Electronic registry books: using mobile data entry to monitor healthcare use in Busra Hospital, southern Syria

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Introduction
Since 2015, MSF has remotely supported Busra hospital in Daraa governorate, southern Syria. It has proved difficult to track delivery of hospital services due to the inability of MSF staff to be inside Syria, lack of human resource provision, unavailability of documentation systems, and language barriers. MSF has been unable to accurately assess activities in the hospital using health management information systems (HMIS). Therefore, we developed a simpler approach to collecting this data, using registry books and HMIS-compatible digital forms.

Methods
Arabic paper-based registry books were set up for each hospital department to capture demographic and morbidity data. Hospital staff were instructed to complete the registry books, which had a predefined list of morbidities and other parameters. At the same time, bilingual (Arabic and English) digital forms identical to the registry books were designed using the Dharma platform (already in MSF use for other purposes). Two hospital staff were trained via Skype to migrate paper-based individual-level data to the electronic registry books (ERB) each day using tablets. Data was uploaded daily, and used to generate aggregate statistics within a MSF account on the Dharma platform, ensuring data security. We developed a convertor tool to automatically transfer exported data from Dharma into Excel tally sheets, which could be used within the standard MSF HMIS on a monthly basis, or whenever required.

Ethics
This description and evaluation of an innovation project involved human participants or their data, and has had ethics oversight from the medical director, Jean-François Saint-Sauveur, Operational Centre Barcelona, MSF.

Results
This approach made data entry for non-medical staff straightforward, and shifted the responsibility of encoding medical data to the health providers. Since March 2017, most departments' registry books were uploaded into ERBs, totaling over 45000 patient entries. Each entry covers patient demographics, medical condition, and what medical services were received. Patient-level raw data can be exported. The convertor tool allows users to extract all the data required for the MSF HMIS on a monthly basis, and encode it, in around 2 hours.

Conclusion
This ERB system seems to be a feasible tool for monitoring healthcare use in a humanitarian setting, and negates the need for tally sheets. The technology is user friendly, overcomes language barriers, and does not require high levels of experience for use in the field. Data collected permits in-depth analysis for assessing the quality of hospital services across different departments. MSF is expanding and updating ERBs for use in two additional facilities in Syria.

Conflicts of interest
None declared.