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Use of Computer Interface and Information Management System to Economize Microbiology Testing, use of Antibiotics and Improvement of User Experience

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The purpose of the research is to examine a two-way interface connecting between the laboratory information system and electronic patient record and its effect on duplicate testing, antibiotic usage, patient confidentiality and availability of results. It will also examine the user acceptance of the system according to different medical sectors, demographic characteristics, seniority and education.

Prior to implementation, laboratory tests and results were paper based. A computerized process of ordering tests should bring about reduction of errors, unnecessary tests and improved patient outcome due to the readily available results in the electronic patient record. User acceptance may be influenced by user demographic characteristics like education, age, and seniority.

In the course of the study, a two-way laboratory interface was implemented enabling the use of computerized test orders. The medical and lab staff were asked to fill out questionnaires pertaining to work processes and user experiences before and after implementation. In addition, reports were examined on the number of unnecessary laboratory tests, use of antibiotics according to hospitalization days, and the amount of telephone requests for results from the departments to the laboratory over a specified period during both phases of the study.

User acceptance following the two-way interface was found to be statistically significant for younger employees. Additionally, there was a sharp drop of unnecessary duplicate tests, a decrease in telephone requests for results and antibiotic use, apparently due to readily available results in the electronic patient records. The questionnaires showed that the medical teams were more satisfied with the laboratory service, as well as preservation of patient confidentiality.

This research provided us with user acceptance targeted at populations at different levels of inclination to adopt and use this new system, However, there is place to develop a deeper understanding of user acceptance in order to help model future implementations of healthcare systems.