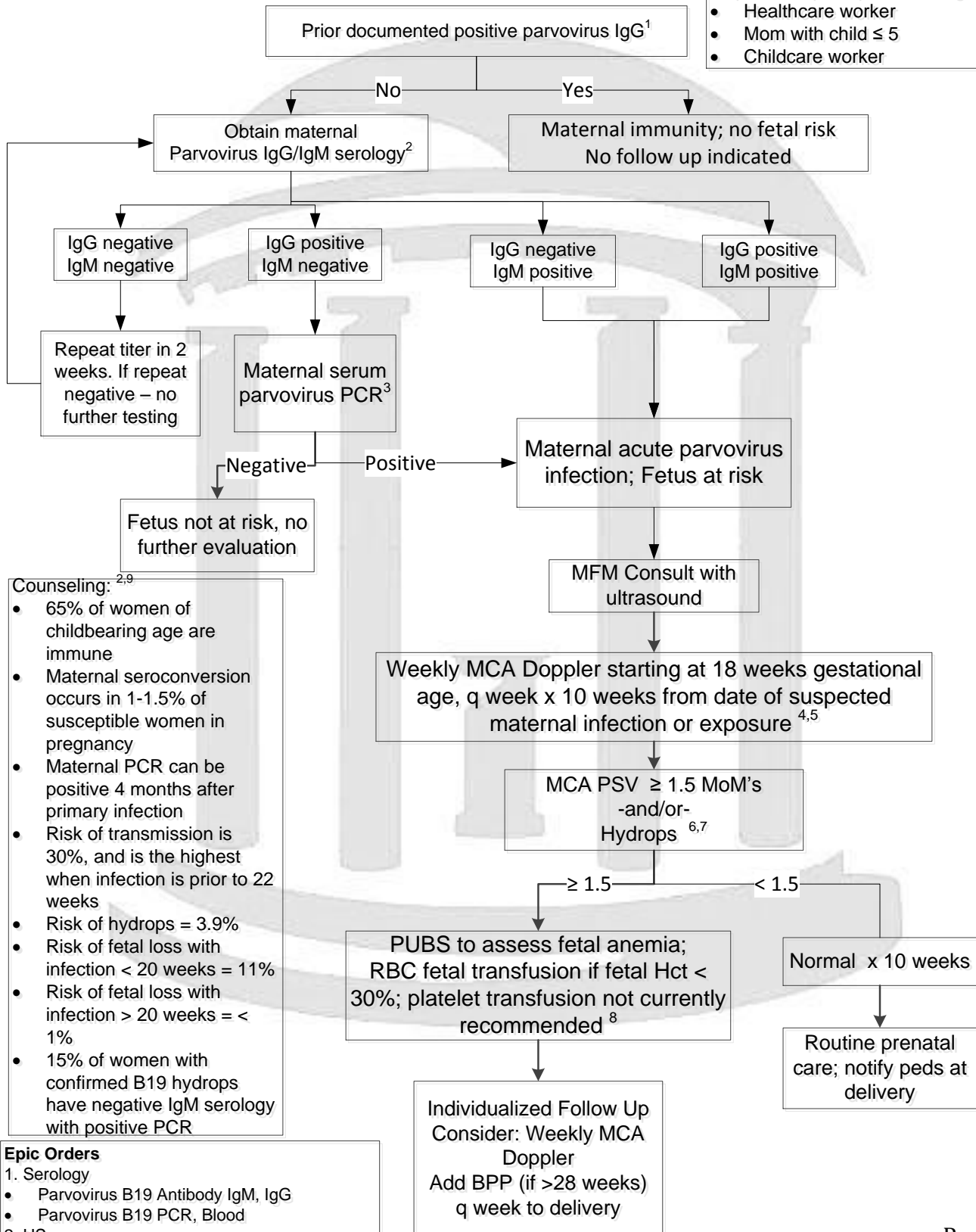


Maternal Exposure to Parvovirus B19

Consider baseline early pregnancy and/or preconception parvovirus IgG screen:

- Healthcare worker
- Mom with child ≤ 5
- Childcare worker



Counseling:^{2,9}

- 65% of women of childbearing age are immune
- Maternal seroconversion occurs in 1-1.5% of susceptible women in pregnancy
- Maternal PCR can be positive 4 months after primary infection
- Risk of transmission is 30%, and is the highest when infection is prior to 22 weeks
- Risk of hydrops = 3.9%
- Risk of fetal loss with infection < 20 weeks = 11%
- Risk of fetal loss with infection > 20 weeks = < 1%
- 15% of women with confirmed B19 hydrops have negative IgM serology with positive PCR

Epic Orders

1. Serology
 - Parvovirus B19 Antibody IgM, IgG
 - Parvovirus B19 PCR, Blood
2. US
 - US OB Follow > 14 weeks, with Dopplers

References:

1) American College of Obstetricians and Gynecologists. Perinatal viral and parasitic infections. ACOG Practice Bulletin #20. Washington, DC: ACOG; September 2000.

