

# MEASLES IN EUROPE AND FINLAND

Sairaalahygieniäpäivät  
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TERVEYDEN JA HYVINVOINNIN LAITOS

# MEASLES

## ONLY PREVENTABLE BY VACCINATION

- Symptoms 7-21 days from exposure
  - Fever, respiratory symptoms and conjunctivitis
  - Koplik spots for 1-2 days
  - Rash 3-5 days from first symptoms,
    - starting from behind the ears to face
- Infectivity
  - $\pm$  4 days
  - aerosolized droplet
  - Person to person



Photo: CDC PHIL Photo ID#1150  
And WHO



# COMPLICATIONS

- Can be serious for anybody, but especially for
  - Under 5 year olds, over 20 year olds
  - Persons with a condition or medication that affects immunity
- Common: fever convulsion, ear infection, pneumonia
- Rare: encephalitis, SSPE
  
- **Measles weakens overall immunity for up to two years**

# SITUATION IN THE WORLD

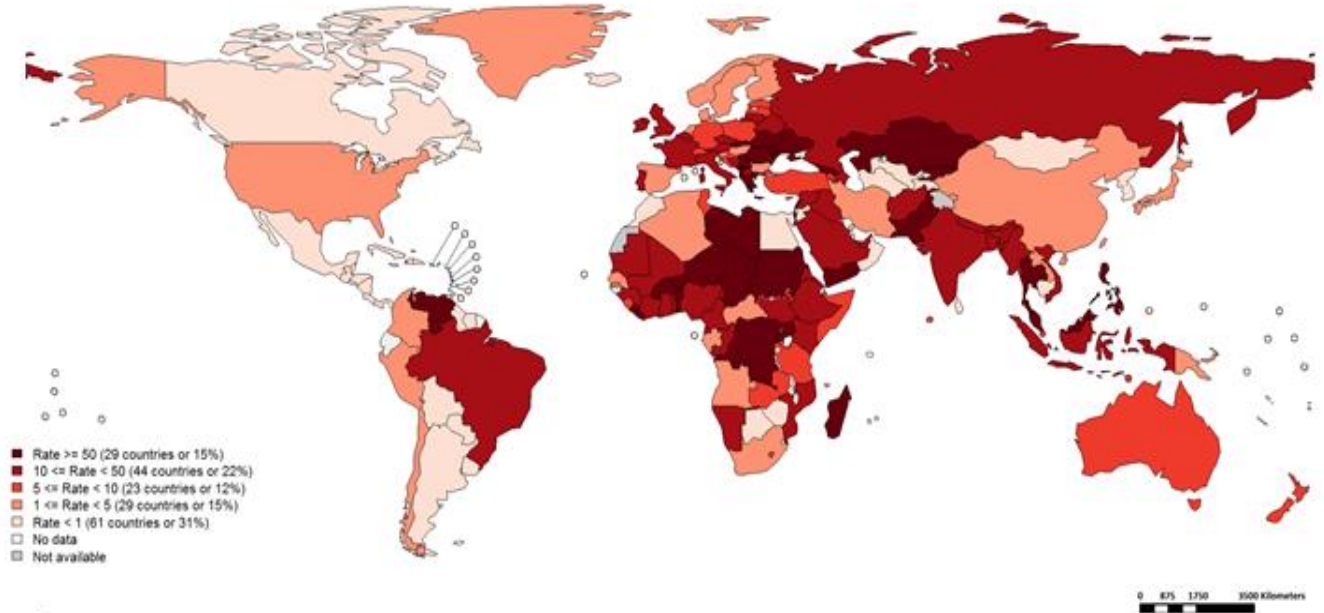


- 85% of children receive at least one dose of measles containing vaccine
- 85 % countries have a two dose programme
- 2017 over 110 000 deaths (2016 c. 90 000)
- WHO target for measles elimination: 2020
  - American continent declared elimination of measles in 2017 but...



