Systematic Placental Examination In The Value-Based Care Era

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BACKGROUND

Anatomopathological examination of placental tissues may provide information pertinent for the diagnosis of various undesirable fetal-maternal conditions and the medical management of future pregnancies. However, most placentas are normal, coming from term deliveries after a normal pregnancy, with no complications for the mother and the newborn.

In an effort to rationalize services and standardize medical practices, provincial health authorities asked INESSS to formulate guidelines related to placenta management, including indications for the transfer of the placental tissues to the pathology laboratory for analysis.

AIM

The main objective was to develop a list of clinical conditions for which the transfer of the placenta to the pathology laboratory is recommended.

METHODS

A literature search was conducted in the following databases: Pubmed, Embase, EBM reviews, Cochrane Library, and INAHTA. Websites of academic, professional, regulatory and governmental organizations were also consulted.

All pertinent guidelines, health technology assessment reports, as well as regulatory and policy documents were retained.

A costs comparison of systematic vs selective placenta transfer to the laboratory, based on clinical indications and local medico-administrative data, was performed.

The final list of clinical indications was chosen with local experts using a modified Delphi method. These experts also participated in the development of recommendations concerning the management of placentas.

RESULTS

Clinical Indications For The Transfer of Placentas to The Pathology Laboratory

Amongst 17 retained documents, a total of 72 clinical indications for pathological examination of placentas were identified. The Delphi process with local experts resulted in 21 maternal, 13 fetal or neonatal, and 15 placental conditions being recommended for anatomopathological consultation. All 49 indications are presented below (Table 1).

TABLE 1. Clinical indications of placenta transfer to the pathology laboratory

MATERNAL CONDITIONS (N = 21)

- Suboptimal or no pregnancy monitoring
- Uncontrolled hypertensive disorders
- Uncontrolled diabetes disorders (gestational or non-gestational)
- Active autoimmune disease
- Thrombophilia
- Maternal coagulopathy
- Known cancer, malignancy
- Perinatal fever, sepsis or infection (including chorioamnionitis and funiculitis)
- Clinical concerns about infection during pregnancy (eg, HIV, CMV, syphilis, primary HSV infection, toxoplasmosis, rubella)
- Unexplained or recurrent pregnancy complications
- Prolonged rupture of membranes (>24 hours)
- Placenta abruption
- Unexplained or excessive vaginal bleeding (>1000 cm^3/1 L)
- Pregnancy termination for medical reasons
- Severe maternal trauma (according to clinical judgment)
- Toxicomania
- Severe oligohydramios
- Thick or viscous meconium
- Confirmation of a placental abnormality discovered during pregnancy
- Invasive procedure with suspicion of placental injury (eg, chorionic villus sampling)
- Other illness or maternal condition of concern to maternal or child health

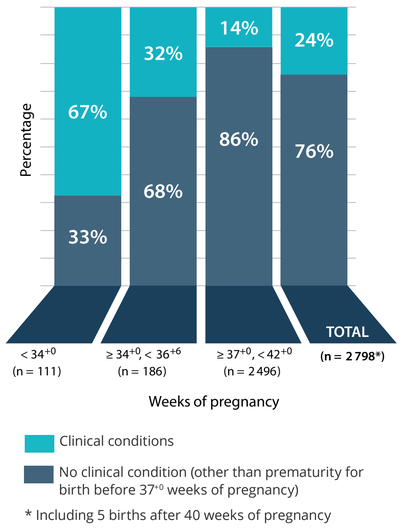
FETAL AND NEONATAL CONDITIONS (N = 13)

- Fetal or neonatal death
- Fetal or neonatal distress, critical birth conditions, transfer or admission to the Neonatal Intensive Care Unit
- Congenital anomaly or dysmorphia of unknown aetiology
- Prematurity (<37^{+0} weeks)
- Intrauterine growth retardation (<10^{th} percentile)
- Hydrops fetalis
- Fever, infection or sepsis
- Seizures, neurological signs
- Asymmetric growth
- Multiple pregnancy with same-sex fetuses and indeterminate or monochorionic chorionicity
- Discordant growth of twins (variation in birth weight >20%)
- Lysis of a twin beyond the 1^{st} trimester
- Abnormal *Doppler* assessment of umbilical artery ratio S/D

PLACENTAL CONDITIONS (N = 15)

- **Morbid adhesion of the placenta**
  (placenta accreta, increta, percreta)
- **Placental disc abnormalities**
  (eg. abnormal size or weight for gestational age; retroplacental hematoma; infarction; mass; edema; vascular thrombosis; abnormal color or pallor, opacification; amnios nodosum; unusual smell)
- **Umbilical cord abnormalities**
  (abnormal winding: >4 turns/10 cm, or <1 turn/10 cm; absence of Wharton's jelly; twist; true node – if associated condition; length of <32 cm

FIGURE 1. Proportion of placentas, with and without associated clinical conditions by the number of weeks of pregnancy at delivery, sent to the laboratory in the context of a systematic transfer policy



* Including 5 births after 40 weeks of pregnancy

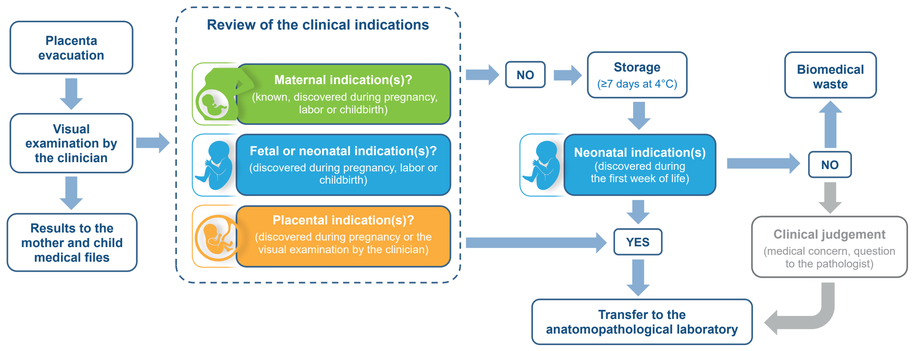
Differential cost Analysis

76%	35%	53,800	$352,000 to $3.1M
of placentas have no associated clinical condition (Fig. 2)	of placentas are sent to the lab in the context of a selective transfer policy	pathological examinations could be avoided, per year, using the proposed guidelines	cost reduction could be saved across the province per year

Other considerations

- Clinical judgment should always prevail
- Normal placentas should be stored for 7 days / 4°C
- Application of labelling and biomedical waste standards should be applied
- Prioritization of cases with fetal or neonatal indications
- Ensure a link between mother and child medical files during the neonatal period

FIGURE 2. Proposed clinical algorithm for the selective transfer of the placentas to the pathology laboratory in Québec health institutions according to predefined clinical indications



CONCLUSION

These recommendations will promote optimal use of pathology services and will aid the decision-making process for clinicians who must decide whether to send a placenta to the pathology service or not. These recommendations will also promote standardization of clinical practices in placentas handling.