Digital tools for delivering genetic services during COVID-19 and beyond: A systematic review

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An increasing demand for clinical genome-wide sequencing combined with COVID-19 restrictions to usual care create an urgent need for innovative strategies for improving access and efficiency of genetic services. The use of digital tools in genetics has become increasingly popular and necessary. A systematic review of the literature was conducted to describe the current landscape of such tools and understand the gaps in the genetic services delivery pathway.

INTRODUCTION

- An increasing demand for clinical genome-wide sequencing combined with COVID-19 restrictions to usual care create an urgent need for innovative strategies for improving access and efficiency of genetic services.
- The use of digital tools in genetics has become increasingly popular and necessary.
- A systematic review of the literature was conducted to describe the current landscape of such tools and understand the gaps in the genetic services delivery pathway.

METHODS

- A comprehensive search of peer-reviewed literature in Medline and Embase from 2010 - April 2020 was conducted.
- Sample MeSH terms included: telemedicine, artificial intelligence, digital, virtual, eHealth, genetic testing/counseling.
- Data characterizing each tool’s purpose, time-point in the service delivery pathway, intended clinical population, and delivery modality were extracted.

RESULTS

- Initial Yield: 5902 citations.
- Screened: 4647 citations (n = 1255).
- Full-Text: 136 citations (n = 4511).
- Extracted: 106 citations (n = 30).

CONCLUSION

- While several digital tools have been developed to support genetic service delivery, gaps remain with respect to clinical populations for which they are designed and post-test functionalities in particular.
- Digital tools that attend to the full genetic service delivery pathway are limited as is connectivity with EMRs.

This work was funded by The McLaughlin Centre – University of Toronto.

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Figure 1: Purpose of 85 unique tools reviewed.

Figure 2: Clinical setting of 106 papers reviewed.

Figure 3: Modalities used in genetic service delivery pathway.