# MEASLES INCIDENCE RATE/ MILLION (2/2018- 1/2019)

| Top 10**                                 |       |         |
|--|-------|---------|
| Country                                  | Cases | Rate    |
| Ukraine                                  | 63948 | 1439.02 |
| India                                    | 63364 | 47.85   |
| Madagascar                               | 59407 | 2386.35 |
| Pakistan                                 | 30747 | 159.14  |
| Philippines                              | 19401 | 187.78  |
| Yemen                                    | 11746 | 425.82  |
| Brazil                                   | 10262 | 49.42   |
| Nigeria                                  | 5847  | 31.44   |
| Venezuela<br>(Bolivarian<br>Republic of) | 5668  | 179.55  |
| Thailand                                 | 5579  | 81.02   |



Map production: World Health Organization, WHO, 2019. All rights reserved  
Data source: IVB Database

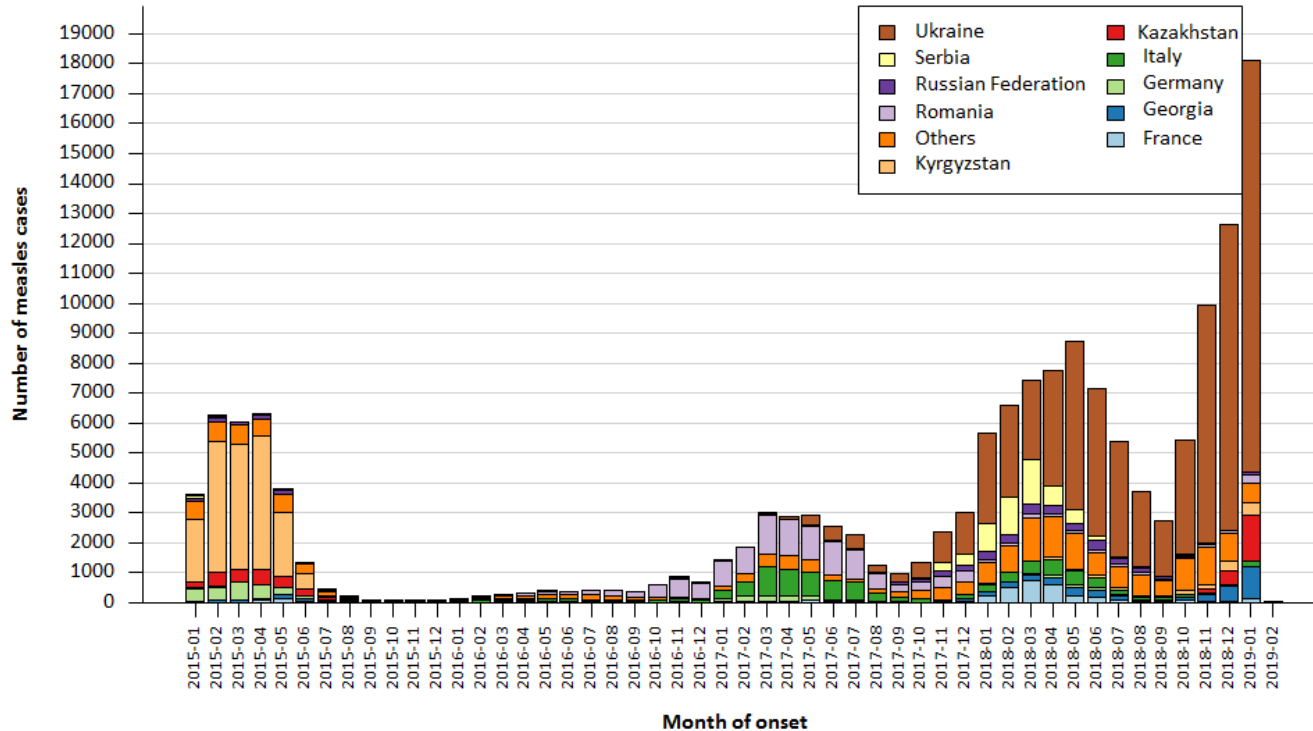
**Disclaimer:**

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.



