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One Institution - 2 Podcasts - Our experience

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Abstract

Objectives: Podcasts have increased in popularity since the early 2000s. The number of medical podcasts created by physicians for patients and/or health care providers is increasing. With the increase in podcasts' popularity and their convenience, podcasts have significant potential for use as an educational tool.

Methods: Faculty at the Children's Hospital of Pittsburgh of UPMC have created two podcasts, the Pediatric Hospital Medicine (PHM) podcast and the Down Syndrome Center (DSC) of Western Pennsylvania Podcast. This paper is a descriptive review of both podcasts. The PHM podcast was created for health care providers who care for hospitalized children. The DSC podcast was started as a source of reliable information for parents of children with Down syndrome.

Results: The PHM podcast has over seventeen thousand downloads in over sixty-seven countries. The DSC podcast has over twenty-three thousand downloads in over sixty-nine countries. The PHM podcast has an option for listeners to get CME credit after they listen to the podcast if they click on a link at the University of Pittsburgh website and answer a few questions. Data from responses to these questions demonstrates that 83% of the respondents reported that the podcast either highly or very highly enhanced their knowledge of the subject matter, and 86.8% reported that the content of the podcast was highly or very highly relevant to their work.

Conclusion: These results suggest podcasts are a popular and useful tool for disseminating information to families and health care professionals.

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Background

Merriam Webster defines a podcast as “an episodic series of digital audio or video files which a user can download and listen.”

Podcasts are often available for subscription, so that new episodes are automatically downloaded via web syndication to the user's own local computer, mobile application, or portable media player. Podcasting was initially known as “audioblogging” and was started in

the 1980s [1]. Podcast usage has increased since the early 2000s mainly due to MP3 music purchasing sites beginning to host podcasts [2].

In 2017, the Edison research group did a national telephone survey of 2000 people aged 12 and older using random digit dialing techniques and found that listening to podcasts has increased in popularity with the US consumer [3]. Twenty four percent of US consumers aged 12 and older, approximately 67 million Americans, said they listened to at least 1 podcast in the past month [3]. This was the highest percentage of the respondents to report listening to podcasts on a regular basis since such data collection began. The upward trend started in 2013 and continues; 56% of monthly podcast consumers are male, and 44% are female. Podcast consumers are often younger; those most likely to listen to podcasts are 18 to 34 years-old. Podcast consumers tend to be more affluent Americans, with 45% of monthly podcast consumers earning at least \$75,000 in annual household income. This is higher than the median American income of \$59,039, according to the US Census Bureau in September 2017. Podcast listeners also tend to be more highly educated. While 41% of the U.S. population has at least a college degree, 57% of podcast listeners report that they have completed college or a higher level of education. Fifteen percent of Americans listen to a podcast weekly. Eighty-six percent of podcast consumers say they listen to at least most of a podcast (44% most, 42% the entire podcast) [3].

Despite the increasing popularity of podcasts in general, there are only a few medical podcasts created by physicians for other physicians or patients. Some journals podcast their abstracts (e.g. *New England Journal of Medicine*). A few others podcast entire articles (e.g. *The Annals of Emergency Medicine*). Some academic societies have podcasts that they release at regular intervals (e.g. American College of Gastroenterology, Society of Critical Care Medicine and American College of Emergency Medicine) [4]. New podcasts are continually

being created; eleven new pediatric podcasts directed at health care professionals have been developed since 2016. With the increase in podcasts' popularity and their convenience, podcasts have significant potential for use as an educational tool. Faculty members in the Paul C. Gaffney Division of Pediatric Hospital Medicine at the Children's Hospital of Pittsburgh of UPMC have created two podcasts, the Pediatric Hospital Medicine podcast and the Down Syndrome Center of Western Pennsylvania Podcast, each with a different intended audience. This paper is a descriptive review of the podcasts, the reasons they were developed, and their current impact.

