

# Digital Education Tools for Cancer Patients during COVID-19

Sena Turkdogan, Gabriel Schnitman, Tianci Wang, Raphael Gotlieb, Jeffrey How, Walter Henri Gotlieb

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## *Table of Contents*

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<b>Original Manuscript</b> .....	<b>4</b>
<b>Supplementary Files</b> .....	<b>14</b>
Multimedia Appendixes .....	<b>15</b>
Multimedia Appendix 2.....	<b>15</b>



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Sena Turkdogan<sup>1</sup> MD, MPH; Gabriel Schnitman<sup>2</sup> MD; Tianci Wang<sup>3</sup> MSc; Raphael Gotlieb<sup>4</sup> MSc; Jeffrey How<sup>5</sup> MD, MPH; Walter Henri Gotlieb<sup>6</sup> MD, PhD

<sup>1</sup>Department of Otolaryngology- Head and Neck Surgery, McGill University Montreal CA

<sup>2</sup>Department of Experimental Surgery, McGill University Montreal CA

<sup>3</sup>Department of Physiology, McGill University Montreal CA

<sup>4</sup>Precare Inc Montreal CA

<sup>5</sup>Department of Gynecologic Oncology and Reproductive Medicine, MD Anderson Cancer Center Houston US

<sup>6</sup>Division of Gynecologic Oncology, Jewish General Hospital Montreal CA

## Corresponding Author:

Tianci Wang MSc

Department of Physiology, McGill University

3649 Promenade Sir-William-Osler

Montreal

CA

## Abstract

The recent Coronavirus (COVID-19) pandemic has caused a large portion of oncology consultation to be conducted remotely. Maladaptation or compromises of care resulted could negatively impact oncology patients and their disease management. We herein describe the development and implementation process of an online animated patient education tool that could support patients with reduced in-person interactions with their health care providers. The platform presents multilingual oncology care instructions and infection prevention during COVID adapted to patient's literacy level, developed through multi-layered interdisciplinary collaboration. It serves to support oncology patient in the growing telemedicine and virtual care environment through strengthening the patient-activation, self-efficacy and emotional well-being.

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## Digital Education Tools for Cancer Patients during COVID-19

Sena Turkdogan<sup>1</sup>, Gabriel Schnitman<sup>2,6</sup>, Tianci Wang<sup>3</sup>, Raphael Gotlieb<sup>7</sup>, Jeffrey How<sup>4</sup>,  
Walter Gotlieb<sup>5</sup>

<sup>1</sup> Department of Otolaryngology – Head and Neck Surgery, McGill University, Montreal, Quebec, Canada.

<sup>2</sup> Department of Experimental Surgery, McGill University, Montreal, Quebec, Canada

<sup>3</sup> Department of Physiology, McGill University, Montreal, Quebec, Canada

<sup>4</sup> Department of Gynecologic Oncology and Reproductive Medicine, MD Anderson Cancer Center, Houston, Texas, USA

<sup>5</sup> Division of Gynecologic Oncology, Jewish General Hospital, McGill University Montreal, Quebec, Canada

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### Corresponding

Tianci Wang,  
Department of Physiology, McGill University  
3649 Promenade Sir-William-Osler, Montreal, QC, Canada H3A 1W9.  
Email: tianci.wang@mail.mcgill.ca

### Author:

MSc.

University

**Disclaimers:** <sup>6</sup> Intern of Mitacs Accelerate program. <sup>7</sup> Founder of Precare Inc.

**Abstract**

The recent Coronavirus (COVID-19) pandemic has caused a large portion of oncology consultation to be conducted remotely. Maladaptation or compromises of care resulted could negatively impact oncology patients and their disease management. We herein describe the development and implementation process of an online animated patient education tool that supports oncology patients remotely in the context of reduced in-person interactions with health care providers. The platform presents multilingual oncology care instructions and infection prevention during COVID adapted to patient's literacy level, developed through multi-layered interdisciplinary collaboration. It serves to support oncology patient in the growing telemedicine and virtual care environment through strengthening the patient-activation, self-efficacy and emotional well-being.