# WHO EUROPE

## 2018 MORE THAN 82500 CASES, 72 DEATHS



Notes: Based on data received 2019-03 - Data Source: IVB Database

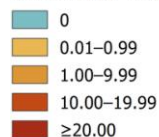


# EU/EEA

## 2018 MORE THAN 12 000 CASES, 35 DEATHS

| Country  | Cases (n) | n/ M  |
|----------|-----------|-------|
| France   | 2913      | 43.5  |
| Italy    | 2517      | 41.5  |
| Greece   | 2293      | 212.9 |
| Romania  | 1087      | 55.3  |
| UK       | 953       | 14.5  |
| Slovakia | 572       | 105.2 |
| Germany  | 542       | 6.6   |

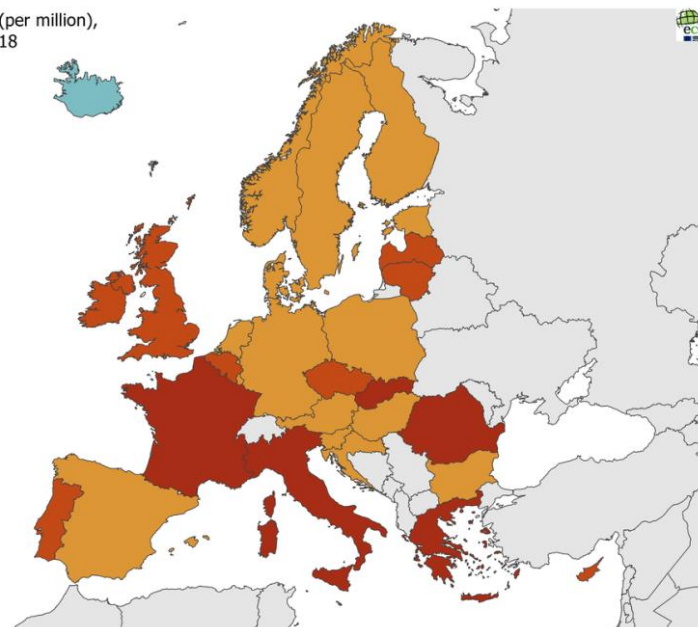
Notification rate of measles (per million),  
January 2018–December 2018



Not included

Luxembourg

Malta

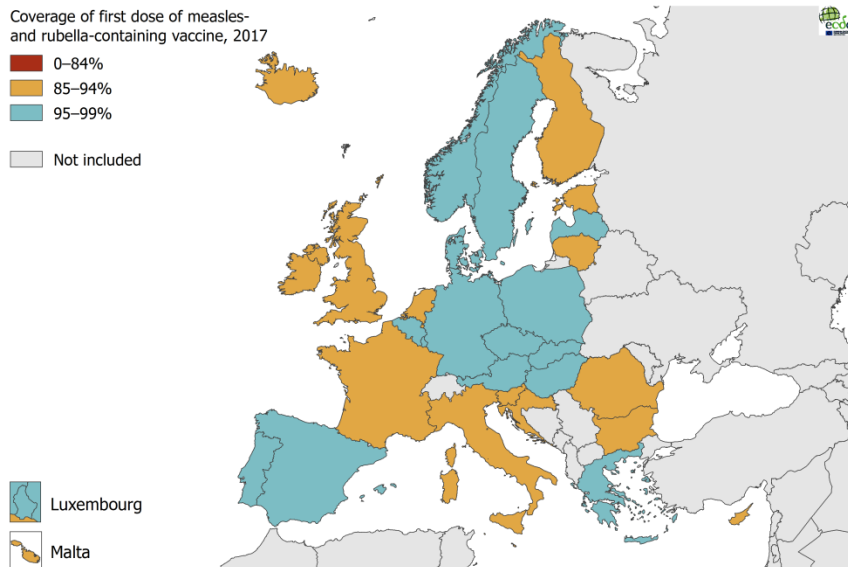
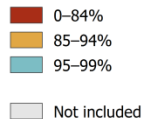