Methods

Pediatric Hospitalist Medicine Podcast

"The Pediatric Hospital Medicine Podcast Series" (PHMP) is an audio-only podcast aimed at pediatric hospitalists with the goal of reviewing the core competencies for pediatric hospital medicine published in *Pediatrics* in 2010 [5]. In October 2016, the American Board of Medical Specialties approved Pediatric Hospital Medicine (PHM) as a subspecialty of pediatrics. The impetus for creation of the PHMP was to develop an educational tool for this newly recognized subspecialty of pediatrics and the expected increase in the number of pediatric residents pursuing fellowship training in the field.

In the next several years, a Pediatric Hospital Medicine Board exam will be required to become board certified in the subspecialty. Many PHM physicians are young faculty with growing families and other responsibilities. Finding an efficient way to review subject material to provide optimal patient care and prepare for such an exam can be challenging. The PHMP was developed to offer a unique teaching tool to address some of the challenges physicians face in devoting time to medical education outside their busy clinical practices. Physicians can listen to the podcasts while commuting, at the gym, or while cooking



dinner, allowing them to complete two tasks simultaneously.

Children's Hospital of Pittsburgh of UPMC (CHP) is a tertiary-care facility which has been named to the U.S. News and World Reports list of top ten children's hospitals for the past eight years. The podcast was designed to allow expert clinicians in their respective fields to discuss subjects included in the PHM core competencies and review the literature with one of the CHP pediatric hospitalist faculty members. The format of the podcast also allows the expertise of the clinicians to be disseminated to a large audience, including to international listeners.

The PHMP generally follows two distinct formats. For podcasts devoted to specific disease entities, the podcast host discusses recent and relevant literature with an expert in the field. When possible, attempts are made to focus on specific areas within the broader topics, such as discussing the evidence for transition from IV to oral therapy for acute hematogenous osteomyelitis. For podcasts devoted to a broad topic, such as pediatric palliative care, an expert in the field answers specific questions related to the PHM core competencies. Two additional podcasts were developed to address the impacts of Hurricane Harvey and Maria on providing healthcare to children living in the affected areas. While these two episodes of the podcast did not directly address the PHM core competencies, the impact of these natural disasters on the children in the respective communities was too important a topic not to discuss.

Down Syndrome Podcast

"The Down Syndrome Center of Western Pennsylvania Podcast" is also an audio-only podcast, but is intended for patients and families as its primary audience rather than clinicians. Down syndrome, like many other chronic conditions, has several organizations and websites where patients and families can find information about Down syndrome.

However, in this mobile era, providing information that is up to date and easily disseminated is crucial, and podcasts can fill that role well.

Additionally, during a clinic visit, common questions often arise from many patients and families. With the constraints on time during individual clinic visits, addressing each of the questions completely can be a challenge. Therefore, a method of efficiently and thoroughly addressing these questions is a vital part of providing effective patient care.

An innovative method to provide accurate and complete information to patients and families was essential to the Down Syndrome Center (DSC) team. Podcasts seemed to be an ideal way to achieve that goal. This led to a search for existing electronic media resources on the topic. A search for "Down syndrome" in the podcast databases found two podcasts on the topic. One podcast no longer existed (had one episode from many years earlier with no subsequent podcast release). The other podcast was a parent-related support podcast for fathers of children with Down syndrome that did not provide specific medical information.

The goal to fill this void of information led to the release of the first Down Syndrome Center of Western Pennsylvania Podcast in February 2013. The information presented was intended for patients and parents in an easily digestible ten to fifteen-minute format.

Both Podcasts

The two podcasts developed at Children's Hospital of Pittsburgh of UPMC use different formats. The Down Syndrome Center podcasts have a relatively short duration, which is consistent with some recommendations for podcast length that they be no more than ten to twenty minutes to avoid losing the audience's attention [6]. No studies have been conducted to compare the length of a podcast with any outcome measure [1]. The hospital medicine podcast is longer with most podcasts being over

an hour in length. Both are downloaded by their respective audiences, so it is challenging to say if one length is “better” than another. It may be that, if the content and presentation are well done, the length can vary.

