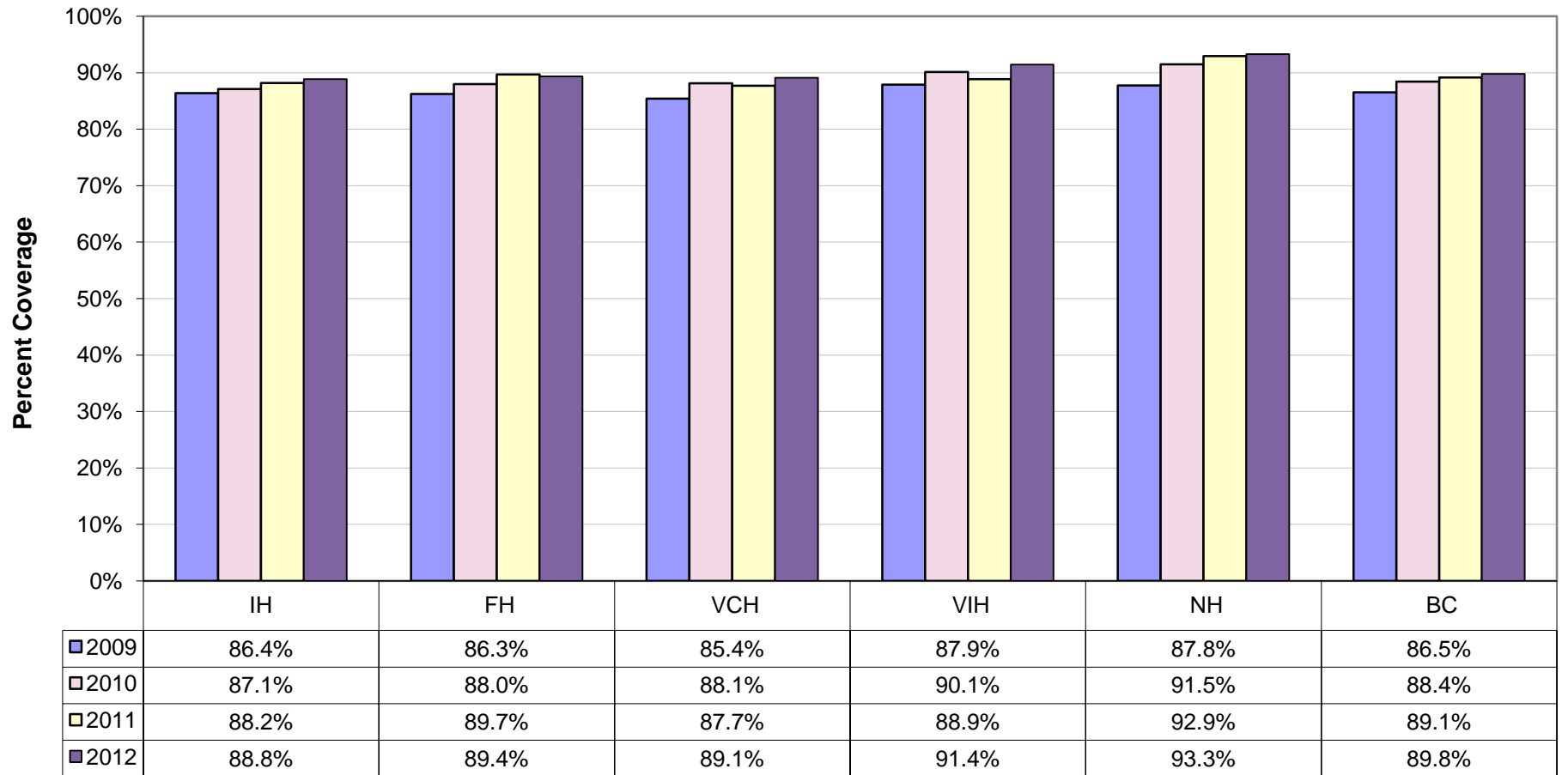
Rates and trends varied by Health Service Delivery Area.

In 2012, meningococcal C coverage rates in the Health Service Delivery Areas ranged from 77.8% to 96.1%.

**Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten**

**Kindergarten Students with Up-to-date Immunizations: Meningococcal C**

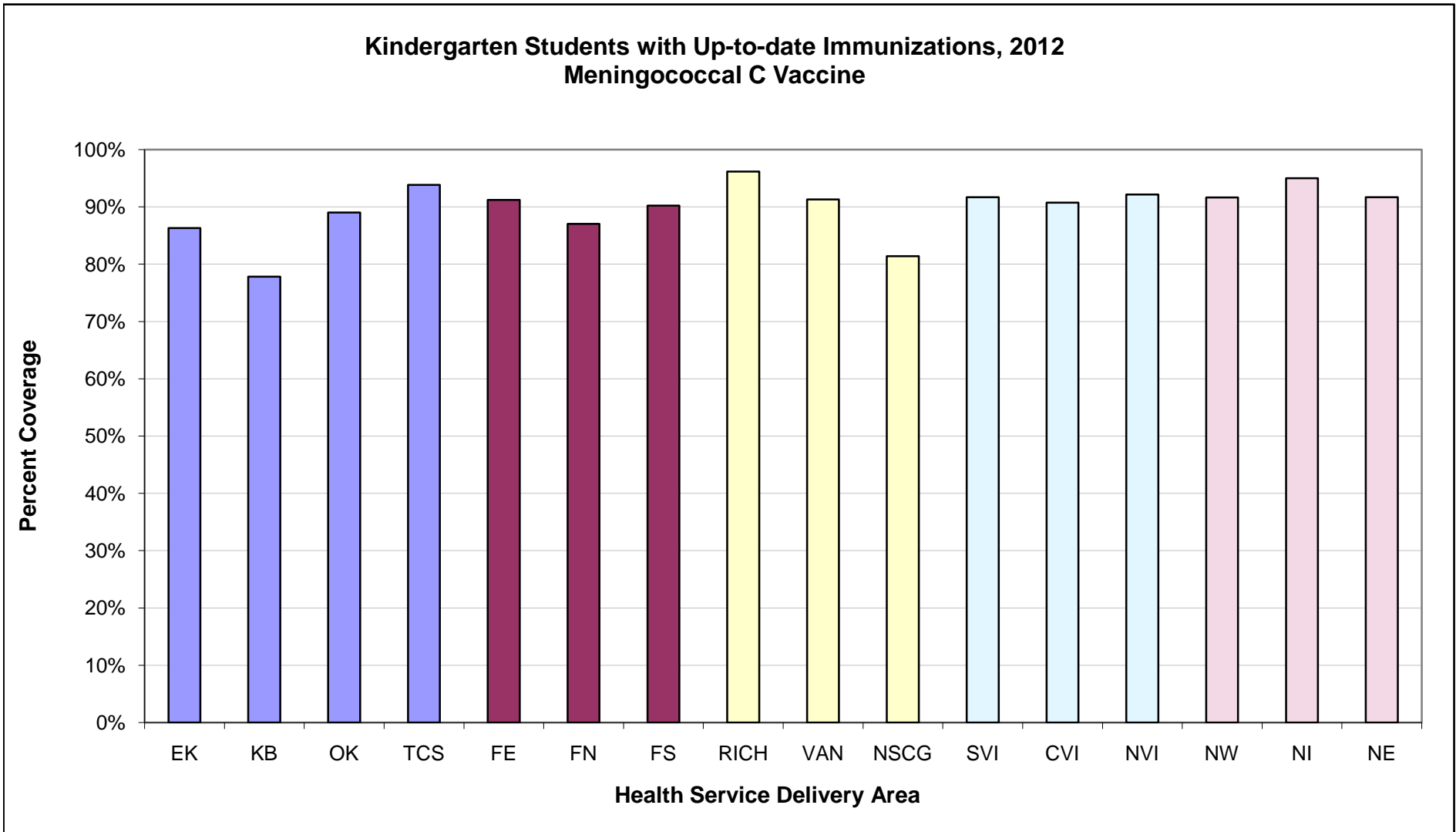
**Kindergarten Students with Up-to-date Immunizations, 2009-2012  
Meningococcal C Vaccine**



See data sources and notes on accompanying cover pages.

Ministry of Health and Health Authorities  
Immunization Coverage: Kindergarten

**Kindergarten Students with Up-to-date Immunizations: Meningococcal C**



See data sources and notes on accompanying cover pages.