**Introduction**

The recent COVID-19 pandemic has challenged global healthcare systems. Oncology patients are among the most vulnerable populations with higher risks of contracting (18% vs. 0.29%) and

developing severe complications of COVID-19 (39% vs. 8%) compared to non-cancer patients.[1, 2] Liu *et al.* recently examined the use of telehealth in oncology during the pandemic, discussing areas of healthcare services that can be transitioned to digital.[3] Indeed, telemedicine visits have been rapidly adopted to prevent disease transmission, and the uptake of digital tools facilitating remote networking has increased significantly.[4, 7] However, despite increasing value of telehealth, little has been developed to address demands from the patients' perspective.[8, 9] The development of digital education tools for oncology patients could fill an unmet need to the growing telehealth environment, empowering patients and reducing anxiety.[8]

The present crisis has emphasized the demand for an organized, evidence-based, digital medical education tool that can satisfy patients' needs for knowledge. Although health information has become readily available online, they are often ill-adapted to the population's health literacy.[6] Furthermore, the lack of screening of the published materials leads to a heightened risk of misinformation.[5] Numerous studies have underlined the value of e-health in the current context and have provided evidence of the effectiveness of digital tools.[9] Therefore, we propose a suggested approach for the development of online education platforms for oncology patients, which performs to ensure patients are equipped with adequate and accurate medical information.

### **Online education platform**

The use of digital media for patient education offers various advantages compared to traditional media (e.g. pamphlets or hand-outs) as depicted in *Appendix 1*. Among the various digital tools, the use of multimedia or video has been shown to be more effective than pure texts, even when only simple images were used.[6, 10] Between the different formats of videos available, animations possess the advantage of illustrating complex material in a vivid way to facilitate understanding. Combining with the guidance of spoken texts, animations may provide information processing

boosted by simultaneously prompting audio and visual receptive channels.

To optimize support to cancer patients during the pandemic, partnerships between industry representatives, universities, and healthcare institutions are established for the production of multifaceted and integrative platform. Our result is the creation of oncology patient education animations in multiple languages, offered via an online platform. The creation process involves the following steps:

### **1. Topic delineation**

Topics of animations should be determined through an analysis of demands from patients and healthcare institutions. It should attempt to directly address the patient's needs. In our case, the selected topics include cancer treatments, as well as good practices of self-care and disease prevention for oncology patients during the COVID-19 pandemic.

### **2. Content development**

Creation of well-balanced, evidence-based patient education videos requires the assembly of a multidisciplinary team from different branches of healthcare and digital media, encompassing professionals such as physicians, nurses, psychologists, social workers and graphic designers. The first step is to perform a broad literature review concerning the determined topic – in this case, COVID-19 and cancer. This transdisciplinary approach ensures the accuracy and validity of medical information included in the script.

The language of the script should contain limited medical jargons and be written at a grade 6 level of comprehension to accommodate different health literacy levels. The duration should be kept at a maximum of 15 minutes to allow vital information to be thoroughly discussed while respecting the audience's attention span.

### **3. Animation production**

The aforementioned multidisciplinary partnership ensures that medical information is delivered in an engaging and visually appealing fashion. To aid comprehension, audio voice-



over is spoken slowly and clearly. Additionally, the content on our platform [[www.precare.ca/oncology](http://www.precare.ca/oncology)] (*Appendix 2*), is presented with options for English and French audio, and subtitles in 20 languages to accommodate for the various cultural backgrounds of the patient population. Animations concerning cancer care during COVID-19 with essential information on infection prevention and alert signs during homecare, as well as immunotherapy and chemotherapy guides represent examples of productions.

#### **4. Implementation and feedback**

Implementation of the tools can be carried out through a partnership with oncology healthcare teams to promote flow of information to patients. Healthcare professionals provide introduction and validation to the online platform, which can then be accessed without temporal or spatial limits, providing patients with a channel for central, authoritative source of medical information at home.

Feedback can be obtained from patients through the hospital staff. Ideally, the platform also generates analytic data that allows assessments of acquisition, conversion and behavior. These analytical datasets provide constant suggestions for improvements to find the balance between standardization of content and personalization of the educational experience to individual needs. For example, if the average age of viewers reported by the analytics is different from expected, the language, style, and characters appeared in the animations can then be adapted accordingly.

## **Conclusion**

The implementation of an animated patient education platform can be designed to prepare patients and their caregivers for their treatment in an attempt to improve outcomes in satisfaction, using a methodical and collaborative approach. Multimedia tools allow a portion of the patient's care to occur in a home setting, freeing them from hospital resources. During the pandemic, the rapid

adoption of virtual care might not be sufficient to cover a patient's oncology and emotional needs. We describe the framework for producing and implementing online animations to serve as an educational tool for oncology patients and their personal support networks.



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## Authors' Contribution

ST contributed to the implementation of the research, the analysis and the writing of the manuscript.

GS contributed to the literature review, the design and implementation of the research, the analysis and the writing of the manuscript.

TCW contributed to the literature review, the implementation of the research and the writing of the manuscript.

RG contributed to the design and implementation of the research, the analysis and the writing of the manuscript.

JH and WG contributed to the writing and editing of the manuscript

## Conflict of Interest

Co-author (RG) is the founder of the company Precare Inc. partner in the development of the medical guide in this manuscript.

