Abstract

Introduction: Barcode technology is a replacement for the traditional keyboard data entry. The East Africa Public Health Laboratory Networking (EAPHLN) Project operational research activities anticipated enormous data generation from different geographical sites and health care site teams which necessitated the development of the system. This paper describes the use of barcode technology to enhance electronic quality assured data collection and analysis in operational research studies in Kenya.

Methodology: Barcode labels consisted of an encoded 9-digit unique identification figures were generated and centrally at KEMRI for nine study sites. At the study sites, the label placement was done in the following sequence: patient card, consent form, questionnaire and clinical forms by the clinicians. Specimens and shipment form from the same patient with two matching identifier labels by the laboratory staff. The specimen barcode label, contained additional information including specimen type and collection date. On receipt at the KEMRI laboratories, the specimen barcodes were scanned in the reception module of the electronic data management system (eDMS). An additional barcode label was generated with a laboratory number that was affixed to the specimen and scanned into the testing equipment that generated outputs.

Findings: Implementation of the barcode technology in the study sites, involved introduction of a new workflow methodology. This impacted positively on patient recruitment and sample collection process. The barcode labels served as identifiers when used during enrollment which provided an accurate patient and specimen tracking system. This was evident as all specimens delivered had complete accompanying documents with 92% of all barcodes being successfully scanned. Poor storage and handling of the barcode labels contributed to the inability to the scanning. Clinical, demographic and laboratory information to be viewed directly without the need to track down the patient's source documents. The barcode system ensured the following: the confidentiality of patients was maintained; Automation specimen identification on tests eliminating need for relabeling result output reports; fewer errors.

Conclusion: Patients' data linkages and verification from all study sites and the reference laboratory leading to increased efficiency and effectiveness in maintaining patient records. We recommend refresher trainings and supervisory visits to ensuring proper implementation and utilization of the barcode labels.