

## O0173 **The implementation of the infection risk scan (IRIS) in a Dutch hospital, resulting in standardization, transparency and substantial improvement**

Ina Willemsen<sup>\*1,2</sup>, Esther Weterings<sup>1</sup>, Gonny Moen<sup>1</sup>, Veronica Weterings<sup>1,3</sup>, Jan A.J.W. Kluytmans<sup>1,4</sup>

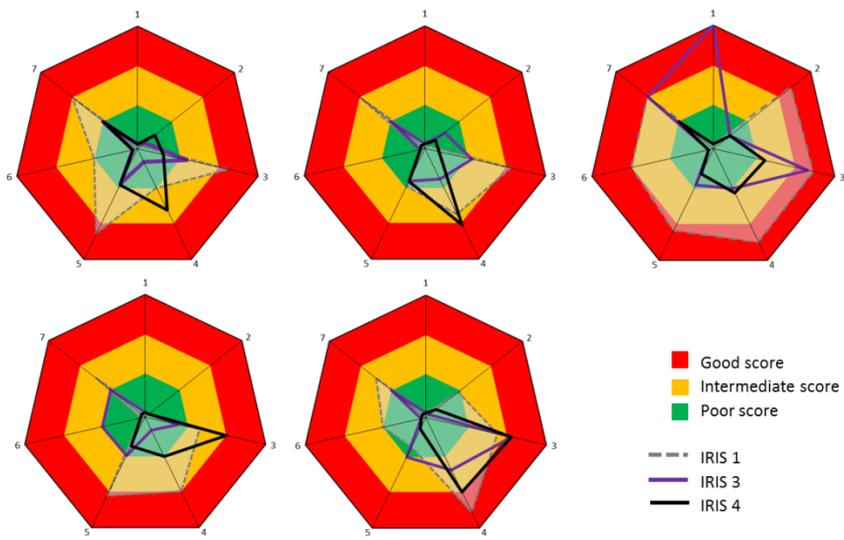
*<sup>1</sup>Amphia hospital, Department for Microbiology and Infection Control, Breda, Netherlands, <sup>2</sup>Center for infectious Disease Expertise and Research (CIDER), Tilburg, Netherlands, <sup>3</sup>Radboud University Medical Centre, Department of Medical Microbiology, Nijmegen, Netherlands, <sup>4</sup>UMC Utrecht, Julius Center for Health Sciences and Primary Care, Utrecht, Netherlands*

**Background:** Sustainable improvement of infection control (IC) and antibiotic (AB) use in healthcare is difficult to achieve. We describe the implementation of a new tool, the Infection Risk Scan (IRIS), that provides insight into the quality of an infection prevention program by investigating outcome- and process parameters. Results are visualised in an easy-to-read plot, providing targets for quality improvement.

**Materials/methods:** Multiple cross-sectional measurements were performed. Variables included hand hygiene compliance (HHC), environmental contamination using adenosine triphosphate (ATP) measurements, personal hygiene of healthcare workers (HCW), shortcomings in IC-preconditions, appropriate use of indwelling medical devices, appropriate use of AB and transmission of Extended Spectrum Beta-Lactamase producing Enterobacteriaceae (ESBL-E) based on active screening swabs. Results were compared to local quality standards and local reference data and a risk-classification was made. Results were visualised in a risk-profile, showing patient-related risks, and a plot with factors that can be influenced by HCW.

**Results:** Four consecutive IRIS' have been performed in five wards in a period of three years. The IRIS plots provided ward specific results and were the basis for targeted improvement programs (see figure of the 5 improvement-plots). Improvement was observed in all 5 wards regarding the HHC. The overall HHC increased from 43% to 68% (more than 1000 observations per IRIS,  $p < 0.000$ ). ATP levels reduced significantly ( $p < 0.0001$ ) after IRIS-3. However the achieved improvement was not sustainable over time. The personal hygiene of HCW was good at the start of the project and sustained over the 3 years. The appropriate use of AB did not improve. Although clear targets for improvement had been identified, no interventions had been implemented. Finally, transmission of ESBL-E was observed only once, involving 2 patients.

**Conclusions:** Using the IRIS method we achieved substantial improvements. Especially HHC improved and aspects that were already good at the start were maintained at this level. The IRIS method provides an objective, multifactorial tool ensuring transparency in the infection control practices and outcome. Repeated use of the IRIS makes it possible to monitor outcome and offers opportunities for targeted adjustment where needed. Resulting in a PDCA quality cycle in infection control.



Legend: 1=transmission of ESBL producing Enterobacteriaceae; 2= inappropriate use of catheters; 3=inappropriate use of antibiotics; 4=environmental contamination; 5=handhygiene non-compliance; 6=personal hygiene healthcare workers; 7=shortcomings in Infection control preconditions