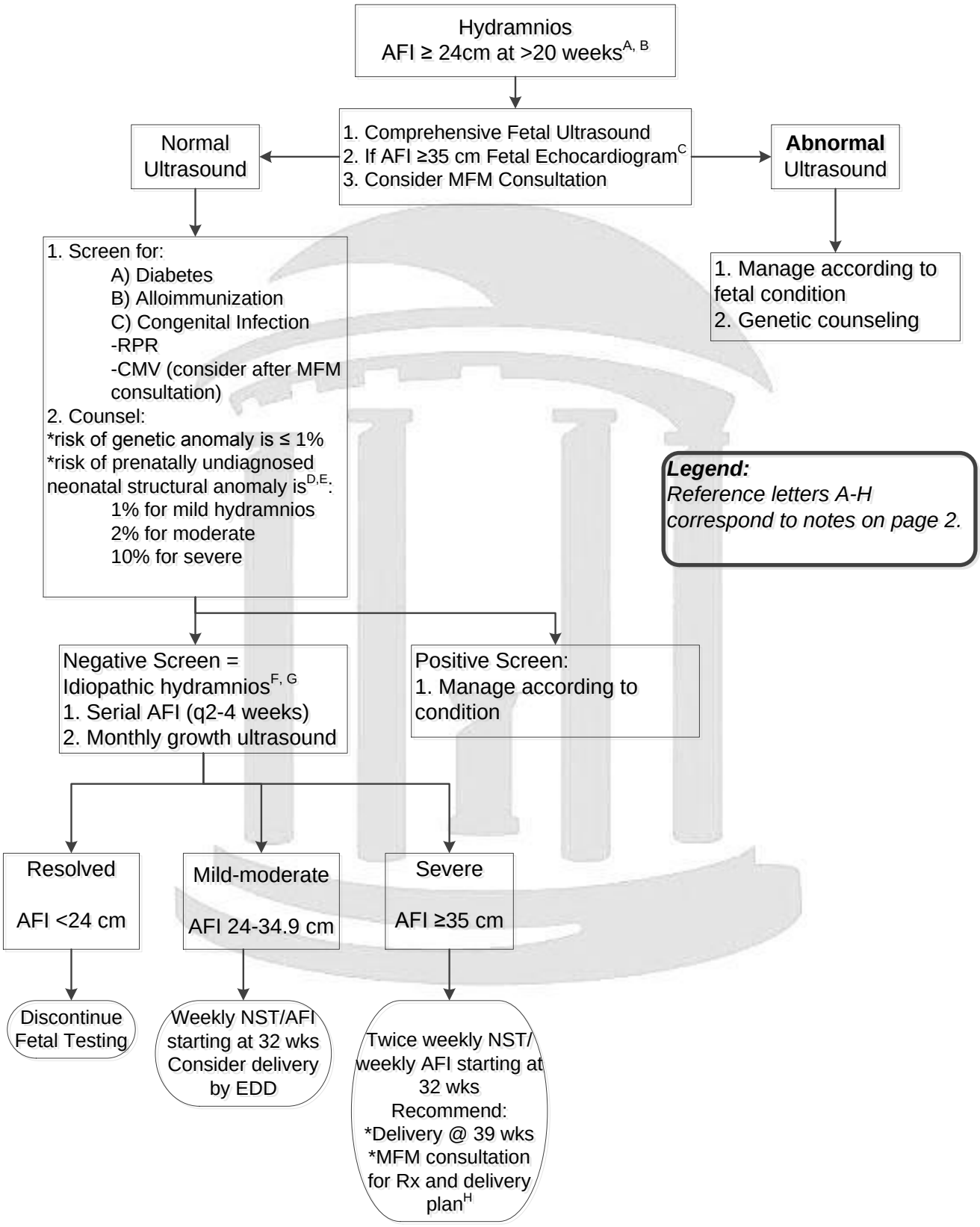
UNC SCHOOL OF MEDICINE

HYDRAMNIOS



Notes: Supporting evidence for clinical guidelines and counseling:

A. No single method for diagnosing hydramnios or establishing prognosis has been shown to be definitively superior, but AFI has an improved (decreased) inter-observer variability with an equal or better overall accuracy compared to maximum vertical pocket (MVP).[1-4]
B. Multiple definitions of an elevated AFI have been suggested (absolute cutoffs versus percentiles) without comparison for superiority, but we select a static cutoff of 24 cm for our definition since it corresponds to the 97.5th percentile for 40 weeks, and adverse pregnancies outcomes are known to aggregate at the 2.5th percentile upper and lower extremes. [2] This definition optimizes sensitivity while maintaining simplicity, which is important for implementation.
C. Fetal cardiac defects are highest in moderate-severe hydramnios, with rates 13.5%-27%.[5-6] Prenatal detection rate of cardiac anomalies is only 40% using fetal anatomy ultrasound without echocardiogram. [6]
D. While risks for congenital structural anomalies and perinatal death increase with severity of hydramnios, risk for genetic abnormalities appears stable across hydramnios severity level and is only 1% in the absence of structural abnormalities and fetal growth restriction. Residual risk for neonatal structural abnormalities after a normal comprehensive fetal ultrasound is 1-10% depending on the severity of hydramnios [5-8]

Adverse outcomes by level of hydramnios, including all types & etiologies of hydramnios