Produced 06 Feb 2019 using ECDC map maker: <https://emma.ecdc.europa.eu>



# MMR VACCINATION COVERAGE

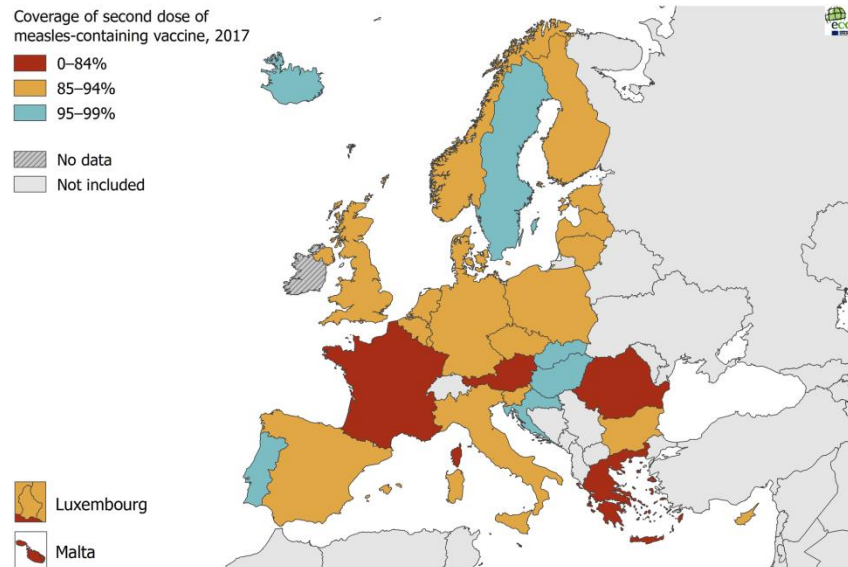
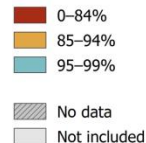
Coverage of first dose of measles-  
and rubella-containing vaccine, 2017



Source: WHO/UNICEF Estimates of National Immunization Coverage

Produced 06 Feb 2019 using ECDC map maker: <https://emma.ecdc.europa.eu>

Coverage of second dose of  
measles-containing vaccine, 2017



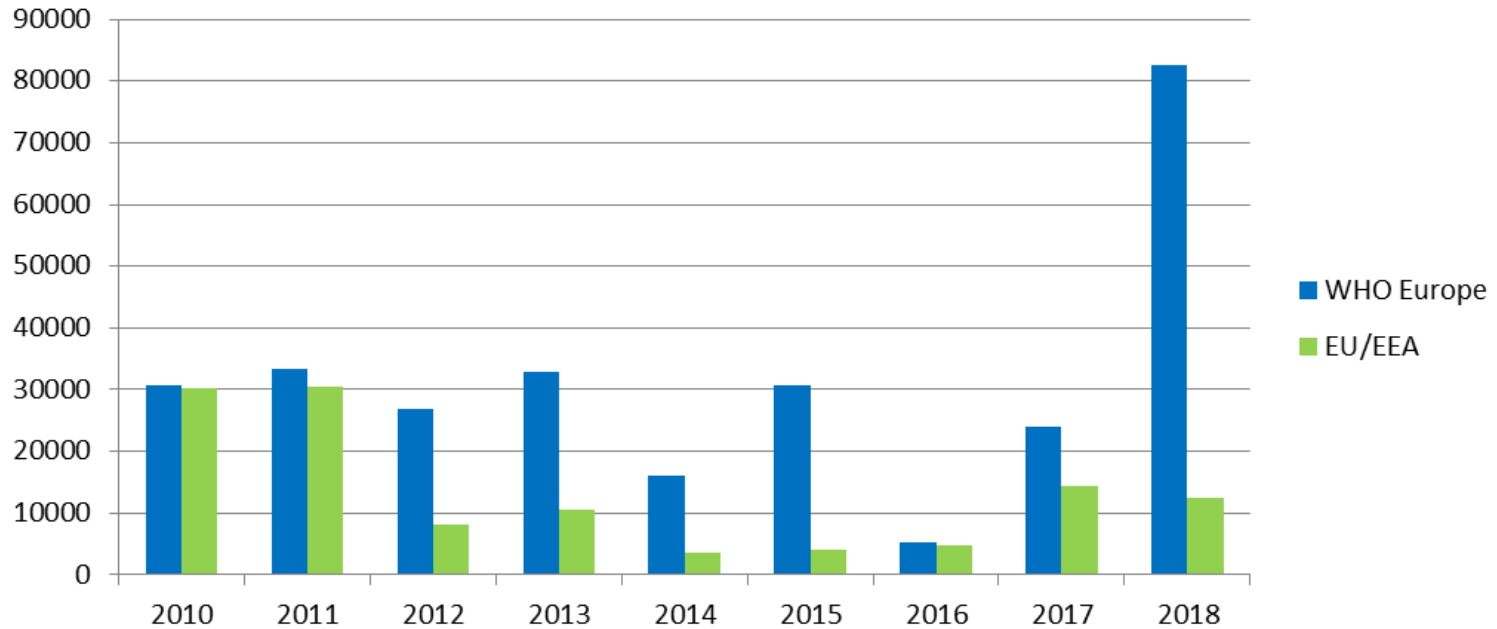
Source: WHO/UNICEF Estimates of National Immunization Coverage

