1 **Background**

1.1 Parvovirus B19 is the cause of erythema infectiosum (Fifth disease, also called “Slapped Cheek” syndrome). It is a mild self-limiting illness presenting as a non-specific flu-like illness preceded by a rash, which starts on the face and spreads to the trunk and limbs. The rash is indistinguishable from that of rubella.

1.2 Parvovirus is common in developed countries, 15% of pre-school children. 50% of adults and 85% of elderly people will have serological evidence of past infection.

1.3 **Transmission:**
1.3.1 Is primarily by close contact with respiratory secretions and possibly by fomites (transmission by blood products can very occasionally occur).

1.4 **Incubation period**

1.4.1 4-14 days but may be as long as 21 days.

1.5 **Infectious period**

1.5.1 7 days before the onset of the rash.

1.5.2 In asymptomatic cases the infectious period lasts 1 week and is likely to be over by 15-21 days from the date of exposure.

1.6 **Diagnosis/ Signs and symptoms**

1.6.1 **Adults**

- Suspect parvovirus if: clinical symptoms are present and or there has been contact with a known or suspected case or an outbreak
  - Signs and symptoms are less typical in adults; 20-50% are asymptomatic
  - Mild fever
  - Malaise
  - Myalgia
  - Headache
  - Maculopapular rash (usually resolves within 1 week)
  - Arthropyathy (may last 1-3 weeks, possibly much longer even lasting years)

1.6.2 **Children**

- Mild fever
- Malaise
- Headache
- Coryza (nasal discharge)
- Mild gastrointestinal symptoms (diarrhoea and vomiting)
- Symptoms occur 2-5 days before the onset of a classic fiery red facial rash often referred to as “slapped cheek” appearing in either one or both cheeks, this often accompanies paleness around the mouth area.
• Appearance of a second stage rash on the body which typically resolves within days.

**Note:** Appearance of the rash usually indicates that the period of infectivity is over

1.7 **Contact /exposure**

• Contact in the same room (e.g. hospital ward bay) for a period of 15 minutes or more, or face to face contact with a laboratory-confirmed case of Parvovirus B19 infection.

2 **At risk groups**

2.1 **Women up to and including 20 weeks of pregnancy** – those who have had recent exposure to a suspected or confirmed case of parvovirus B19 should be referred to maternity services for advice and serological testing see appendix 1, flow chart for the management of clinical risk groups

2.2 **Patients with blood disorders** – these include transient aplastic anaemia, sickle cell anaemia, thalassaemia, kidney or bone marrow transplantation, red cell enzymopathies, virus associated haemophagocytic syndrome. Parvovirus B19 infection can give rise to transient aplastic crisis in this group.

2.3 **Immunocompromised patients** - This group includes patients who are post bone marrow and organ transplantation, on high dose chemotherapy, with haematological malignancies and immunodeficiency including HIV infection.

3 **Treatment / Infection Control**

3.1 For most people coming into contact with Parvovirus B19 is not problematic as it is mild and self-limiting. Once infected a person will develop lifelong immunity to the infection.

3.2 It is also worth noting that patients and staff who are in clinical risk groups are at higher risk of infection when in the community, particularly if in regular contact with children

3.3 No treatment is usually required for parvovirus B19 infection by the time of diagnosis. Treatment if required is usually based upon relief of symptoms with simple analgesia.

3.4 Infection control measures will vary depending on the particular scenario but thorough handwashing and isolation of infectious patients, where appropriate should be applied refer to IPC-PGN-02.1 Standard Precautions, IPC-PGN-08 Isolation of Infected Patients in Hospital. Advice should be sought from the Infection Prevention and Control team where infection with Parvovirus B19 is suspected.

4 **Preventative Measures**

4.1 Staff who are symptomatic with “flu like” symptoms or any undiagnosed rash should not work with patients in clinical risk groups when they have “flu like” symptoms, a fever, or any undiagnosed rash this is recommended practice for any staff member with an undiagnosed rash.
4.2 Health care workers in clinical risk groups should avoid contact with patients who are infected or suspected of having Parvovirus B19 infection. The IPC Matron in conjunction with Occupational Health will advise the health care worker when this measure is no longer required.

4.3 Where possible, healthcare workers who are in clinical risk groups should avoid contact with infected patients. Otherwise respiratory precautions need to be taken, together with hand-washing, in order to protect the healthcare worker.

5 Hospital outbreaks

5.1 Defined as 2 or more cases in the same ward/unit within 3 weeks.

5.2 The priority in managing a hospital outbreak is to prevent infection of at-risk groups see section 2. While each situation must be assessed and managed individually, the following points should be addressed:

5.3 In the case of an outbreak, this PGN should be read in conjunction with IPC-PGN-06 Outbreak Management Including Management of Major Incidents Relating to Infectious Agents

5.4 Consider excluding pregnant women up to and including 21 weeks of gestation (staff, patients, visitors) from affected wards until they are known to be immune. Immune status can be determined by testing for IgG. If pregnant staff members of unknown immune status do work on affected wards, having had the potential risks explained to them, they should pay attention to hand washing and take respiratory precautions when coming into contact with potentially infectious cases.

5.5 Susceptible, exposed pregnant women should be referred to ante natal services and in the case of a health care worker, Team Prevent, Occupational Health provider.

5.6 Where members of staff have been significantly exposed to the virus consider restricting them from areas of the hospital where pregnant women (≤21 weeks), high risk immunocompromised patients or patients with blood disorders are present, until they are identified as immune. Alternatively the HCW could take respiratory precautions with at risk patients.

5.7 PPE should be used when there is a possibility of coming into contact with body fluids refer to IPC-PGN-02.1 Standard Precautions

5.8 Ideally, infectious patients should be cared for by staff known to be immune. If this is not possible then non-immune staff (who are not in a risk group) may care for patients.

5.9 Occasionally it may be deemed necessary to consider closing parts of a ward or if possible to delay the admission of high risk patients until the outbreak is over. However it is paramount that the clinical care for all patients involved should not be compromised. Thus measures to control an outbreak should be formulated on an individual outbreak basis.
5.10 The time to the end of an outbreak is difficult to define (given asymptomatic cases) but will be generally 14 days after the last clinical case. Consider excluding pregnant staff/visitors during this restricted closure period unless known to be immune. The IPC Matron in discussion with the clinical team will inform the ward when to reopen to admissions and declare the outbreak over.

6 Flowchart

**Confirmed Infected Health Care Worker**

Has the HCW had contact with:
- Pregnant women ≤ 21 weeks
- Immunocompromised
- Patients with blood disorders

NO further action required

**Pregnant women**
Refer to maternity services as soon as possible to exposure.
Refer staff to occupational health

**Blood Disorders**
Consult with haematology dept
Serology for IgG and IgM

**Immunocompromised**
Consult with haematology /immunology
PCR testing as advised
Notes for Summary Flow Chart

7.1 Did a significant exposure occur?

7.2 If the patient is pregnant, refer to antenatal services. Members of staff should be referred to Team Prevent, occupational health provider who will support and advise any further action required.

7.3 Monitor infected patients who are in clinical risk groups (IgM pos/IgG seroconversion/DNA positive) for aplastic crisis. Discussion with the haematology department should be undertaken as soon as possible.

7.4 Consider discharging patient with known infectivity from hospital if possible or transferring to a ward containing low risk patients.

7.5 Consider isolation for exposed patients until results are available and then reassess.

7.6 Infected patients with a haemoglobinopathy who have aplastic crisis should be isolated.

8 References