Due to technological advancement, only a few items are needed to create a podcast. Recording can occur in any office with a microphone and/or Skype® to record episodes with remote participants. Audacity® and GarageBand® are highly-rated free apps which are used for audio editing. Libsyn® is the podcast host for the two podcasts developed at Children’s Hospital of Pittsburgh and was selected due to its ability to provide detailed descriptions of the number of podcasts downloaded and the geographic location of each download. Libsyn® easily places podcasts directly onto iTunes® and other searchable podcast feed sites. For the PHM podcast, the University of Pittsburgh provides free CME credit to all listeners who answer five questions which review the podcast material.

Results

Pediatric Hospital Medicine Podcast

Since its initial episode in October 2016, the PHM podcast has been downloaded over 17,000 times in 67 countries. More than 85% of the downloads occurred in the United States of America. **Table 1** gives a detailed description of all the episodes for this podcast, the special guest, and the exact number of downloads at the time of this writing. As stated above, free CME credit has been offered for the majority of the PHM podcast episodes. To get CME credit, the listener must click on a link to a University of Pittsburgh website, log into the site, answer five questions about the content presented, and answer a three-question survey about the podcast itself using Likert scales. Data

collected from these surveys is included in **Tables 2-4** below. As demonstrated in **Table 2**, listeners reported that the podcast episodes enhanced their knowledge of subject areas with 83% of respondents reporting that the podcast either highly or very highly enhanced their knowledge of the subject matter. Respondents also found the information included to be applicable, with 86.8% of the respondents reporting that the content of the podcast was highly or very highly relevant to their work as seen in **Table 3**. Finally, as seen in **Table 4**, 98.6% felt highly or very highly that the content of the module was balanced and free of commercial influence.

Down Syndrome Center of Western Pennsylvania Podcast

To date, there have been 43 podcasts released with over 23,000 individual downloads since 2013. Podcast downloads have been in 69 countries with 17.3% of the downloads from outside of the United States (**Table 5**). Of the podcasts downloaded within the U.S., 72% of them are from outside of Pennsylvania, the home state of the podcast.

The topics covered in the DS podcast are intended primarily for parents and care providers and cover a wide variety of topics broadly categorized into four major groups - medical, general pediatric (e.g., toilet training, behavioral management), educational information (e.g., transitioning to preschool, IEPs, sign language), and general Down syndrome awareness (short videos highlighting people with Down syndrome). Somewhat surprisingly, 67% of the podcast downloads have been those that cover general pediatric topics with a specific focus on how management of those issues may be different in a child with Down syndrome (**Figure 1**).



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Table 1: is all of the episodes released by the PHM podcast with the expert guest, date released and number of downloads.

Episode Title	Expert Guest	Date Uploaded	Number of Downloads
History of Pediatric Hospital Medicine	Drs. Basil Zitelli* & Sara McIntire*	10-16-2016	1419
Acute Hematogenous Osteomyelitis	D. Michael Green*	1-17-2017	1799
Urinary Tract Infection (UTI) and UTI with Bacteremia in Children	Dr. Nader Shaikh*	2-27-2017	3276
Bronchiolitis – Update in the Literature over the past 3 years	Dr. Sylvia Choi*	4-18-2017	2361
Pediatric Hospice & Palliative Care Review from the PHM Core Competencies	Dr. Scott Maurer*	5-3-2017	1581
Choosing Wisely in Pediatrics - Safely Doing Less	Dr. Ricardo Quinonez#	7-1-2017	2277
Pediatric Community Acquired Pneumonia	Dr. Samir Shah±	9-26-2017	1261
Hurricane Harvey Experience from Texas Children's Hospital and Shelter	Drs. Brent D. Kaziny# & Saranya Srinivasan#	10-3-2017	768
Puerto Rico - Hurricane Maria Recovery	Drs. Jahzel M. González-Pagán®, Graciela Bauzá*, Lilinete Polsunas* & Josie Danelli Fuentes Gutierrez@	10-12-2017	1046
Child Abuse – Review from the PHM Core Competencies	Dr. Rachel Berger*	12/9/17	716
Flu vaccine update and Oseltamivir discussion	Dr. John Williams*	12/22/17	838
Total Downloads			17,391

= Texas Children's Hospital in Houston, Texas. * = Children's Hospital of Pittsburgh of UPMC
 ± = Cincinnati Children's Hospital Medical Center @ = University Pediatric Hospital of Puerto Rico

Table 2: To what extent did the program enhance your knowledge of the subject area?.

