

DEPARTMENT OF HEALTH SERVICES

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**MANAGEMENT OF RUBELLA OUTBREAKS IN JAILS, PRISONS,
JUVENILE DETENTION FACILITIES,
CHRONIC AND ACUTE CARE HOSPITALS**

**Immunization Branch
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Rubella outbreaks continue to occur in California in acute care hospitals, chronic care hospitals, jails, prisons, and other institutions, and can be difficult to manage. Presented here are some relevant points of information about rubella vaccine, followed by a listing of measures which may be employed to manage rubella outbreaks in these institutions.

Points of Information

- A. The great majority of persons born before 1957 are immune to rubella. Thus, they can be considered to be of minor epidemiological significance in rubella outbreaks. (However, persons born before 1957 can safely be immunized against rubella if there is a question about their immunity).
- B. Definition of susceptibility: A clinical history of rubella is unreliable. The only acceptable proof of immunity in persons born after 1956 should be a documented history of rubella immunization (one or more doses of rubella-containing vaccine received on or after the first birthday) or of rubella seropositivity. In fact, about 80-85 percent of young adults are immune to rubella, but they should be regarded as susceptible unless they can document immunization or seropositivity.
- C. Rubella vaccine given before exposure protects against rubella; Immunization after exposure has not been shown to protect against the present exposure but could protect against future exposures.
- D. Administration of immunoglobulin (IG; dosage is massive: 0.55 ml/kg) before or shortly after exposure may modify rubella illness but does not consistently prevent infection. Infants with Congenital Rubella Syndrome have been born to women given IG shortly after exposure to rubella during pregnancy. Thus, for an exposed pregnant women, IG might be considered only if she will not opt for termination of her pregnancy under any circumstances.
- E. Serologic Testing:
 1. Screening persons for rubella seropositivity (presence of rubella IgG antibody) – A number of serologic tests, employing different methods, are used. Be sure that there is a

clear understanding of what results indicate seropositivity (presence of antibody) and what results indicate seronegativity (absence of antibody).

2. Diagnosis of current infection – For the serodiagnosis of a current rubella infection, acute serum obtained less than 7 days after rash onset and convalescent serum drawn 14 days later should be analyzed at the same time in the same laboratory for a significant rise in rubella IgG antibody. Also, a single serum specimen obtained at least 2 days after rash onset can be analyzed for rubella IgM antibody. Presence of rubella IgM antibody usually confirms the diagnosis of acute rubella infection (or recent rubella immunization), but a negative IgM antibody test result does not absolutely rule out infection, so that analysis of paired acute and convalescent sera for IgG antibody may still be necessary. Consultation on serotesting interpretation is available through local health departments and the Immunization Branch (510/540-2065).

Caution:

If a known or presumed susceptible woman in the first 5 months of pregnancy is suspected of having been recently exposed to or experiences a current rubella-like illness, paired serum specimens obtained 2 weeks apart (3-4 weeks apart if no rash illness is noted) should be obtained and analyzed for a significant rubella IgG antibody concentration rise and for rubella IgM antibody as well. Note: Simply testing a single serum specimen for rubella IgM may not be enough, because a negative result does not absolutely rule rubella out.

- F. Susceptible persons, especially post-pubertal females, given rubella vaccine may experience temporary arthralgia, and sometimes temporary joint redness and swelling as well, beginning 1-3 weeks after immunization and lasting for a few days or a few weeks. Infrequently, chronic or recurrent joint symptoms have been reported to continue for months or even several years after immunization, gradually decreasing in frequency and intensity over time. Persons who are already immune to rubella are not at risk for joint symptoms following immunization.
- G. Accumulating evidence for three decades indicates that rubella vaccine is not harmful to the fetus, but to avoid the theoretical risk, women of child-bearing age should be immunized only if they state that they are not pregnant and that they understand that they should avoid pregnancy for three months after immunization. While the final decision is up to the pregnant woman and her physician, inadvertent rubella immunization during pregnancy is not an indication for recommending therapeutic abortion.
- H. Persons receiving rubella vaccine do not spread the vaccine virus to others. Thus, individuals in household or other close contact with pregnant women or immunocompromised persons can be immunized without risk of transmission to them.
- I. Because the risk of vaccine-induced arthralgia and the theoretical teratogenic risk of vaccine in pregnancy are limited to susceptible persons, if staff have not already been serotested there is no need to incur the delay and difficulty involved in emergency serologic testing. Rather, persons without a documented history of prior immunization or seropositivity can be

