

CONCLUSION: This is the first study showing a benefit of IL-1Ra as add-on therapy to HT in neonatal encephalopathy. This benefit was demonstrated on both mortality and motor outcome. Evaluation of other cytokines such as interleukin-6 and tumor necrosis factor- α that might still participate to injuries would be important to study. This might pave the way for novel human therapeutic trials taking advantage of this preclinical cumulative effect of IL-1Ra plus HT in neonatal encephalopathy to further alleviate its heavy burden of mortality and morbidities. ■

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US midwife-attended hospital births are increasing while physician-attended hospital births are decreasing: 2003–2018



OBJECTIVE: The World Health Organization has designated 2020 as the International Year of the Nurse and the Midwife. A diverse workforce including midwives has been found to benefit pregnancy outcomes. The “Obstetric Care Consensus” published jointly by several professional organizations including the American College of Obstetricians and Gynecologists placed certified midwives and certified nurse-midwives on the same level with obstetrician-gynecologists and family physicians by stating that “Every birth should be attended by at least 1 qualified birthing professional (midwife, family physician, or ob-gyn).”¹

Most countries (6 of 9) recommend that low-risk women see only general practitioners or midwives for prenatal care.² Even though a large proportion of obstetric hospital deliveries are attended by midwives in other high-income countries (in

the Netherlands, there are 3150 midwives compared with 805 active obstetrician-gynecologists³; in Germany, by law, each delivery has to be attended by a midwife), only a minority of deliveries in the United States are carried out by midwives. Our objective was to identify for the first time recent trends in midwife-attended US hospital births.

STUDY DESIGN: We used the natality public-use data from 2003 to 2018 to describe recent trends in midwife (certified nurse-midwives plus “other” midwives)-attended hospital deliveries and compared them with physician (MD plus DO)-attended hospital births.

RESULTS: The study population included 63,905,750 hospital births in the United States between 2003 and 2018,

TABLE
Trends in US hospital births by birth attendant (2003–2018)

Year	Midwives, n (%)	Physicians, n (%)	All hospitals, n
2003	305,513 (7.4)	3,730,008 (92)	4,051,638
2004	302,856 (7.3)	3,753,571 (92.1)	4,071,548
2005	300,903 (7.2)	3,786,315 (92.3)	4,103,574
2006	311,364 (7.3)	3,901,518 (92.3)	4,230,086
2007	314,864 (7.2)	3,940,912 (92.2)	4,275,762
2008	310,044 (7.3)	3,876,754 (92.2)	4,204,699
2009	305,665 (7.4)	3,763,781 (92.1)	4,086,289
2010	303,106 (7.6)	3,633,469 (91.9)	3,952,076
2011	300,072 (7.5)	3,585,862 (91.9)	3,903,569
2012	303,184 (7.6)	3,580,382 (91.8)	3,899,089
2013	308,221 (7.8)	3,550,972 (91.6)	3,876,042
2014	320,148 (8.0)	3,592,121 (91.4)	3,928,272
2015	326,596 (8.2)	3,569,794 (91.1)	3,917,298
2016	332,076 (8.4)	3,529,055 (90.9)	3,883,255
2017	335,932 (8.7)	3,435,769 (90.6)	3,793,272
2018	341,657 (9.0)	3,366,916 (90.3)	3,729,199

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which represented 98.78% of all US births (N=64,698,156). Of all hospital births, 99.55% (n=63,619,400) were attended by either a midwife or a physician, whereas 0.45% (n=286,268) were attended by someone else, unknown, not stated, or not reported. There were 4,935,581 deliveries by certified nurse-midwives, 86,620 by “other” midwives, 54,818,406 by medical doctors, and 3,778,793 by osteopathic doctors. The data on yearly hospital deliveries by birth attendants are presented in the [Table](#). From 2003 to 2018, US hospital births dropped overall by 322,268 (8.66%), from 4,051,987 in 2003 to 3,701,183 in 2018. Midwife-attended hospital births increased by 36,144 (11.83%), from 305,791 in 2003 to 3,415,657 in 2018 (7.4%–9% of hospital births). Physician-attended hospital births decreased by 9.73%, from 3,730,008 in 2003 to 3,366,916 in 2018 (92%–90.3% of hospital births). There was a 29.31% increase in the proportion of vaginal hospital deliveries attended by midwives between 2003 and 2018, from 10.48% (n=305,513) in 2003 to 13.56% (n=341,654) in 2018. Midwives attended 1 in 9.5 vaginal hospital births in 2003 and 1 in 7.4 vaginal hospital births in 2018.

CONCLUSION: Our study shows that midwife-attended hospital births in the United States have increased despite the overall decrease in the total number of US hospital births, whereas physician-attended hospital births have decreased.

This increase in midwife-attended hospital births becomes even more pronounced for hospital vaginal births. Studies have consistently shown that midwife-attended births have lower rates of interventions, and it has been recommended to increase midwifery births in the United States.⁴ Considering that out-of-hospital births are associated with manifold increased neonatal risks,⁵ it appears that women may more likely choose midwifery care in the hospital over physician-attended deliveries partly to avoid routine use of medical interventions. It will be important to identify the impact of this change on interventions in future years including cesarean deliveries. Obstetricians have the professional responsibility to educate low-risk pregnant women about the midwifery model of hospital delivery and offer them a choice in hospital birth attendants when available. ■

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