

The incidence of face shield contamination during cord transection using a new, shielded umbilical cord clamp and cutter device compared against the traditional use of a Hollister clamp, hemostat and scissors method

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ABSTRACT

Objective

The purpose of the clinical study was to evaluate the ability of a new, shielded umbilical cord clamp and cutter (Joey Clamp & Cutter™; Maternus, San Antonio, TX) to decrease blood spray to the face compared against the use of a Hollister clamp (Double-Grip Umbilical Cord-Clamp; Hollister, Libertyville, IL), hemostat and scissors.

Subject Population

Term uncomplicated vaginal deliveries with or without episiotomies.

Study Design

Subjects were randomly assigned to one of the two groups based on odd/even subject numbers. One group transected the umbilical cord using the traditional Hollister clamp, hemostat and scissors method. The other group used the Joey Clamp & Cutter device.

Clear plastic face shields were placed on all labor and delivery personnel just prior to clamping and transecting the umbilical cord. After cord transection, the shields were removed and allowed to dry prior to sending them to the lab for examination. Each face shield was examined for the presence of blood droplets using the forensic agent luminol. Luminol was applied as a spray to both the outside and the inside surfaces of each face shield in a dark room and only blood droplets glowed and were counted visually. Luminol could be reapplied to revisualize blood droplets for repeat counts and confirmatory experiments on site indicated luminol could detect microliter amounts of blood, thus establishing sensitivity and specificity.

Preliminary Results

- Clinicians are five times more likely to be sprayed in the face with umbilical cord blood using the traditional method to transect the cord when compared to using the new Joey Clamp & Cutter device.
- Nurses and other ancillary members of the delivery team are at a greater risk of getting sprayed in the face with cord blood than the physician performing the delivery.
- 90% of the clinicians who had contaminated face shields did not perceive they had been sprayed during the transection of the umbilical cord.
- The fact that droplets of blood were detected on the inside of some face shields belonging to delivery team members suggests that the risk of contamination by blood spray still exists even while taking universal precautions.

Study Reviewer

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Dr. Winters received his doctorate (PhD.) from the University of Illinois Medical School in Chicago specializing in cell biology, infectious diseases, immunology and virology. He was elected a Fellow of the British Medical Research Council and a Fellow of the Damon Runyon Cancer Fund (New York) during three years postdoctoral at the National Institute of Medical Research, Mill Hill London, England. Additional post doctorate graduate work was performed at the University of Cambridge (England), the University of Marburg (Germany) and Saltre Petrie Hospital (France).

He then was a visiting researcher at the National Cancer Institute, Bethesda Maryland (Dr. R. Gallo and Biocontainment Laboratories) followed by appointment to the full time faculty of UCLA School of Medicine in Los Angeles.

Currently, he is a teaching and research professor on the full time faculty of the Medical, Dental and Biomedical Graduate School at the University of Texas Health Science Center at San Antonio.

He has been awarded 8 international research fellowships and has taught at medical schools in England, France, Germany, Finland, Russia, Slovenia, Italy, India, Tunisia, Libya, Egypt, Australia, Japan, and China.