Lecture	Very High	High	Moderate	Low	Very Low
History of PHM	9	10	6	0	0
Flu	1	5	2	0	0
Palliative Care	7	3	2	0	0
Bronchiolitis	8	8	3	0	0
Choosing Wisely	12	3	3	0	0
CAP	8	5	0	0	0
Child Abuse	2	2	0	0	0
Osteomyelitis	14	7	4	0	0
UTI	12	5	3	1	0
Totals	73	48	23	1	0
TOTAL CME GIVEN	145				

Table 3: To what extent was the content of the program relevant to your work?.

Lecture	Very high	High	Moderate	Low	Very Low
History of PHM	15	5	4	1	0
Flu	5	1	2	0	0
Palliative Care	5	1	5	1	0
Bronchiolitis	16	1	2	0	0
Choosing Wisely	14	4	0	0	0
CAP	10	3	0	0	0
Child Abuse	4	0	0	0	0
Osteomyelitis	17	5	3	0	0
UTI	15	5	0	1	0
Totals	101	25	16	3	0
TOTAL CME GIVEN	145				

Table 4: What is the degree to which the content of this module was balanced and free of commercial influence?

Lecture	Very High	High	Moderate	Low	Very Low
History of PHM	23	2	0	0	0
Flu	5	3	0	0	0
Palliative Care	12	0	0	0	0
Bronchiolitis	18	1	0	0	0
Choosing Wisely	17	0	0	0	1
CAP	10	3	0	0	0
Child Abuse	4	0	0	0	0
Osteomyelitis	23	1	0	0	1
UTI	20	1	0	0	0
Totals	132	11	0	0	2
TOTAL CME GIVEN	145				

Figure 1: Down syndrome podcast downloads by topic.

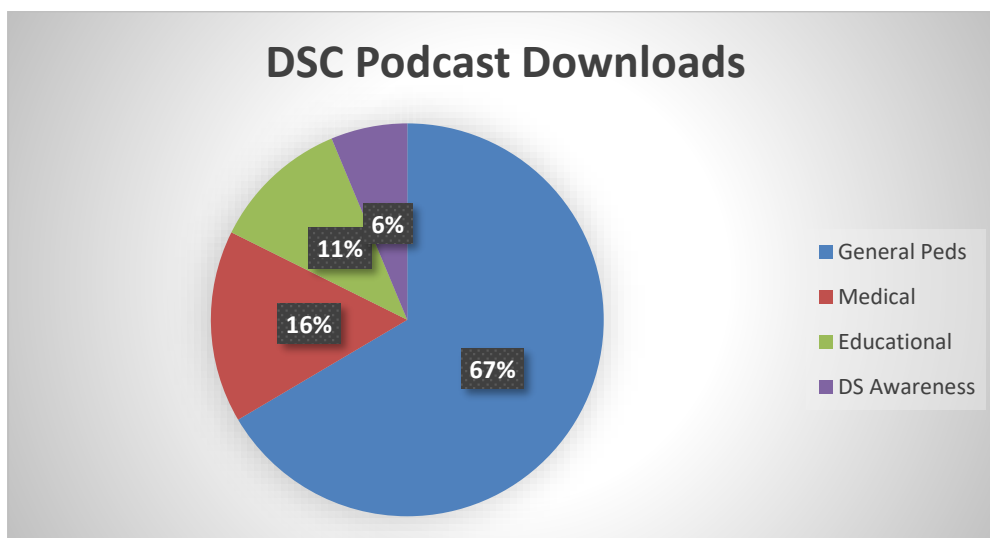


Table 5: Downloads by Country at DSC Podcast.