Produced 06 Feb 2019 using ECDC map maker: <https://emma.ecdc.europa.eu>



# TREND OF MEASLES CASES IN EUROPE

## WHO VS. EU/EEA



# VACCINATION SCHEDULE IN FINLAND

- Measles vaccine 1975 for 1 year olds
- 1982 MMR: 14-18 months and 6 years
  - 1986- 2000 for army recruits
  - 2011: 12-18 months
- Health care personnel especially important

**Some born between 1965- 1975 might not have immunity,  
do you?**

# VACCINATION COVERAGE

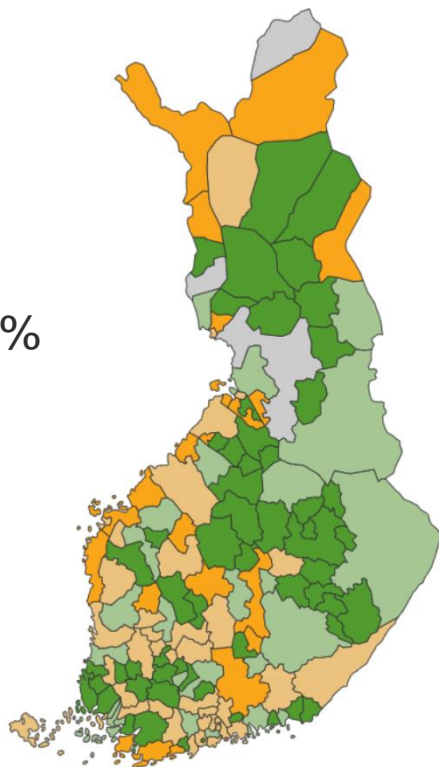
- Herd immunity in Finland is **good**
  - Local differences
  - Municipality visits
- Most born < 1970 have had measles
  - But 1965-1975?
- What is the situation among health care personnel?

| Year of birth | MMR1 % | MMR2 % |
|---------------|--------|--------|
| 2009          | 95,8   | 93,2   |
| 2010          | 96,5   | 93,3   |
| 2011          | 95,4   | 93,3   |
| 2012          | 95,3   |        |
| 2013          | 95,6   |        |
| 2014          | 94,9   |        |
| 2015          | 94,9   |        |
| 2016          | 96,2   |        |

