

Congenital rubella and rubella in pregnancy *News*



Congenital rubella and rubella in pregnancy surveillance report

The National Measles and Rubella Elimination Plan (PNEMoRc) 2010-2015 includes among its objectives the reduction of the incidence of congenital rubella to less than one case per 100,000 live births, according to the recommendations of the European Region of the World Health Organization (WHO-EURO).

In Italy a national surveillance system of congenital rubella and rubella infections in pregnancy is active since 2005 in order to monitor progress toward elimination.

This report shows national and regional surveillance data for the period **January 2005 - December 2016**. Reclassification of some cases due to updated information may be responsible for minor variation of data respect to the previous bulletins.

Highlights

- In the period 2005 - 2016, **85 congenital rubella infections** (probable and confirmed cases) were reported, with two peaks in 2008 and 2012.
- Moreover **170 rubella infections in pregnancy** (possible, probable and confirmed cases) were notified. Among them, **32 voluntary terminations, 1 stillbirth and 1 spontaneous abortion** were reported.
- In 2016 has been reported only one case of congenital rubella classified as confirmed and imported. No autochthonous case of congenital rubella has been reported since 2015. Three confirmed autochthonous infections of rubella in pregnancy have been reported in 2016.
- Congenital rubella incidence is **below 1 case per 100,000 live births since 2013**. It is, however, necessary to keep high the attention, taking into consideration that rubella infection has a cyclic-epidemic trend. It is necessary to reinforce the follow up of the **outcome of pregnancies** and of the **status of infection of the newborns** with suspected congenital rubella over time.

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Congenital rubella: national data

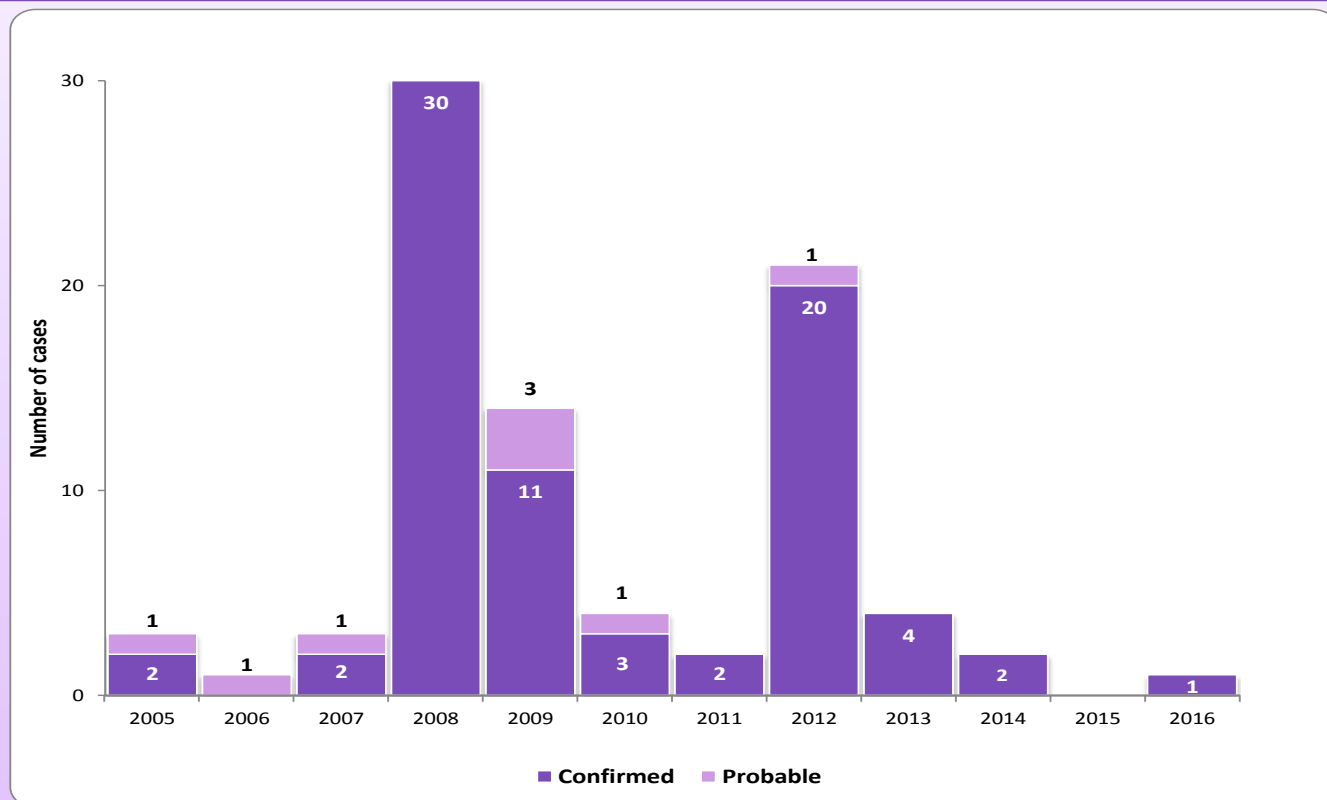
In the period **2005 – 2016**, **85** cases of congenital rubella were reported: **77 confirmed** and **8 probable** cases according to European Commission case definition.