immunized directly, including non-pregnant post-pubertal females. Serotesting of large numbers of persons solely to avoid immunization of seropositive individuals is both unnecessary and costly.

- J. Single antigen rubella vaccine, combined measles-rubella (MR) vaccine, or combined measles-mumps-rubella (MMR) vaccine can be used to immunize persons against rubella. MMR is preferred so as to ensure present and future protection against all 3 diseases. There is no known harm in repeat doses of any of these three vaccine components to persons who are already immune by virtue of prior immunization or infection.

Investigation of Outbreaks

- A. Visit facility: Assure managers, supervisors, sheriff, etc., that the health department does not want to close the facility down or excessively impinge on its functions, but rubella in pregnancy is a serious matter. Risk exists for exposed pregnant patients, detainees, staff, and visitors. The managers risk lawsuits if they do not do anything and a baby is born with Congenital Rubella defects. Explain what needs to be done. Assess their main concerns about the control program and see if there are ways to alleviate these concerns.
- B. Investigation: Determine diagnosis, Extent of Outbreak and Zone of Risk
1. Establish suspected case definition; e.g., acute maculopapular rash on face and/or trunk. Get names and rash onset dates of suspected cases in past 2 months. If information is available, also assess for fever, posterior cervical adenopathy, and arthralgia. Get good clinical history of cases to presumptively rule out other diagnoses.
 2. Where possible, obtain acute serum ≥ 2 days after rash onset for rubella IgM antibody test and/or obtain acute serum less than seven days after rash onset and convalescent serum obtained 14 days after acute specimen for rubella IgG antibody.
 3. Determine range of presumptive cases' rash onset dates and "epidemic" curve so far. Determine zone of risk: Areas where staff and/or clients had face-to-face or room contact with cases within 7 days before and after rash onset, possibly plus areas where the next generation of cases may expose others.
 4. Determine size of staff in facility and degree of contact between staff, patients, or detainees in/on different floors, buildings, or sites of the facility.

Control Measures which may be applied in the Outbreak Zone of Risk or for the Entire Institution (depending on the individual situation)

A. Clients/Detainees/Patients

1. Persons ill with rubella or suspected rubella – isolation in single rooms or in rooms with similarly affected individuals for 7 days after rash onset. Whenever possible, only staff members known to be immune to rubella should attend these persons.

2. Exposed (face-to-face or room contact with a case from 7 days before to 7 days after rash onset) patients who are not known to be immune – Similar isolation for 23 days after exposure if practical. Can also immediately immunize to protect against future exposures to rubella, in the event the present exposure does not result in infection.
3. Other persons
 - a. Deferred “elective” admission of women in the first 5 months of pregnancy if not known to be immune to rubella; prompt discharge of such women already in the institution if possible.
 - b. Recently discharged persons born after 1956 who have been exposed to rubella (face-to-face or room contact with a case from 7 days before to 7 days after rash onset) and whose immunity status is unknown can be advised to avoid contact for the next three weeks with women in the first 5 months of pregnancy.
 - c. Prompt immunization of persons born after 1956 without a documented history of prior immunization or seropositivity, with the pregnancy precautions described earlier; this is more appropriate in chronic care hospitals and prisons/jails than in acute care hospitals.
 - i. Valid contraindications to immunization: acute febrile illness; anaphylactic allergy to vaccine constituent; immunocompromised (persons with HIV infection which is not yet symptomatic can be immunized); documented prior rubella immunization or seropositivity; pregnancy.
 - ii. Vaccine Information Statements (VIS): These must be given to all mentally competent persons age 18 years and older, including incarcerated adults, before immunization. For minors in juvenile detention facilities, the parent/guardian must be given the VIS to read beforehand, unless (a) the facility medical staff has authorization from the parent/guardian to make routine medical care decisions for the minor, or (b) the facility has a court order doing the same thing.
 - iii. Voluntary immunization programs for prisoners usually have poor compliance. To improve compliance, refusers (without any of the valid contraindications listed earlier) can be told that, for the protection of others, they will have to be “frozen in place” until at least 3 weeks after the last rubella case in the facility. This means no going to court hearings, no transfer to “honor farms” to or other detention facilities, no visitors, etc. To reduce the numbers of prisoners “frozen in place”, refusers could be seroscreened for rubella IgG antibody, with only seronegatives being “frozen”.
 - iv. New admittees to detention facility: These persons, too, should be immunized for the duration of the outbreak, continuing for at least one and preferably two