# UNVACCINATED CHILDREN NOT VACCINATING IS RARE

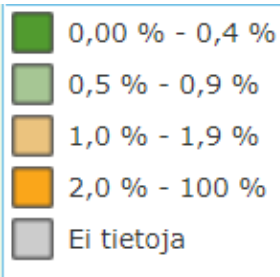
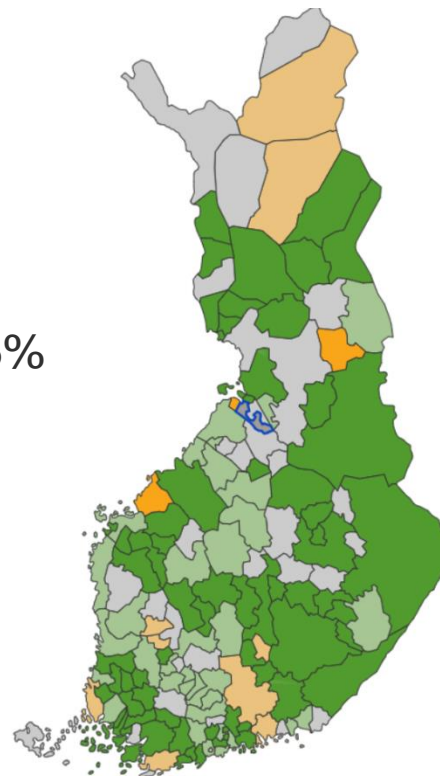
3 year

Max 8.3%



8 year

Max 2.5%



# MEASLES OR VACCINATION?



- Used for over 50 years
- Safety of the vaccine has been followed from the start of the programme
- Vaccine reactions 5-15%, 7-12 days from 1. vaccination
  - Respiratory symptoms and rash
- Serious complication extremely rare

|                   | measles | Vaccination | Risk ratio |
|-------------------|---------|-------------|------------|
| Death             | 10*     | 0           | $\infty$   |
| Encephalitis      | 40**    | 0.1         | 400        |
| SSPE              | 1       | 0           | $\infty$   |
| Fever convulsions | 500     | 30          | 17         |

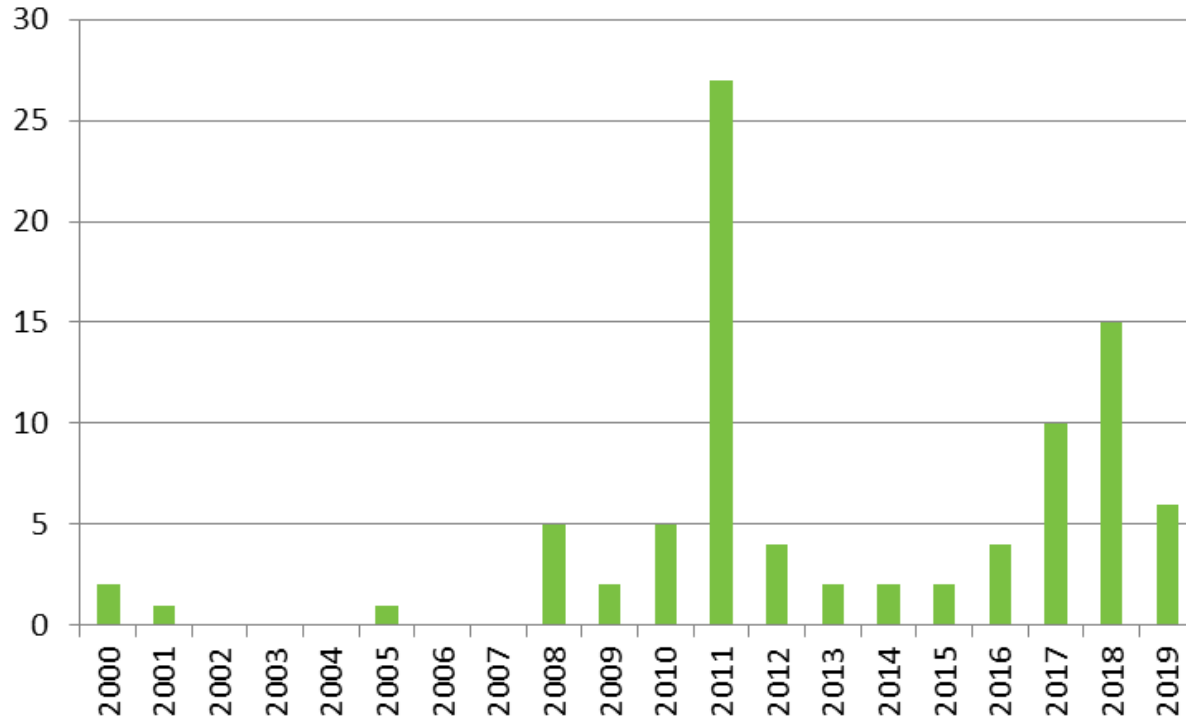
\*100 000/ measles cases or vaccinated individuals