Furthermore, we received **67** notifications of suspected cases that we could not classify because of lack of information or because these cases were not monitored over time.

Figure 1 shows the number of congenital infections (confirmed and probable cases) by year and classification. We can observe a peak of notifications in 2008 (30 cases, with an incidence of 5.2 per 100,000 live births) and one in 2012 (21 cases, with an incidence of 3.9 per 100,000 live births).

In the first months of 2017, no probable or confirmed case of congenital rubella was reported.

Figure 1. Congenital rubella infections by year and classification. Italy, 2005-2016



Clinical information

Information on clinical manifestations are available for **79** of the 85 probable/confirmed reported cases. At least one clinical manifestation was reported for **63** cases. The most frequently reported symptoms/signs were:

- Congenital heart disease (43 children)
- Loss of hearing (30 children)
- Cataract (13 children)
- Meningoencephalitis (11 children)
- Microcephaly (11 children)

Twenty-one cases had multiple defects involving the heart, hearing or vision.

Sixteen infants were asymptomatic: they are cases with laboratory confirmation and epidemiological link.

Rubella in pregnancy: national data

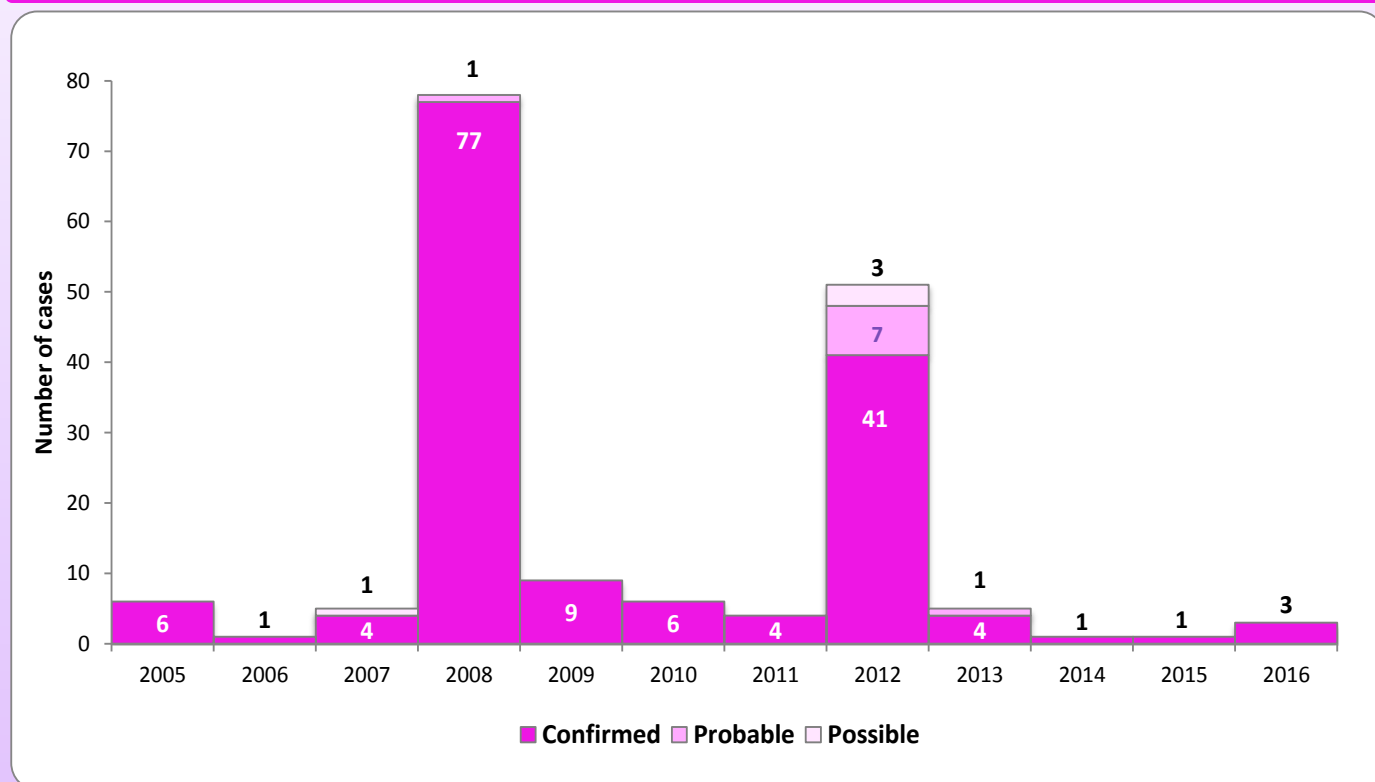
In the period **2005 – 2016**, **170** cases of rubella in pregnancy (**157 confirmed, 9 probable and 4 possible cases**) were reported.

In addition, we received **106** notifications of suspected cases that we were unable to classify with the available information.

In the same period, among the infected women, **one stillbirth, one spontaneous abortion and 32 voluntary terminations** were reported.

The Figure 2 reports the number of rubella infections in pregnancy (confirmed, probable and possible cases) by year and case classification. We can observe a peak of notifications in 2008 (78 cases) and one in 2012 (51 cases). This temporal trend is consistent with that reported for congenital rubella in the Figure 1.

Figure 2. Rubella in pregnancy by year and classification. Italy, 2005-2016



Characteristics of women with rubella infection in pregnancy

(confirmed, probable and possible cases)

- The median age is 27 years
- 15% (25/163) is not Italian
- 41% (46/112) acquired the infection in the first trimester of pregnancy
- Only 29% (38/130) performed the rubella antibody screening before pregnancy
- 45% (70/157) had previous pregnancies (Figure 3)
- Three women reported to be vaccinated (but the vaccination history is not documented)
- For 40 women (23%) it is unknown if the infection was transmitted to the newborn, because the outcome of the pregnancy is unknown or because information regarding the status of infection of the newborn was not available.