	AFI 25-29.9cm N=291	**AFI 30-34.9cm N=97**	**AFI ≥35cm N=67**	**P value**
Aneuploidy risk prior to completed workup*	3.8%	11.6%	13.0%	0.12
Preterm birth <37 weeks	15.8%	19.6%	46.3%	<0.005
5-min Apgar<7	3.8%	8.3%	23.1%	<0.005
Fetal demise	2.4%	3.1%	13.4%	<0.005
Perinatal mortality	5.5%	9.3%	26.9%	<0.005
Cardiac anomaly	6.9%	17.5%	26.9%	Not reported
Congenital anomalies; RR (95% CI)	3.2 (1.5-6.8)	5.7 (2.4-13.3)	13 (5.8-29.5)	----

Adapted from Pri Paz et al, 2012 and Lazebnik et al, 1999.
* Represents the aneuploidy risk prior to a comprehensive fetal anatomy ultrasound and etiology assessment.

E. Risk for congenital malformations is highest (>50%) among patients with

the combination of fetal growth restriction and hydramnios. [8, 9]

F. Among hydramnios diagnoses, 70% are mild and 50-60% are idiopathic. [6, 10]
G. Idiopathic hydramnios is associated with an increase in adverse pregnancy outcomes, including perinatal death. [11-15]
H. Decisions for treatment of symptomatic severe hydramnios should be individualized and with the assistance of MFM consultation. There is no clear evidence that any medical intervention improves the outcome of most cases of hydramnios.[2]
    a. Amnioreduction: removal of a large amount of amniotic fluid (usually 800-1500 ml) via amniocentesis. May increase success rate of delaying delivery until 37 weeks, but associated with 1.5% complication rate, including rupture of membranes, placental abruption and stimulation of labor. [1]
    b. Indomethacin: data are limited to only case reports. Risks of therapy include oligohydramnios and constriction of the fetal ductus arteriosus, especially after 30-32 weeks. Ductus arteriosus constriction has been associated with increased risk of neonatal patent ductus arteriosus. Therefore AFI should be monitored daily and fetal ductal arch velocities should be followed serially, with discontinuation of therapy when AFI his high-normal or with evidence of fetal ductal affects. [1]

References:

1. Moore, T.R., *The role of amniotic fluid assessment inevaluating fetal well-being.* Clin Perinatol, 2011. **38**: p. 33-46.
2. Moore, T.R. and J.E. Cayle, *The amniotic fluid index in normal human pregnancy.* Am J Obstet Gynecol, 1990. **162**(5): p. 1168-73.
3. Magann, E.F., et al., *How well do the amniotic fluid index and single deepest pocket indices (below the 3rd and 5th and above the 95th and 97th percentiles) predict oligohydramnios and hydramnios?* Am J Obstet Gynecol, 2004. **190**(1): p. 164-9.
4. Morris, R.K., et al., *Association and prediction of amniotic fluid measurements for adverse pregnancy outcome: systematic review and meta-analysis.* BJOG, 2014. **121**(6): p. 686-99.
5. Pri-Paz, S., et al., *Maximal amniotic fluid index as a prognostic factor in pregnancies complicated by polyhydramnios.* Ultrasound Obstet Gynecol, 2012. **39**(6): p. 648-53.
6. Dashe, J.S., et al., *Hydramnios: anomaly prevalence and sonographic detection.* Obstet Gynecol, 2002. **100**(1): p. 134-9.
7. Biggio, J.R., Jr., et al., *Hydramnios prediction of adverse perinatal outcome.* Obstet Gynecol, 1999. **94**(5 Pt 1): p. 773-7.
8. Lazebnik, N. and A. Many, *The severity of polyhydramnios, estimated fetal weight and preterm delivery are independent risk factors for the presence of congenital malformations.* Gynecol Obstet Invest, 1999. **48**(1): p. 28-32.

9. Barnhard, Y., I. Bar-Hava, and M.Y. Divon, *Is polyhydramnios in an ultrasonographically normal fetus an indication for genetic evaluation?* Am J Obstet Gynecol, 1995. **173**(5): p. 1523-7.
10. Sandlin, A.T., S.P. Chauhan, and E.F. Magann, *Clinical relevance of sonographically estimated amniotic fluid volume: polyhydramnios.* J Ultrasound Med, 2013. **32**(5): p. 851-63.
11. Abele, H., et al., *Idiopathic polyhydramnios and postnatal abnormalities.* Fetal Diagn Ther, 2012. **32**(4): p. 251-5.
12. Aviram, A., et al., *Association of isolated polyhydramnios at or beyond 34 weeks of gestation and pregnancy outcome.* Obstet Gynecol, 2015. **125**(4): p. 825-32.
13. Brady, K., et al., *Risk of chromosomal abnormalities in patients with idiopathic polyhydramnios.* Obstet Gynecol, 1992. **79**(2): p. 234-8.
14. Maymon, E., et al., *Isolated hydramnios at term gestation and the occurrence of peripartum complications.* Eur J Obstet Gynecol Reprod Biol, 1998. **77**(2): p. 157-61.
15. Pilliod, R.A., et al., *The risk of fetal death in nonanomalous pregnancies affected by polyhydramnios.* Am J Obstet Gynecol, 2015. **213**(3): p. 410 e1-6.

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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.