A silent VRE outbreak in the neonatal intensive care unit

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Background: In Israel there are no national guidelines for routine screening of newborns in the Neonatal Intensive Care Unit (NICU) for multi-drug resistant organisms (MDROs); each hospital sets its own policy. At Tel-Aviv Sourasky Medical Center we did not routinely screen NICU patients, except for infants born abroad, for any MDROs.

Materials/methods: Descriptive.

Results: In February 2017, a newborn was transferred from our NICU to another hospital for cardiac surgery; that hospital screens all transfers to the NICU for MDROs. We were notified that this patient screened positive for vancomycin-resistant Enterococcus faecium (VRE), which prompted us to screen all infants in our NICU for VRE. Within 3 days, 21/38 newborns had been identified as VRE carriers. Because VRE was so widespread, we grouped positive and negative but exposed infants into one cohort. The entire NICU was thoroughly cleaned and a separate room was designated for new admissions. Nurses and nurses’ aides were assigned to work only in the VRE cohort or only in the clean area, and other staff were instructed to follow strict contact precautions when moving between areas. Despite these measures, frequent screenings in the clean area continued to detect new cases for the next 7 weeks. We identified breaches in infection control measures so we enforced that all staff sign in and don protective clothing before entering the clean area. After environmental sampling detected VRE on bassinettes stored outside the NICU, we established protocols for cleaning equipment entering the NICU. By the end of the outbreak 2 months later, 49 cases of VRE carriage had been identified (Fig); there were no VRE clinical infections. Although the source of the outbreak was not identified, we suspect that VRE was introduced to the NICU by infants transferred from another hospital.

Conclusions: If the index patient had not been screened upon transfer, it is likely that this large VRE outbreak in the NICU would have gone undetected and uncontrolled unless cases of clinical VRE infection had developed. In response to this outbreak, we implemented screening upon admission of all transfer patients to the NICU for VRE, CRE, and MRSA.
Epidemic curve of VRE outbreak in the NICU