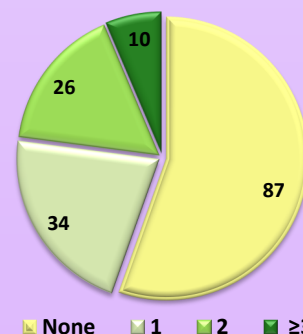


Figure 3. N. previous pregnancies in infected women

Congenital rubella and rubella in pregnancy: regional data

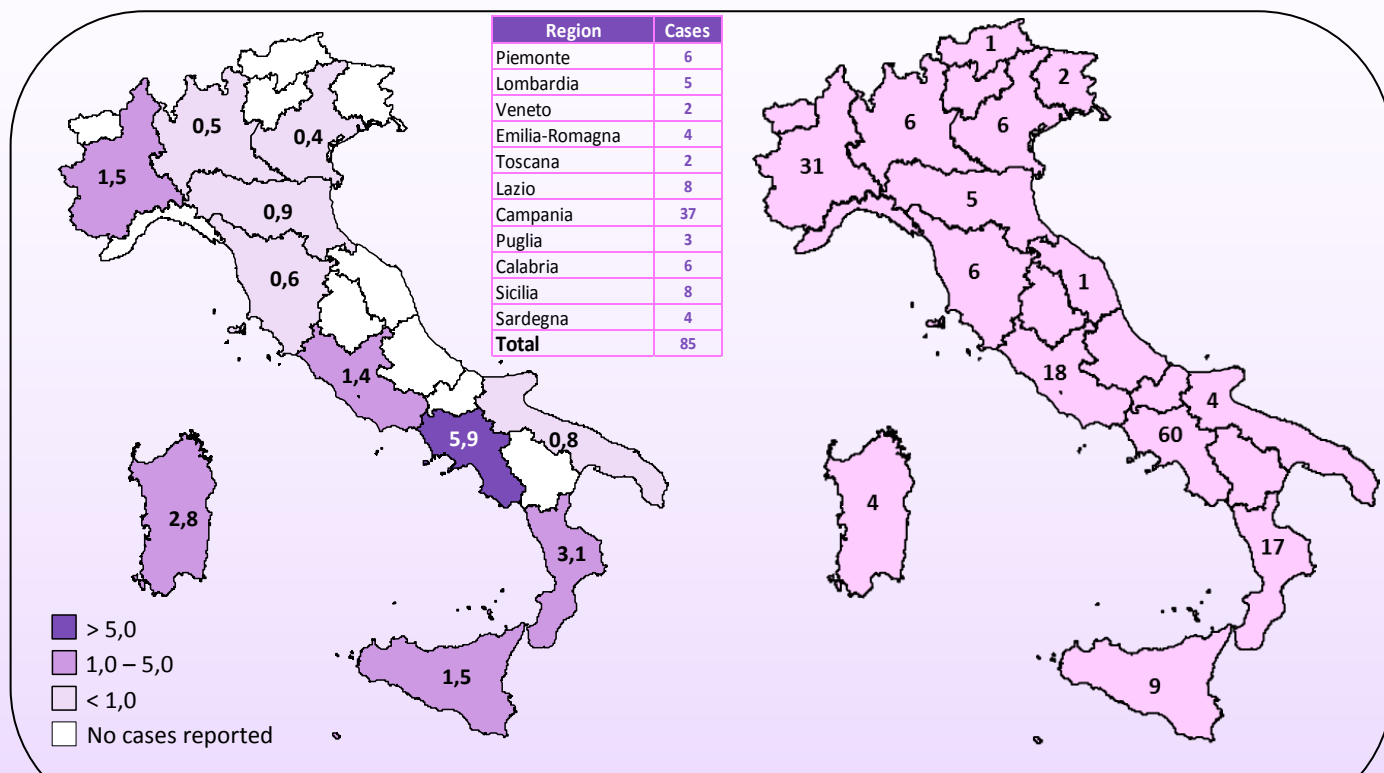


Figure 4. Annual mean incidence of congenital rubella per 100,000 live births by Region/A.P., 2005 - 2016

Figure 5. Rubella in pregnancy cases (confirmed, probable and possible cases) by Region/A.P., 2005 - 2016

Congenital rubella and rubella in pregnancy: Focus 2016

In **2016** three confirmed autochthonous rubella infections in pregnancy and one confirmed imported case of congenital rubella have been reported. Additionally three suspected cases of congenital rubella, not yet classified, were reported.

