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To cite this article: Antonio Malvasi & Antonella Vimercati (2022): Is it time for midwives to do intrapartum ultrasound in the delivery ward?, The Journal of Maternal-Fetal & Neonatal Medicine, DOI: [10.1080/14767058.2022.2047927](https://doi.org/10.1080/14767058.2022.2047927)

To link to this article: <https://doi.org/10.1080/14767058.2022.2047927>



Published online: 06 Mar 2022.



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Is it time for midwives to do intrapartum ultrasound in the delivery ward?

In the last 40 years, intrapartum ultrasound (IU) has been a technique often used in the delivery ward. Many studies are reported in literature about it. According to literature, the IU improves especially the diagnosis of fetal head position (FHP) during the labor, in comparison with traditional digital vaginal examination (DVE). ISUOG practice guidelines highlighted high levels of evidence and grades of recommendation, in particular for the sonographic confirmation of FHP in the pelvis before OVD [1].

IU is currently used in the delivery room for FHP labor diagnosis with VE [2]. The caput succedaneum in labor limits the DVE of FHP diagnosis because reduces the digital examinations of sutures and fontanelles. Some authors demonstrate that angle of progression (AOP), head-perineal distance (HPD), and head-symphysis distance (HSD) are important to determine fetal head station during labor.

Despite the literature reports many studies on the issue, just a few studies about the IU use in delivery ward are referred to midwives.

The role of midwives in delivery ward is various during the labor and delivery in different countries in the world because there are different legislative rules. Although these institutional differences, literature confirm the importance of IU: therefore it is time for midwives to utilize IU.

The study wants to establish the role of midwives in valuating all these parameters (AOP, HSD, and HPD), compared to VDE fetal head progression diagnosis [3] while other studies demonstrate that ultrasound measurement of the AOP reliability is similar in experienced operators and midwives [4].

While some authors report that midwives were concerned about the fact that the use of IU is an excessive medicalization of the birth, pregnant women found valuable the non-intrusive nature and accuracy of ultrasound [5]. Another study demonstrates the importance of ultrasound simulation-based training, as an adjunct to ultrasound clinical training, improving obstetrical ultrasound skills in midwives [6]. Another trial analyzes the learning curve of IU in a midwife student for the determination of FHP in labor, comparing the results with DVE. Transabdominal sonography gives an easier learning and a higher accuracy in the determination of FHP in labor, compared to digital examination [7].

The IU plays an important role in the delivery ward also for the midwives, but the guidelines do not mention who they are referred to. However, in some cases,

midwives prefer the traditional DVE respect to IU, but reproducibility of IU in non-experienced operators is good [8].

In literature the use of IU by midwives has been reported as a useful experience to improve the diagnosis of FHP and its progression in labor. However, the fetal head progression evaluation requires a longer learning curve. In our experience and in literature, the IU improves the FHP diagnosis in the birth canal, compared to DVE and this learning curve is simple and short.

Other authors determine the importance of a training on a simulator (IUSim™), to help midwives learning IU. The use of a simulator helps the midwives in measuring the AOP and the head-perineum distance on transperineal ultrasound examination [9].

Therefore, institutional courses for midwives to introduce IU in the delivery room are necessary. The mannequins and simulators proposed in the market and literature are useful methods in learning curve of IU, also for midwives.

Other authors affirm the importance of IU practice for midwives, particularly in FHD and malposition diagnosis, because it improves the diagnosis together with DVE; however, in dystocic labor – due to the presence of caput succedaneum and moulding – they affirm that the traditional labor semeiotic must integrate the IU to reduce VE errors [10].

The knowledge of IU extended to midwives requires institutional accredited courses, run by qualified trainers, also using simulators for teaching purposes. In fact, an experience since 2014 in Perugia University Medical Schools midwives affirms that IU courses improve the FHP diagnosis in comparison with traditional DVE.

The use of IU has important medicolegal implications. It allows objective proofs of the IU findings, leading to a clinical decision or a particular obstetric intervention. In case of litigation, the ability to produce incontrovertible evidence may prove essential for defendant obstetrician and midwives to justify their choices.

In conclusion, it is time for IU use by midwives together with obstetricians because it improves the traditional VE in the FHP diagnosis.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding


The author(s) reported there is no funding associated with the work featured in this article.

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Received 27 October 2021; Accepted 24 February 2022

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