Using twin-specific birthweight charts reduces the number of 'high-risk' pregnancies

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A fourth-year medical student at St George's has authored two papers showing the importance of using twin-specific birthweight charts, rather

than those designed for single infant (singleton) pregnancies.

Published in the journals *Ultrasound in Obstetrics and Gynecology* and the *Journal of Clinical Medicine*, the two papers were co-authored by Corey Briffa, in collaboration with researchers across St George's and UCL.

The first paper, titled Twin chorionicity-specific population birth-weight charts developed with adjustment for estimated fetal weight, demonstrated that the birthweight for twins is consistently lower than for singletons, and designed charts to recognize the range of twin birthweights.

"Twins are currently managed using singleton birthweight charts and growth charts," says Corey. "What you find is that when twins grow, they get to 28 weeks where they're on par with singleton pregnancies. But after the 28-week point, the singletons keep growing but twins drop off."

Corey explains that this means many clinicians worry that twins are smaller than they should be and carry out further investigations, potentially delivering the babies earlier. This is because the infants are classified as "high-risk" when using traditional singleton birthweight charts. The view held by Corey and his colleagues, is that many of these infants would be considered as "low-risk" if measured on a twin-specific chart—reducing the need for premature delivery.

However, others in the medical community believe that if you treat these pregnancies as "low-risk" there's a possibility that reducing interventions could lead to poorer outcomes for twin births.

The second paper, titled Perinatal Outcomes of Small for Gestational Age in Twin Pregnancies: Twin vs. Singleton Charts, goes against this

argument by providing evidence to show that singleton charts misclassify a large number of twin births as being at risk.

The results demonstrated that twin-specific charts identified a smaller proportion of fetuses as being smaller than they should be, in comparison to using singleton charts. They also showed that among fetuses identified as smaller than they should be using the twin-specific charts, a higher proportion of these infants would go on to develop adverse birth outcomes.

The researchers believe that these findings demonstrate that using twin-specific charts will both reduce the number of twin pregnancies requiring further investigation, and more accurately identify those that should be considered "high-risk."

The paper recommends that this initial evidence should be further backed up by "prospective and extensive multi-center studies" in future. But the authors are keen to recommend that more clinicians consider trialing the use of their twin-specific charts.

"We want to shake up the status quo and show that measuring twins with singleton charts might not be accurate and could be doing a disservice to twins, mothers and the family," says Corey. "We want to encourage people to look at these results and use our charts. The long-term goal is to understand if we need to change practice and remove singleton charts for twin pregnancies and say it's safer to assess twins using twin-specific charts."

Professor Asma Khalil, the lead researcher and senior author on both papers adds, "We've always known that, on average, twins have lower birth weights than singleton babies. The question was whether this was normal for twins, or there was a problem with the placenta providing enough oxygen or nutrition for two babies, so that they were at risk.

These studies suggest that it's the former; using twin-specific charts means that fewer twins are labeled as high risk and delivered unnecessarily premature. And importantly, twins labeled as 'normal' size by twin charts but 'small' with singleton charts, did not come to harm."

Speaking on carrying out research while still being in the middle of his degree, Corey suggests the opportunity has been a great experience for him.

"It's a lot of work, but I really recommend doing research you're interested in," he says. "At points it became very difficult, especially when journals would keep coming back with edits to your papers. But with the support of Professor Khalil and the rest of the team, I was able to gain the skills of finessing papers and understanding what the journals wanted."

Looking ahead, Corey is keen to focus on his own long-term goals. "Hopefully I'll go into my final year next year," he says. "I've loved taking part in research—you feel like you're achieving something that may be beneficial. I'm keen to develop even further and would like to continue by applying for an academic foundation program in future."

More information: C. Briffa et al. Twin chorionicity-specific population birth-weight charts developed with adjustment for estimated fetal weight, *Ultrasound in Obstetrics & Gynecology* (2021). DOI: 10.1002/uog.23606

Veronica Giorgione et al. Perinatal Outcomes of Small for Gestational Age in Twin Pregnancies: Twin vs. Singleton Charts, *Journal of Clinical Medicine* (2021). DOI: 10.3390/jcm10040643