\*\* Ciofi Degli Atti. Eurosurveillance Weekly 2003;7

# MEASLES SURVEILLANCE IN FINLAND

- Measles eliminated since 1995
  - Case based, all suspected cases investigated
- Instructions for surveillance on national level
  - measles a generally hazardous disease
- Two accredited diagnostic laboratories + NRL
- NRL reports to ECDC and WHO
- New Communicable Disease Act requires employers to take care of health care workers protection against measles
  - since only MMR used, also rubella and mumps

# MEASLES IN FINLAND IN THE 2000'S

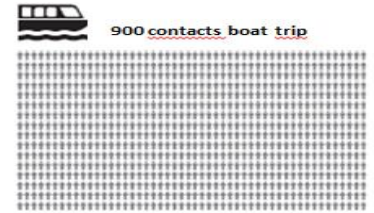




# CASES IN 2017

## Itä-Savo six cases

- Index case: Italian traveler
- Index had direct contact with three secondary cases
- One case with no known contact with other cases
- One thirtiary case due to family contact (2x MMR vaccinated)



# CASES IN 2017

## Tampere four cases

- All due to same exposure in Italy
- Strong and prolonged exposure since all 2X MMR vaccinated
- No secondary cases even if strong exposure

No extensive contact tracing since all were vaccinated

# CASES IN 2018

- 10/15 cases in the greater Helsinki area
- Importation from WHO Euro area:
  - 3/6 importations resulted in 10 cases
- Importations from Asia:
  - 3/6 importations resulted in 5 cases
- Vaccination status of cases
  - 8 unvaccinated
  - 2 1x MPR- vaccinated
  - 5 2x MPR- vaccinated

# CASES IN 2019

- All 6 cases in southern Finland
- 3 importations from EU/EEA
  - Two secondary infections
- One importation from Asia
- Vaccination status of cases
  - 4 unvaccinated
  - 1 2x MCV
  - 1 1-2 MCV

# I'M VACCINATED, WHY CAN I GET MEASLES? BUT WILL NOT BE INFECTIOUS?

- Vaccination does not prevent measles virus from entering the body
- **Strong or long lasting exposure** required
  - Restricted area: remains in air up to 2 hours
  - Close contact to infective person: family contact, **health care setting**
- Vaccine storage, transportation
  - Temperature problems, not a problem in Finland
- Condition or medication affecting immunity
- Individual immunological differences

# CONTACT WITH A MEASLES CASE IN HEALTH CARE SETTINGS

- Restrict possibilities of transmission
  - Waiting rooms etc.
  - Plan for receiving a suspected measles case
  - Plan for care of a measles case
- Personnel taking care of a measles case (suspected case)
  - Only those who have had measles or received 2x MMR
  - Use of FFP2 or FFP3 protection
  - If symptoms within 3 weeks, should get tested

# IS YOUR HOSPITAL PREPARED?

- Internal instructions
  - Communication essential

## THL

- New guidelines for measles coming this spring
  - Including contact tracing of 2x MMR vaccinated
- New immunity study coming in the fall
- Can we help?





# KIITOS!

Pia-Maria Sjöström, Pietarsaari

Marko Rahkonen, Kokkola

THL

Terveysturvallisuusosasto

Kansanterveyden arviointi ja  
ennakointi

**YOU CAN STOP MEASLES**



Protect yourself and many  
others by making sure  
you and your family are  
**fully vaccinated**



[www.thl.fi/infektiotaudit](http://www.thl.fi/infektiotaudit) ja [www.thl.fi/rokottaminen](http://www.thl.fi/rokottaminen)  
[www.thl.fi/infectionsjukdomar](http://www.thl.fi/infectionsjukdomar) och [www.thl.fi/vaccination](http://www.thl.fi/vaccination)