Country	Downloads	Percent
United States	18702	82.7%
Australia	729	3.2%
Canada	574	2.5%
United Kingdom	458	2.0%
France	400	1.8%
China	195	0.9%
Japan	186	0.8%
Brazil	172	0.8%
Ireland	160	0.7%
New Zealand	93	0.4%
Mexico	72	0.3%
Norway	64	0.3%
Germany	63	0.3%
Italy	54	0.2%
India	50	0.2%
Saudi Arabia	50	0.2%
Russian Federation	50	0.2%
Sweden	40	0.2%
Turkey	26	0.1%
Switzerland	25	0.1%
Colombia	24	0.1%
Hong Kong	24	0.1%
Israel	23	0.1%
Philippines	22	0.1%
Cyprus	21	0.1%
42 other countries with <20 downloads		

Discussion

Both PHM and DS Podcasts

Next Steps

Thirteen quality indicators have been agreed upon by more than 90% of an international consensus of health professions educators for medical education podcasts [7]. The PHM podcast meets all 13 of these quality indicators. The DSC podcast is not designed as a medical education podcast for physicians but is a parental education resource. The DSC podcast meets 12 of the 13 criteria agreed upon by the international consensus. The only criteria not met is that the podcast does not list conflicts of interest.

A weakness in the study of podcasts is the difficulty in measuring outcomes of their impact. This is, in part, due to the diverse and worldwide distribution of listeners and difficulty in getting listeners to complete surveys. Despite over 17,000 downloads of the PHM podcast, listeners completed the survey to obtain CME credit only 0.8% of the time. This disparity is surprising. Possible explanations include listeners may not need nor have time to request CME, may not be aware that CME is offered (although every podcast mentions the free CME), or listeners may be residents or students. The next step for the PHM podcast will be to create a survey asking how listeners found out about the podcast, the educational level of the listeners, their opinions on the length and format, and their perception of its

value. This information will be valuable in helping to improve and refine the podcast. A request to complete the survey will be made during the PHM podcast in hopes of increasing the number of listener responses.

The DSC podcast will continue creating new podcasts, focusing especially on general pediatric issues for patients with Down syndrome. A survey for the DSC podcast will be created, specifically addressing listener opinions on the length and format of the podcast and their perception of its helpfulness. Our institution is producing two medical education podcasts with different intended listeners. One podcast is directed to medical professionals, while the other is targeting a specific patient population. Both podcasts have had success as measured by the frequency with which they have been downloaded by listeners from around the world. Podcasting is a media format that is increasing in popularity and has significant utility as an educational tool for patients, families, and the practitioners caring for them [8,9]. The portability, convenience, and the rapidity with which new episodes can be created allows podcasts to fill a niche beyond traditional journals. Podcasts can be free, which allows easy access for patients/families, residents, or anyone who may have a limited budget. A drawback is that podcasts are not peer reviewed. The listener may question the accuracy of the information being presented. Both the DSC and PHM podcasts use expert guests to help ensure the accuracy of information presented. The data collected to measure the distribution and impact of these two podcasts suggest that podcasts are a popular, efficient, and useful tool for disseminating information to families and health care professionals beyond geographical boundaries.

Abbreviations

PHM - Pediatric Hospital Medicine; DSC - Down Syndrome Center, CHP - Children's Hospital of Pittsburgh.

Table of Contents Summary

This article describes how one children's hospital created two different podcasts, one for patients and one for hospitalists and the results.

Acknowledgements

1. Dr. Megan Keane-Tarchichi
2. Financial support for the PHM podcast came from Children's Hospital of Pittsburgh of UPMC - Department of Pediatrics - Paul C. Gaffney Division of Pediatric Hospital Medicine
3. Financial support for the Downs Syndrome podcast from the Children's Hospital of Pittsburgh's Foundation.

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