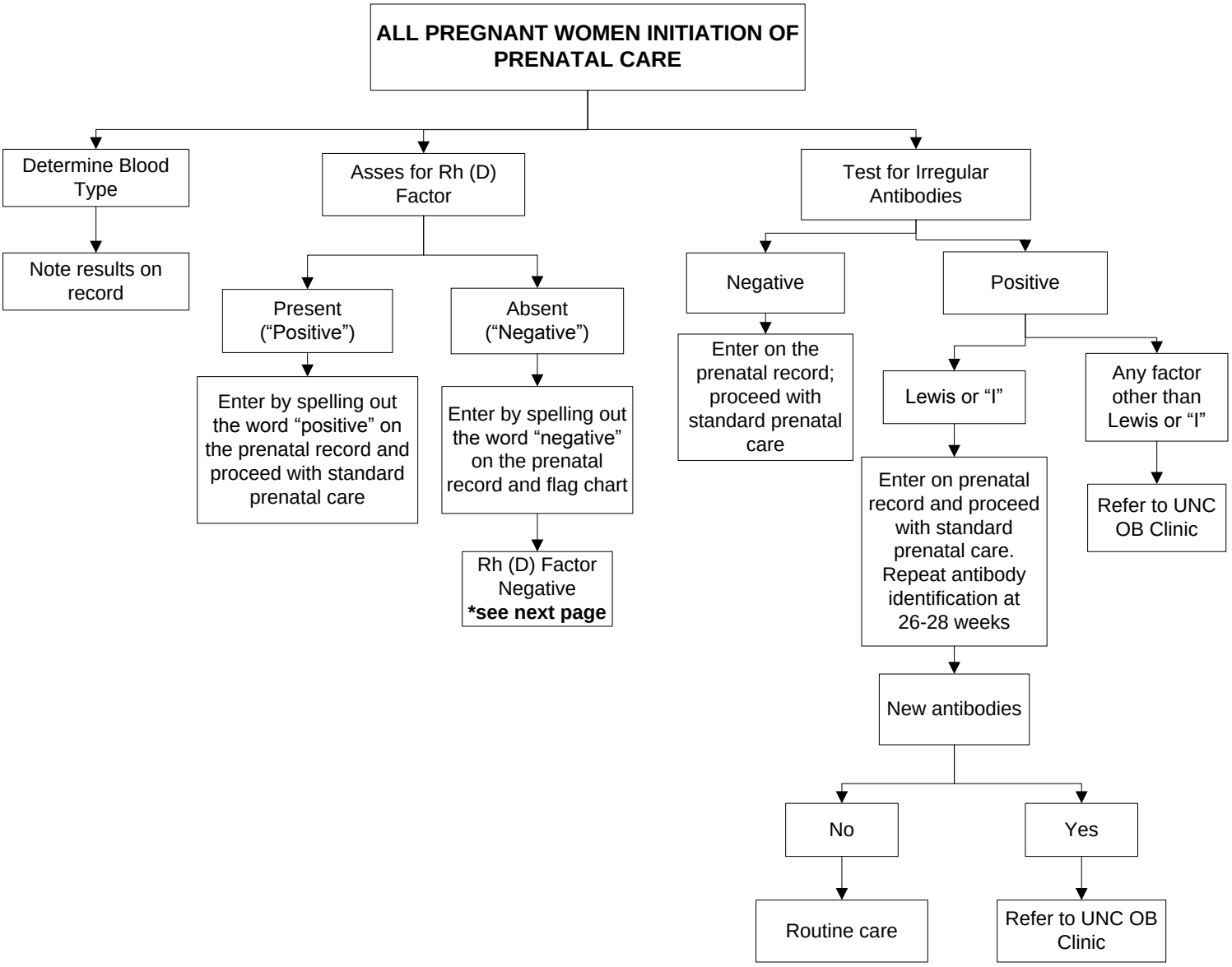