incubation periods after the last case. Jails tend to have large numbers of detainees “booked” but then released within 24 hours. Immunization can be limited to those still in the facility more than 24 hours after entry.

- B. Visitors – It may be appropriate to post warnings about the outbreak at visitor entrances, advising pregnant women, especially those in the first 5 months of pregnancy, or persons in households with such women, not to visit unless certain that they are immune to rubella. This measure is less practical for acute care hospitals.
- C. Staff with patient (client) contact – Physicians, nurses, aides, technicians, paramedical personnel, clerks, students, volunteers, deputies, guards, transportation staff and paralegals at jails/prisons, etc.
 - 1. Staff ill with rubella or suspected rubella – Stay home from work for 7 days after rash onset.
 - 2. Exposed (face-to-face or room contact with a case from 7 days before to 7 days after rash onset) susceptible staff – Ideally, they should stay home from work for 23 days after exposure. Often exposure is difficult to define, and dismissal from work of many staff members is impractical. Less desirably, as these persons start work each day, a nurse can ask them about rash, swelling of lymph nodes on the back of the neck or behind the ears, fever, malaise, headache, coryza or conjunctivitis: also palpate for post-auricular and posterior cervical pea-sized nodes.
 - 3. Staff members who are in the first 5 months of pregnancy – Stay home from work till three weeks after rash on last case fades (unless they are known to be seropositive to rubella). Staff in household contact with pregnant women should be promptly immunized, unless they are already known to be immune to rubella. There is no risk of a vaccine recipient spreading rubella vaccine virus to household contacts, including to pregnant women.
 - 4. Contact with pregnant women and immunocompromised persons – Only staff persons known to be immune (i.e., with documented history of immunization or of seropositivity) should have direct contact with pregnant and immunocompromised persons.
 - 5. Other staff members – Prompt immunization of those born after 1956 who lack a documented history of prior immunization or seropositivity, with the pregnancy precautions mentioned earlier. Compliance with voluntary immunization programs can also be poor among jail/person deputies and guards. One local health department solved this problem by obtaining a legal opinion from the county counsel that if the health officer orders the sheriff or jail chief administrator to mandate staff immunization, non-compliance by the sheriff or administrator is a misdemeanor under California law and will subject the facility to liability risk if a serious rubella disease complication ensues.
- D. Exposed women who are in the first 5 months of pregnancy (patients, staff or visitors) – Unless known to be seropositive, these women should have an acute serum specimen

obtained immediately and a convalescent specimen obtained 3-4 weeks later (even if no rubella-like illness occurs) to be analyzed for rubella IgG antibody concentration rise. Also, serum obtained at least 2 days after rash onset can be analyzed for rubella IgM antibody.

Many of the measures listed above can be applied to rubella outbreaks in jails, prisons, or other institutions, in addition to hospitals. Management of hospital, jail, and other institutional rubella outbreaks has often proved difficult, which is one of the major reasons for the recommendation for routine pre-employment rubella immunization of medical and paramedical personnel. It is also recommended that the rubella immunity status of all pregnant women present be routinely determined and recorded. Consultation on rubella outbreak control is available from local health departments and the Immunization Branch (510/540-2065).