Specifically these are:

- two confirmed autochthonous cases of rubella in pregnancy in nulliparous unvaccinated women – an Italian and an Indian woman who contracted the infection in the second and third trimester of pregnancy, respectively;
 - ⇒ two suspected cases of congenital rubella, children of the women above: both, at birth, had rubella specific negative IgM and no showed signs / symptoms consistent with congenital rubella infection. The two children have shown a reduction in specific IgG levels for rubella and did not show symptoms in the months after birth. The conclusion of the monitoring to definitively to exclude infection is awaited;
- a confirmed indigenous case of rubella in pregnancy was in a Nigerian woman domiciled in a reception centre for migrants (the child will be monitored after birth);
- a confirmed imported case of congenital rubella syndrome, born from a Nigerian woman who became infected during the fourth week of gestation, before arriving in Italy and therefore she is not notified;
- a suspected case of congenital rubella, reported because of positive IgM to newborn screening. The asymptomatic child is daughter of a Nigerian woman who reports to have had clinical signs compatible with rubella during pregnancy; the mother's laboratory data are not sufficient to confirm the diagnosis of infection, therefore is not possible to confirm the epidemiological link and even the newborn was not classified. The woman has landed in Italy few days before childbirth and therefore she is not notified.



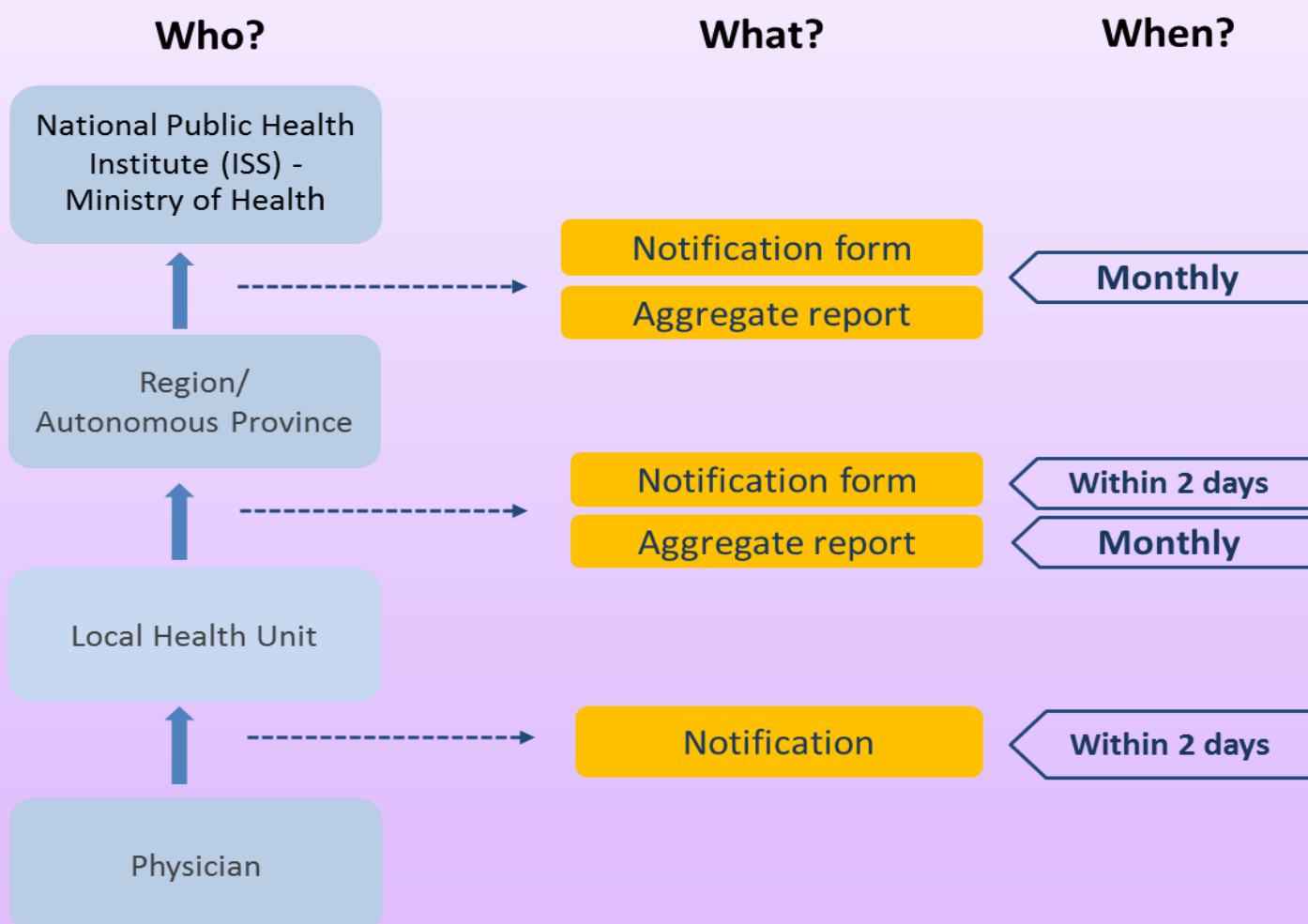
The surveillance system for congenital rubella and rubella in pregnancy

