Mother-to-Infant \textit{S. aureus} Transmission Horizontal

\textbf{BY ROBERT FINN}

\textbf{SAN FRANCISCO} — Infants most often acquire \textit{Staphylococcus aureus} infections from their mothers horizontally after birth and not vertically during birth, based on a prospective, longitudinal study of 158 pregnant women and their offspring.

Of the participating women, 54 (34\%) were \textit{S. aureus} carriers, and 17 of the children born to them (31\%) acquired \textit{S. aureus} before discharge. Dr. Eyal Leshem and colleagues at Chaim Sheba Medical Center, Tel Hashomer, Israel, wrote in a poster presentation at the annual International Conference on Antimicrobial Agents and Chemotherapy, sponsored by the American Society for Microbiology.

By contrast, only 3\% of the children born to noncarrier mothers acquired \textit{S. aureus}.

The investigators controlled for the sex of the child, carriage status of the mother, breastfeeding, gestational age, antibiotic treatment, type of delivery, and smoking status. This increase in risk was highly statistically significant.

The only other statistically significant predictor of mother-to-infant transmission was smoking status. Children born to mothers who smoked before or during pregnancy were four times more likely to acquire \textit{S. aureus}.

The investigators reported no conflicts of interest related to their study.

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Of the 54 maternal carriers, 38 were vaginal births, 9 were cesarean births, and 7 were both vaginal and cesarean births.

Among 11 of the newborns who acquired \textit{S. aureus} from their carrier mothers, 5 had strains that were genetically identical to the mother's nasal strain, but only 2 had strains identical to the mother's vaginal strain. This suggests that the transmission was horizontal rather than vertical.

Two other pieces of evidence supported the hypothesis that the transmission was horizontal rather than vertical.

If a vertical transmission were dominant, one would expect a greater rate of transmission in vaginal births, but this figure increased to 8\% at 24-48 hours and to 12\% by 72-100 hours. In addition, there were no significant differences in transmission rates between infants born vaginally and those born by cesarean section.