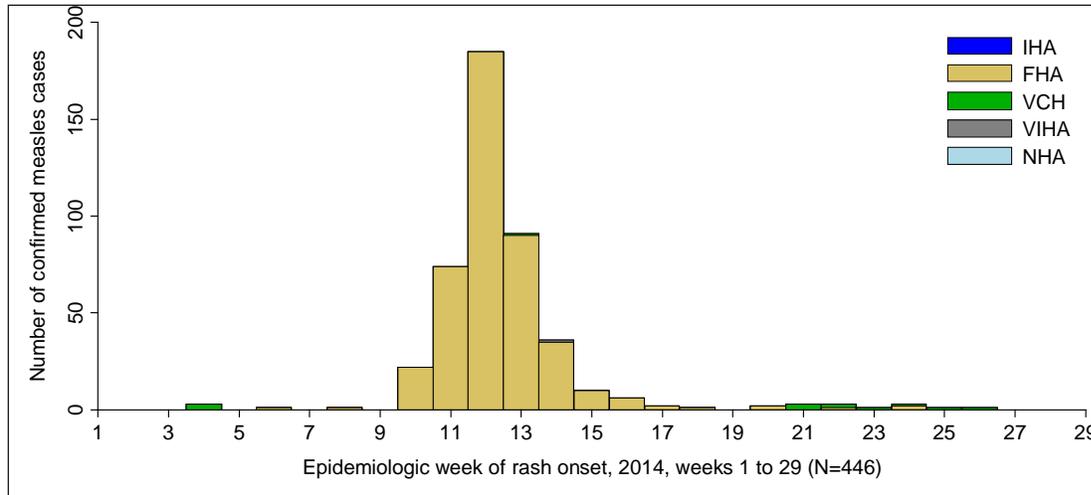


## Measles Epidemiological Summary British Columbia: January 1 to July 19, 2014; Epidemiologic weeks 1 to 29

In 2014, 446 confirmed measles cases were reported among residents of British Columbia from January 1 to July 19 (weeks 1 to 29, Figure 1). In the prior four years, 17 cases were reported in 2013, 2 in 2012, 10 in 2011, and 78 in 2010 with most in that year related to an outbreak associated with the winter Olympics. From 2003 through 2009, there were 0 to 4 cases reported annually.



**Figure 1:** Number of confirmed cases of measles by week of rash onset and health authority, British Columbia, 2014, epidemiologic weeks 1 to 29

### Fraser East outbreak (431 confirmed cases)

The vast majority of measles cases in 2014 have been associated with a large outbreak in the Fraser East Health Service Delivery Area. The outbreak was in a religious community that avoids medical attention and objects to immunization. Coverage among children was known to be low through routine coverage assessment at childhood milestones (age 2 and school age) conducted by Fraser Health.

The outbreak had 431 cases with the first onset in week 8, 98% having onset in weeks 10 through 16, and the last two reported cases in week 24. A minority of cases were laboratory confirmed: 29 by PCR and 4 by IgM serology. The remainder was cases with measles-compatible illness and an epidemiologic link to either one or more laboratory confirmed case, the two outbreak schools or to cases defined by these associations. Most cases (290, 67%) were school age (5 to 19 years), 10 cases (2%) were less than one year old, 70 cases (16%) were 1 to 4 years old, and 61 cases (14%) were 20 years or older. There were 219 (51%) male cases and 212 female cases. Most cases (372, 86%) were completely unvaccinated against measles, 3 cases had received one dose of MMR vaccine, 1 case had received two doses, and 55 cases (13%) had unknown immunization history. Four cases were hospitalized, one with encephalitis. None had a fatal outcome. The outbreak was almost exclusively contained to the Netherlands Reformed community with only 5 cases recognized among non-members. The true number of cases is likely higher due to under reporting; the index case in the outbreak had no history of travel but community members had returned from travel to the Netherlands in the period leading up to the outbreak.

Genotype was determined for 26 of the 29 PCR confirmed cases. All were D8 and 25 of 26 were at least 99.8% identical to the MVs/Taunton.GBR/27.12 sequence-variant. This is the same strain imported to Canada from the Netherlands multiple times during 2013 while a large outbreak occurred in that country, leading also to the importation that sparked an outbreak in southern Alberta in the fall of 2013 and a family cluster in Fraser East that did not result in further transmission. For one D8 case the similarity to the Netherlands strain is not known.

### **Other measles activity (15 confirmed cases)**

#### Vancouver Coastal:

In January through June, low level measles transmission has been apparent in this region, most likely associated with episodic importation from the Philippines.

In January, 3 laboratory confirmed cases with onset of rash in week 4 were reported. One case had travel history compatible with acquisition in the Philippines. The other cases had no recent travel or known exposure to measles, and no links between these cases were identified. All 3 cases were genotype B3 and identical to the MVi/Harare.ZWE/38.09 strain detected in cases imported from the Philippines.

One case was reported in March with rash onset in week 13 and travel history to Alberta during the exposure period. This case was genotype B3 MVi/Harare.ZWE/38.09, the strain detected in recent cases imported from the Philippines.

In May and June, 9 cases were reported among residents of VCH in weeks 21 to 26. Only two of these cases were known to be linked, with medical clinic attendance compatible with transmission from one to the other, and this was the only one of the 9 cases to have a known source of infection. All 9 of these cases were genotype B3 MVi/Harare.ZWE/38.09. One case had a history of travel to Washington State during their exposure period but genotyping was compatible with acquisition of infection in BC.

#### Fraser:

In February, there was one IgM confirmed case with rash onset in week 6 and travel history consistent with acquisition in the Philippines.

#### Vancouver Island:

In April, one case was reported in the Vancouver Island Health Authority area with rash onset in week 14. The case had travelled to the United States during the exposure period although measles had not been reported in locations visited during travel. This case was genotype D8 and identical to the MVs/Taunton.GBR/27.12 sequence-variant detected in the Fraser Health Authority outbreak.

Age distribution of these 15 cases unassociated with the FHE outbreak was as follows: 2 were infants, one was 1 to 4 years old, two were 5 to 9 years old, and ten were 20 years or older. Thirteen cases were male. Six (40%) cases were unvaccinated against measles, 4 (27%) cases reported undocumented vaccination against measles, and 5 (33%) cases had unknown immunization history. Five cases were hospitalized: two infants and three adults. There were no fatal outcomes.

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