Use Contexts and Usage Patterns of Interactive Case Simulation Tools by HIV Healthcare Providers in a Statewide Online Clinical Education Program

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Abstract

We analyzed four interactive case simulation tools (ICSTs) from a statewide online clinical education program. Results have shown that ICSTs are increasingly used by HIV healthcare providers. Smart phone has become the primary usage platform for specific ICSTs. Usage patterns depend on particular ICST modules, usage stages, and use contexts. Future design of ICSTs should consider these usage patterns for more effective dissemination of clinical evidence to healthcare providers.

Keywords

Computer Simulation; Information Dissemination; HIV

Introduction

In recent years HIV research has made rapid progress. Timely dissemination of the latest findings to healthcare providers is a key step for improvement of HIV patient care. We previously reported the development of interactive case simulation tools (ICSTs) for dissemination of HIV clinical evidence and the initial usage data of an ICST for Insomnia Screening and Treatment[1]. In this study, we further analyze ICST usage by including the use contexts, extending the study to additional ICST modules, and conducting assessment in both the initial and stable usage stages. These analyses will identify ICST usage patterns and assist the design of effective approaches for dissemination of clinical evidence through ICSTs.

Methods

The ICSTs in this study were developed for New York State (NYS) HIV-HCV-STD Clinical Education Initiative (CEI). We selected four ICSTs for analyses: (1) Insomnia Screening and Treatment; (2) Mental Health Screening; (3) Post-Exposure Prophylaxis Following Occupational Exposure (oPEP); and (4) PEP Following Sexual Assualt (nPEP).
Development of these ICSTs was based on the related clinical guidelines. The initial usage stage was 195 days for the Insomnia ICST and 97 days for the other three ICSTs. The stable usage stage for the Insomnia and Mental Health Screening ICSTs was 111 days. For data analyses, we characterized ICST use context by: (1) new vs. returning user; (2) access from large-screen equipment vs. small-screen hand-held device; and (3) use through web browser vs. native app. These use contexts were extracted from the system logs of the CEI web servers. To analyze ICST usage patterns, we profiled the frequency of visits to specific ICST sections, i.e., recommendation, sample case, user-defined case, and cross-box, by each dimension of the use contexts described above. For each of these usage profiles, we used chi-square test to examine the statistical significance.

Results

In the initial usage stage, we recorded a total of 512 visits to the Insomnia ICST, 422 visits to the Mental Health Screening ICST, 82 visits to the oPEP ICST, and 80 visits to the nPEP ICST. Analyses of use contexts and ICST sections found 8298% visits from new users, 48–78% visits from native apps, and 34–70% visits from large-screen equipment. Usage pattern analyses found that: (1) new users were more likely from small-screen devices; (2) visits to user-defined cases were more likely from small-screen devices; and (3) small-screen users were more likely to access ICSTs through native apps.

In the stable usage stage, we recorded a total of 898 visits to the Insomnia ICST and 1560 visits to the Mental Health Screening ICST. Analyses of use contexts found 79–92% visits from new users, 81–90% visits from native apps, and 26–31% visits from large-screen equipment. Usage pattern analyses found that new users were more likely to use large-screen equipment.

Conclusion

We have characterized the use contexts of four ICSTs in both the initial and stable usage stages, and identified specific usage patterns and their changes in the two usage stages. Results from these analyses have shown that: (1) ICSTs are increasingly used by HIV healthcare providers; (2) smart phone has become the primary usage platform for ICSTs; and (3) various other usage patterns are related to particular ICST modules, usage stages, and use contexts. Future design of ICSTs should consider these use contexts and usage patterns for more effective dissemination of clinical evidence to healthcare providers.

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References

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