In Italy the notification of congenital rubella syndrome, congenital rubella infections and rubella infections in pregnancy is mandatory since the 1st of January 2005.

The national surveillance system for congenital rubella and rubella in pregnancy is mandatory, passive, case-based and based on clinicians.

Two separate notification forms are used for congenital rubella and rubella infections in pregnancy; the notification form for congenital rubella also includes a section regarding the mother's history.

Data flow is described below.





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To improve the surveillance...

- Improving the sensitivity and specificity of the surveillance system is important to monitor progresses towards elimination.
- An annual/biannual crosscheck between notifications and hospital records with 771.0 discharge code should allow to detect congenital rubella cases not reported to the surveillance system.
- Clinicians' awareness on the importance of reporting all cases to the surveillance system should be arisen.
- Strengthening the surveillance of pregnant women with suspected rubella infection is fundamental because it is an entry point for congenital rubella cases. Early diagnosis of congenital rubella cases also allows quick interventions for any associated defect and prevention of rubella spread from infected infants.
- Monitoring of infected pregnant women is also important to record all the outcomes of the pregnancy, including stillbirth, spontaneous and voluntary terminations, that contribute to assess the burden of congenital rubella.
- It is important that all the babies born from mothers with possible, probable and confirmed infection in pregnancy are followed up over time with laboratory, clinical and diagnostic investigations, in order to confirm or exclude the congenital infection and correctly classify the cases as infection or syndrome. It is necessary to improve the timeliness of the collection of clinical information and laboratory results and their completeness, in order to reduce the amount of cases that cannot be classified.
- A monthly report of congenital infections and infections in pregnancy, including zero-reporting, is needed to improve the sensitivity and the timeliness of the surveillance system.

Useful links...

- 2012 European Commission case definitions for rubella and congenital rubella: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:262:0001:0057:EN:PDF>
- Italian Ministry of Health. National Plan for the elimination of measles and congenital rubella 2010-2015. http://www.salute.gov.it/imgs/C_17_pubblicazioni_1519_allegato.pdf (in Italian)
- Italian Ministry of Health. "Surveillance of congenital rubella and rubella infection in pregnancy according to the new National Plan for measles and congenital rubella elimination 2010-2015" del 17 Luglio 2013: <http://www.trovanorme.salute.gov.it/norme/renderNormsanPdf?anno=0&codLeg=46583&parte=1%20&serie=> (in Italian)
- Morbillo & Rosolia News: the monthly bulletin of the integrated measles and rubella surveillance: <http://www.epicentro.iss.it/problemi/morbillo/bollettino.asp> (in Italian)
- Scientific publication: "Congenital rubella still a public health problem in Italy: analysis of national surveillance data from 2005 to 2013" Euro Surveill. 2015;20(16):pii=21103: <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21103>
- Scientific publication: "Surveillance of congenital rubella and rubella infections in pregnancy in EU/EEA countries, 2012: Current status and future perspective to monitor elimination." Vaccine 2015; 33(38): 4929–4937

This report was produced by: Cristina Giambi, Martina Del Manso, Antonino Bella, Antonietta Filia, Maria Cristina Rota, Gloria Nacca e Silvia Declich and thanks to the precious contribution of the Ministry of Health, Regions and Autonomous Provinces, Local Health Units and diagnosis laboratories.

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