The authors had full access to the data in the study and final responsibility for the decision to submit for publication.

No other conflicts of interest to declare.

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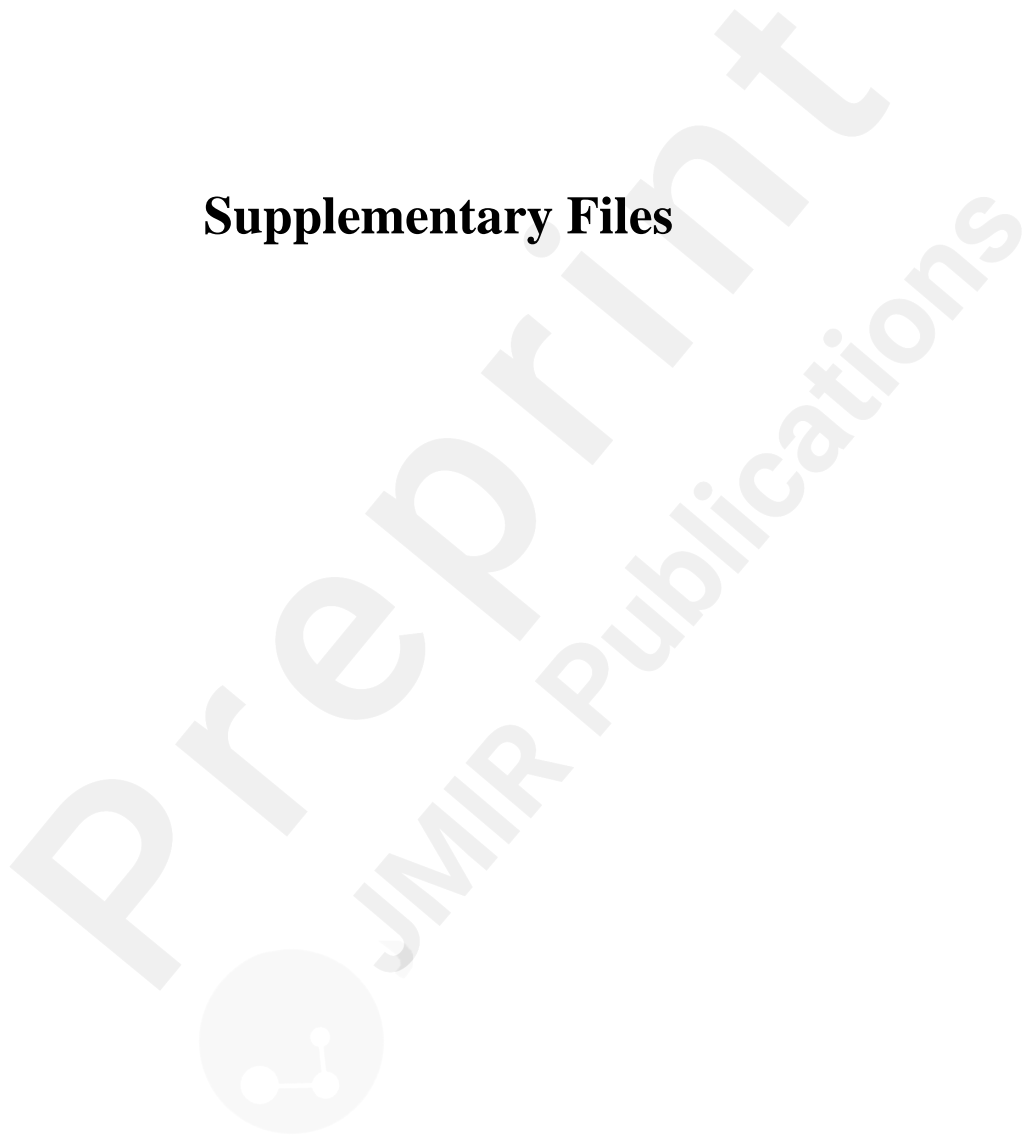
## Appendix 1. Comparison between digital and traditional educational media

	Digital educational media	Traditional educational media	Cancer patient needs
<b>Accessibility</b>	Free home access	Hospital/clinic dependent access	Easy home access
<b>Content</b>	Flexible and adaptable	Fixed	Reliable
<b>Circulation</b>	Online globally	Local distribution	Personal device

<b>Cost</b>	High implementation cost and high maintenance cost	High implementation cost and high maintenance cost	Free of charge
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## Supplementary Files



## Multimedia Appendixes

Sample video: oncology care during COVID-19.

URL: <https://asset.jmir.pub/assets/6f8e1ca075a164d307d139ac8b2be211.mp4>