Transmission of parvovirus B19 most commonly occurs through respiratory secretions and hand-to-mouth contact. The infected person generally is infectious 5-10 days after exposure prior to the onset of the rash, and other flu-like symptoms, and is no longer infectious with the onset of the rash.

2) Lamont RF, Sobel JD, Vaisbuch E, Kusanovic JP, Mazaki-Tovi S, Kim SK, et al. Parvovirus B19 infection in human pregnancy. BJOG : an international journal of obstetrics and gynaecology 2011 Jan;118(2):175-86.

Women who are IgG positive and IgM negative can be reassured that there is no evidence of recent hPV B19 infection. Those women in whom neither IgG nor IgM-specific antibody for hPV B19 is detected should be considered susceptible, and further serological testing should be carried out 4 weeks after the last contact or if signs of the disease develop.

3) Enders M, Weidner A, Rosenthal T, Baisch C, Hedman L, Soderlund-Venermo M, et al. Improved diagnosis of gestational parvovirus B19 infection at the time of nonimmune fetal hydrops. The Journal of infectious diseases 2008 Jan 1;197(1):58-62.

Because maternal IgM levels decline rapidly starting approximately 28 days after infection, a false negative IgM result may occur. The "inappropriately" negative IgM serological results can cause delay or denial of intrauterine transfusion therapy and inadvertent fetal loss. PCR analysis of maternal blood samples identifies B19 infection with greater diagnostic sensitivity.

4) Simms RA, Liebling RE, Patel RR, Denbow ML, Abdel-Fattah SA, Soothill PW, et al. Management and outcome of pregnancies with parvovirus B19 infection over seven years in a tertiary fetal medicine unit. Fetal diagnosis and therapy 2009;25(4):373-8.

Significant anemia requiring intervention did not occur 12 weeks after maternal seroconversion. Thus, surveillance after 12 weeks of follow-up is unlikely to detect anemia requiring transfusion.

5) American College of Obstetricians and Gynecologists. Perinatal viral and parasitic infections. ACOG Practice Bulletin #20. Washington, DC: ACOG; September 2000.

Pregnant women who have acute parvovirus B19 infection during pregnancy should be monitored with serial ultrasound examinations for at least 10 weeks following infection for the presence of hydrops fetalis.

6) Delle Chiaie L, Buck G, Grab D and Terinde R. Prediction of fetal anemia with Doppler measurement of the middle cerebral artery peak systolic velocity in pregnancies complicated by maternal blood group alloimmunization or parvovirus B19 infection. Ultrasound Obstet Gynecol 2001; 18:232-6.

The MCA PSV is a reliable method for the prediction of anemia not only in fetuses before the first intrauterine transfusion, but also in those which have undergone one or more transfusions, with good sensitivity (100%) and specificity (100%).

7) Mari G, Deter RL, Carpenter RL, et al. Noninvasive diagnosis by Doppler ultrasonography of fetal anemia due to maternal red-cell alloimmunization. N Eng J Med 2000; 342: 9-14.

The risk of anemia was high in fetuses with a peak systolic velocity of 1.50 times the median or higher. Fetuses with values below 1.50 either did not have anemia or only mild anemia.

8) de Jong EP, Walther FJ, Kroes AC, Oepkes D. Parvovirus B19 infection in pregnancy: new insights and management. Prenatal diagnosis 2011 May;31(5):419-25.

Management of B19 infection with IUT can correct fetal anemia and reduces the mortality of B19 infection significantly. In most cases, one transfusion is sufficient for fetal recovery, though it may take weeks for the hydrops to resolve completely.

9) Enders M, Weidner A, Zoellner I, Searle K, Enders G. Fetal morbidity and mortality after acute human parvovirus B 19 infection in pregnancy: prospective evaluation of 1018 cases. Prenat Diagn. 2004;24(7):513.

Prospective evaluation of 1018 cases of maternal serologic diagnosis of B19 infection. Fetal death with infection < 20 weeks = 11%; fetal death with maternal infection > 20 weeks < 1%. Hydrops overall rate 3.9%. Survival following transfusion for severe hydrops = 84.6% (11/13).

Revised 4/2015

Notification to Users

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur during pregnancy. They should not be interpreted as a standard of care, but instead represent guidelines for management. Variation in practices should take into account such factors as characteristics of the individual patient, health resources, and regional experience with diagnostic and therapeutic modalities. The algorithms remain the intellectual property of the University of North Carolina at Chapel Hill School of Medicine. They cannot be reproduced in whole or in part without the expressed written permission of the school.

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