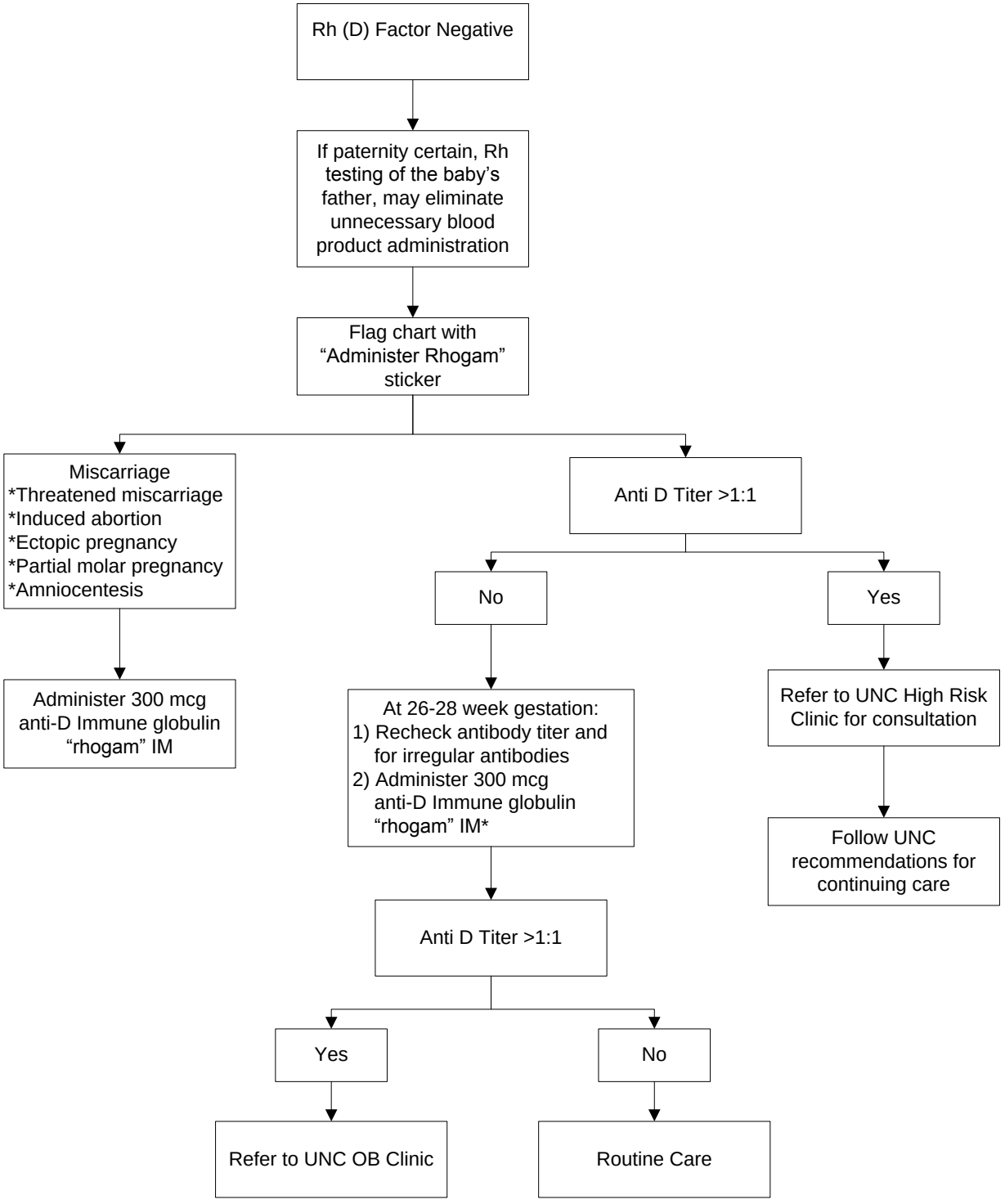
UNC SCHOOL OF MEDICINE

