27th ECCMID Vienna, Austria 22 – 25 April 2017

The congress of ESCMID

Session: EP130 Lab automation - delivering for the future

Category: 4d. Laboratory automation

24 April 2017, 12:48 - 12:53
EP0645

First glimpse after 10 months of BD-Kiestra Total Laboratory Automation system implementation in a Belgian laboratory network

Georges Mascart*[1], Veronique Miendje[2], Bhavna Mahadeb[2], Safora Attalibi[2], Nicolas Hovine[2], Ann Ebraert[2], Delphine Martiny[3], Olivier Vandenberg[4]

[1]*Chu Brugmann; Microbiology*

[2]*Lhub - Ulb, Pôle Hospitalier Universitaire de Bruxelles ; Laboratory of Microbiology*

[3]*Lhub - Ulb, Pôle Hospitalier Universitaire de Bruxelles ; Research and Development Unit*

[4]*Lhub - Ulb, Pôle Hospitalier Universitaire de Bruxelles (Phub), Brussels, Belgium; Department of Microbiology*

Background: Rationalisation of health costs implies the shift towards centralised platforms to cater for analytical needs of distant hospital laboratories, which therefore deal only with emergency analysis. Nevertheless, maintaining a multidisciplinary approach in tackling infectious diseases remains important for these hospitals. In this context, BD-Kiestra Total Laboratory Automation (BD-K-TLA) platform in combination with automated identification and antimicrobial susceptibility testing (ID/AST) systems seem to be a promising solution. Herein, we describe the first analytical and organisational benefits observed following the implementation in January 2016 of the BD-K-TLA in a clinical microbiology laboratory which provides an analytical platform for four university hospitals located in Brussels, Belgium.

Material/methods: Several parameters including the positivity rates and the time-to-identification (TTI) of all specimens submitted for bacterial culture were compared for two similar time periods before and after implementation of the new system to assess the added-value of BD-K-TLA in comparison with conventional methods (CM) previously used in our laboratories. The consequences of the shift in laboratory organisation including the adoption of a 24-hour operating schedule and the implantation of a system of long distance validation of results from a satellite lab have also been analysed.

Results: Data from a total of 27073 specimens analysed in March 2015 (pre-implementation) and 25851 specimens analysed in October 2016 (post-implementation) were compared. Among the later, 15744 were processed on the BD-K-TLA, the 39.1% remaining being still processed according to CM. Positivity rates were comparable for both time periods. In October 2016, 6249 urines samples were processed on the BD-K-TLA, 18.7% of which were positive. TTI for positive samples was of 25h 07 min while it took 23h 43 min to report negative cultures and mixed flora. Thus, the introduction of BD-K-TLA did not shorten the TTI but improved quality in rendering of results by providing full traceability and ensuring strict incubation times. Despite most samples being analysed in one central laboratory, validation of results from the satellite laboratory by using a telemicrobiology system made it possible to maintain physical presence of a microbiologist in that hospital, ensuring not only a high quality laboratory service but also strong professional interaction between microbiologists, infectious diseases practitioners and infection control specialists.

Conclusions: BD-K-TLA networking with a telemicrobiology system allowed us to provide the same quality in patient care in spite of delocalisation of analysis of samples by maintaining the presence of microbiologists on site, thus allowing them to supervise all steps of the analytical process while being in close contact with the different care-units. Nevertheless, such networking should not be considered unless the team is prepared for major reorganisation of the workflow. Efficient communication between teams, qualified technologists and reliable IT department are also mandatory to manage potential connectivity dysfunctions.