

User Perception of the Effect of the e-Chasqui Laboratory Information System on Patient Care, Reducing Lost Results, and Nation-Wide Impact

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Abstract

There are limited data on the effects of laboratory information systems in resource-poor settings. The e-Chasqui laboratory information system was implemented in 12 of 34 health centers in two health districts of Lima, Peru. 3 years after implementation, personnel from the 34 health centers were given a written survey. The overall response rate was 93%. Though e-Chasqui users were more satisfied with the paper system than control HC users ($p=0.005$), they still preferred e-Chasqui ($p=0.009$). 70% of clinical users reported at least 1 in 10 patients expressing an unsolicited, positive opinion. A majority of those interviewed were missing at least 10% of results, while 70% of e-Chasqui users found results in e-Chasqui that were not on paper. All e-Chasqui users thought implementing e-Chasqui nation-wide would improve patient care.

Introduction

To reduce treatment delays and facilitate communication and analysis, we created a web-based laboratory information system, "e-Chasqui", to connect laboratories to health centers (HCs) in Peru. We surveyed the clinical and laboratory staff of HCs with and without e-Chasqui at least 3 years after the initial implementation. The objectives of the survey were to evaluate 1) the attitudes regarding the utility of e-Chasqui versus the paper system in improving care and 2) the feasibility and benefits of using such a system nation-wide.

Methods

This study was carried out in two health districts of Lima, Peru with 179 health centers (HCs) serving a population of 2,630,000. We randomly assigned six HCs from each health district (12 total) to the intervention. After the study period of 3 years, all HCs users were given a written survey.

An anonymous survey previously used in Peru was applied to measure the usability and acceptability of the system. The survey was modified for our intervention and validated with employees from our organizations, Partners In Health and Socios en Salud. After the intervention was completed, HC

personnel with e-Chasqui access were given the same survey as those without access with two additional sections for questions about e-Chasqui. The survey examined four themes: 1) the preference of users for e-Chasqui versus the paper system, 2) the frequency of missing results in the paper and e-Chasqui systems, 3) the security of both systems, and 4) the feasibility and benefits of using e-Chasqui system nation-wide

Results

The response rate among intervention HC users administered the survey was 94% (29 of 31), though 23 users were not administered the survey because they were not present at their HC during the visit. Even though intervention HC users were more satisfied with the paper system than the control HC users ($p=0.005$), they still preferred e-Chasqui ($p=0.009$), see Table 2. Users liked all tools provided in e-Chasqui with nightly email notification of results and easy access to the system being the favorites. Of the clinical users, 71% used e-Chasqui in the presence of their patient at least a quarter of the time.

63% of users were missing at least 10% of results in the paper system and approximately the same proportion felt that this diminished the opportunity of treatment given to a patient. Control HC users thought that an electronic system would be more complete, confidential, and secure than the current paper system. This same pattern is seen in the responses of the intervention HC users when asked about e-Chasqui. When asked about a nation-wide implementation, all e-Chasqui users thought it appropriate to expand the system and that it would improve the quality of patient care.

These opinions came despite having little technical support and sometimes lack of computer access. For example, despite the fact that more than half of users did not have computers at their office, 72% of them accessed e-Chasqui at least once a week. Also, 90% of users preferred e-Chasqui or found it as useful as the paper system.