UNC Detection & Prevention Isoimmunization Protocol





* Note: Women who are rh negative **and** Du positive should not receive anti-D Immune globulin (rhogam).

Positive Antibody Screen/Red Cell Sensitization1 References

1) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy

Additional anti-red cell antibodies known to cause hemolytic disease include:

TABLE 1. ISOIMMUNIZATION RESULTING FROM IRREGULAR ANTIBODIES*

Blood Group System	Antigen
Rh	C, c, e, E
Kell	K, k, Ko, Kp^a, Kp^b, Js^a, Js^b
Duffy	Fy^a, Fy^b, Fy^3
Kidd	Jk^a, Jk^b, Jk^3
MNSs	M, N, S, s, U, Mi^a, Mt^a, Vw, Mur, Hil, Hut
Lutheran	Lu^a, Lu^b
Diego	Di^a, Di^b
Xg	Xg^a
P	$PP_1p^k(Tj^a)$
Public antigens	Yt^a, Yt^b, Lan, En^a, Ge, Jr^a, Co^e, Co^{a-b-}
Private antigens	Batty, Becker, Berrens, Biles, Evans, Gonzales, Good, Heibel, Hunt, Jobbins, Radin, Rm, Ven, $Wright^a$, $Wright^b$, Zd

* Lewis (Le^a, Le^b) and I antigens are not causes of hemolytic disease of the newborn.

Modified from Socol ML. Management of blood group isoimmunization. In: Gleicher N. Principles and practice of medical therapy in pregnancy. 2nd ed. Norwalk, Connecticut: Appleton and Lange, 1992:1051

2) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy.

The severity of the hemolytic disease will usually be equal to or greater than that of the previous pregnancy. If a patient has had a prior affected pregnancy (neonatal exchange transfusion, early delivery or intrauterine transfusion, antibody titers are not necessary because amniocentesis or percutaneous umbilical blood sampling will be required. The timing of the initial procedure is determined by past clinical history (usually 4-8 weeks earlier than the prior gestational age at which significant morbidity occurred).

3) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy.

When the titer is 1:32 by indirect antiglobulin (indirect Coombs test), amniocentesis or percutaneous umbilical cord blood sampling (cordocentesis) should be considered.

4) Bowman JM, Pollock JM, Manning FA, Harman CR, Menticoglou S. Maternal Kell blood group alloimmunization. Obstet Gynecol 1992; 79: 239-44.

When there is a history of hydrops or the father is Kell-positive and the maternal anti-Kell indirect antiglobulin titer is 8 or greater, amniocentesis should be performed at 16-20 weeks' gestation.

5) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy.

If a patient has never had a pregnancy complicated by Rh-related neonatal morbidity other than hyperbilirubinemia treated by phototherapy, antibody titers are the initial step of management. Antibody titers should be determined at the first prenatal visit and approximately every 4 weeks thereafter.

6) ACOG Educational Bulletin #227, August 1996. Management of Isoimmunization in Pregnancy.

The genotype of the fetus's father should be determined. If the father of the fetus does not possess the antigen, the fetus is not at risk. If the father is heterozygous, there is a 50% chance that the fetus has inherited the blood group antigen, and the pregnancy is affected. The most likely zygosity for the D antigen can also be predicted as the alleles at the c, D and E loci are inherited together.

Genotype testing may be sent to:

The Blood Center
638 N. 18th St.
Milwaukee, WI 53233-2121 Ph: 1 800 245-3117

7) Mari G, Deter RL, Carpenter RL, Rahman F, 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) Hopkins DF. Maternal anti-RhD and the D-negative fetus. Am J Obstet Gynecol 1970; 108: 268-71.

In a series of 239 pregnancies in which the fetus was D negative and the mother had previously been immunized to the RhD antigen, the maternal titer of anti-D was found to vary considerably. The variation may give the impression of a rising anti-D titer, but the rise usually is within the limits of experimental error inherent in the estimation of serial titers. A titer may also rise due to an increase in the binding capacity of their antibody. Thus an apparent rise or fall of one or two tubes (2-4 fold dilution) need have no clinical significance.

9) Thomas CR. Routine phenobarbital for prevention of neonatal hyperbilirubinemia.
Obstet Gynecol 1976; 47: 304-8.

In a parallel study conducted over a 1-year period, involving 460 private prenatal patients, the effect of routine prenatal phenobarbital for the prevention of neonatal jaundice was evaluated. No significant complications resulted from the drug therapy and the newborn infants demonstrated no adverse effects attributable to the phenobarbital. ...Phenobarbital prophylaxis was found to be a safe, effective, and economic method of preventing hyperbilirubinemia in the newborn.

NOTIFICATION TO USERS

These algorithms are designed to assist the primary care provider in the clinical management of a variety of problems that occur in pregnancy. They should not be interpreted as ***standard of care*** but instead represent ***guidelines*** for the management of these patients. Variation in practice should be taken 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 School of Medicine at Chapel Hill. They cannot be reproduced in whole or part without the ***expressed*** permission of the school.