Development of a whiteboard video to support the education and recruitment of unrelated donors for hematopoietic stem cell transplantation

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Background

• Patients with a variety of blood diseases may require a hematopoietic stem cell transplant as part of their treatment.
• Over 70% of these patients do not have a suitable genetic match in their family, and require an unrelated donor.1
• A particular need exists for (a) young, male donors, because these donors are associated with improved patient outcomes;2,3 (b) ethnically diverse donors, since patients are more likely to find a match for transplant from within their own ethnic group,4 and (c) informed and committed donors.5

Objective

To create an online resource that will support donor recruitment teams across Canada in (a) educating healthcare professional students about stem cell transplantation; and (b) recruiting the most needed stem cell donors.

Methodology

Choice of tool

• The choice of a whiteboard video format is supported by (a) Mayer’s cognitive theory of multimedia learning;6 and (b) previous studies indicating high levels of viewer engagement and information retention.5

Resource aims

• The specific topics we decided were most important to explain include: 1. The rationale for stem cell transplantation; 2. Principles of human leukocyte antigen-based donor-recipient matching; 3. The donor registration process; and 4. The methods of donation.
• The video was to be clear, concise, and understandable to a public audience.

Resource Design

1. Development of the script and storyboard

• A script was created describing the planned visual content and voiceover for individual scenes
• An artist was retained to draw the whiteboard scenes, with conceptual input from the authors

2. Iterative revision

a) Accuracy of the script was reviewed by stem cell transplantation experts
b) Multiple focus groups were conducted with university students and Stem Cell Club donor recruiters to improve clarity, understandability, and appeal for the target demographic
c) Based on feedback obtained from focus groups, four shorter clips were produced and released alongside the full-length 3.5-minute video. These clips each addressed a specific topic pertaining to stem cell donation.

Finally, a videographer was retained to film and edit the videos.

Results

We developed a total of five whiteboard videos including:

• A full-length video, titled "Stem Cell Donation Whiteboard Video"
• Four short videos:
  1. "What is stem cell transplantation?"
  2. "How are stem cells donated?"
  3. "How does the matching process work?"
  4. "How can I register as a stem cell donor?"

Scenes depict (A) a patient who needs a transplant; (B) an individual registering as a donor; and donors undergoing the collection of stem cells from (C) blood; and (D) bone marrow.

• Metaphorical interpretations of stem cells as factories and genetic markers as barcode labels are used to communicate complex scientific concepts
• The particular need for young, male, and ethnically diverse donors is explained and represented in the characters portrayed
• Each video provides viewers with options to learn more and/or register to donate

Evaluation

Recruiter perspective

In 02/2019, a needs-assessment survey was conducted including 35 donor recruiters from 7 provinces and with a median of 2.5 years of experience. Participants were asked to rate their agreement with statements pertaining to their use and perceived effectiveness of the whiteboard videos. Results are shown below:

Q1. Sharing these whiteboard videos will help to raise awareness about stem cell donation.
Q2. Sharing these whiteboard videos will help to educate potential donors about stem cell donation.
Q3. These whiteboard videos will help to recruit the most needed donors (ethnically diverse people and males).
Q4. I will share these whiteboard videos in the future.

Usage and impact

• 57% of donor recruiters surveyed in 02/2019 had shared or used the whiteboard video(s) to help recruit donors
• As of May 11, 2019, the whiteboard videos have accumulated a combined total of 6554 views through Facebook and YouTube.
• The videos have been shared by organizations including the Leukemia & Lymphoma Society of Canada, World Marrow Donor Association, BMT Information Network, Bone Marrow and Stem Cell Transplant Club, Kathlin Bedard Bone Marrow Association, and British Columbia Leukemia BMT Program Website.

Conclusions

• A set of whiteboard videos was developed to support the education and recruitment of unrelated stem cell donors.
• The videos are relevant and accessible to a wide audience
• Future work will evaluate the impact of the videos on knowledge transfer to potential donors from the most needed demographics, as well as changes to their beliefs and attitudes towards donation.

References


Acknowledgements

The authors would like to thank Stem Cell Club members from across Canada for their contributions to and review of the videos. Thanks also to the stem cell transplantation experts and university student focus groups who reviewed the script and videos.

These videos were made possible through a grant from Canadian Blood Services, as well as a 2018 Canadian Blood Services BloodTechNet grant. The views expressed in the materials are the views of the Stem Cell Club and do not necessarily reflect those of Canadian Blood Services.