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Saddia Cheema
University of Tennessee Health Science Center

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Video Visits: A closer look at patient satisfaction and quality of virtual medical care

SADDIA CHEEMA

University of Tennessee Health Sciences Center

Author Note

This thesis was prepared as a program of study completion in obtaining a Masters in Health Informatics and Information Management with guidance from Professor Sajeesh Kumar

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Abstract

Electronic medical services via video visits has revolutionized the delivery of medical care by Physicians and medical staff alike. Its steady evolution and progression towards the future of healthcare has provided insight on how to better serve patients and community members seeking care. This study will explore patient satisfaction and the quality of virtual medical care services provided by Physicians thru video visits as well as the impact of minimizing the spread of communicable diseases. Statistical data was gathered from a major U.S. healthcare company evaluating survey responses as well as feedback provided by member experience who visited with their respected providers via video visits. While the data captures survey response over a one year time frame, it provides insight towards positive future trends concerning video visits and how providers may use this information to improve services delivered to patients. This information may also serve valuable purpose for physicians in understanding technological advancements associated with the use of video visits, trends associated with cost effectiveness, marketability, competitors edge, patient satisfaction, and effective use of time as well as demonstrate its superiority to in person face to face patient visits with physicians.

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Video Visits: A Closer Look at Patient Satisfaction, Quality of Medical Care and the Impact of Minimizing the Spread of Communicable Diseases

Chapter 1

Introduction

Video visits provide patients with the opportunity to seek medical care without having to physically be present in an office or hospital setting. Not only are patients able to communicate virtually via video conferencing, but email and texting providers are readily becoming available for patients to utilize as a faster method for contacting their physicians. Various situations lead to the utilization of video visits such as the urgency to seek advice without having to visit the Emergency Room, or for patients who live in rural communities that are underserved, those who may have ailing health where they may find difficulty accessing healthcare outside of the comfort of their homes and when unexpected emergencies may occur on weekends when most primary care offices are not open for service. “Virtual visits satisfy patients' thirst for timely access to care and allow them to communicate with their doctor when it's convenient for them, whether from home or work, regardless of the time of day. With a virtual visit, patients don't have to wait on hold to schedule an appointment, they don't have to miss work and they don't have to waste time in a waiting room. This type of information exchange allows them to describe their problem and formulate their questions without feeling rushed, and because they have their physician's response in writing, they can reread the information as often as they like or need to understand the content,” (Eads, 2007). However, numerous variables come into play that may disrupt the effectiveness of utilizing video visits specifically cost, marketability, provider reimbursements through insurance companies, provider to patient response time, patient satisfaction and quality of services provided. These variables will be further investigated to

validate the efficiency and effectiveness of video visits in an evolving healthcare system and to reaffirm that it is the superior alternative to in person care treatment as well as the risk of spreading communicable diseases is lowered.

Background

Historically, telemedicine is the foundation and parent contributor to the development of electronic health technologies. According to Perednia and Allen (1995) Telemedicine has been part of the U.S. health care system for several decades. It can be broadly defined as the use of telecommunications technologies to provide medical information and services. Although this definition includes medical uses of the telephone, facsimile, and distance education, telemedicine is increasingly being used as shorthand for remote electronic clinical consultation. Telemedicine is a diverse collection of technologies and clinical applications. The defining aspect of telemedicine is the use of electronic signals to transfer information from one site to another (Perednia & Allen, 1995). Advancements in such medical technologies like video visits provides alternatives to consulting with physicians without physically having to be present.

Cost effectiveness and catering to the aging population through the use of video visits are some of many considerations for improving the health care delivery system overall. “Its applications in home health care are a relatively new phenomenon. Using personal computers and video equipment that transmit data over ordinary telephone lines, home health providers are now able to monitor patients and provide care at a much lower cost than earlier technologies that required wider bandwidth telephone lines and more complex equipment. The aging population and the push for more efficient delivery of hospital services have fueled this growing demand,” (Dansky, Palmer, Shea & Bowles, 2001). Maintaining affordable health care aligns with the

current strategies of improving the availability and delivery of services with significant focus towards reducing costs and increasing access.

The continuous growth of internet access and creating affordable technologies such as computers, tablets and mobile devices play a vital role to successful video visit implementation. “In the United States, it is estimated that 72% of all adults and 81% of those using Internet services now access health information online. Meanwhile, the increasing use of smart mobile devices has facilitated remote video communication and access to information. As such, several specialities have investigated the feasibility and acceptability of virtual teleconsultations including primary care, dermatology, and orthopedics, with studies reporting high levels of acceptability and satisfaction, improved outcomes, and reduced costs,” (Viers et al., 2015).

Purpose of Study

Consulting patients through the use of video web chat and the ease of convenience from doing so from home are components this study looks to explore to provide assurance and justification for its use. The purpose of this study is to understand how patients are able to save time to physically go into an office or hospital, to improve the delivery of health care, understand the quality of virtual medical care and possibly advocate for the increase use of video visits as the preferred method for seeking medical advice from physicians. The evaluation of patient satisfaction survey responses and feedback within this study may leverage support for physicians or healthcare facilities looking to adopt technological advancement through the use of home video visits. Research may also provide a positive use case for video visits particularly concerning how to prevent the spread of communicable diseases such as the flu. When patients participate in video visits, common symptoms of the flu such as coughing and sneezing are more contained and the risk of spreading germs to a greater population are less likely.

Significance of Study

This thesis will provide insight to the importance of promoting virtual health care and the adoption of such Telehealth components like video visits. Strategies to identify cost effectiveness and efficiency when utilizing these types of technologies will demonstrate how providers and healthcare affiliates may benefit from its use. Current expansion with the use of video visits is the current direction the global health care market is moving towards. Integration of devices and technologies alike will increase opportunity to reach populations that may not have access to healthcare all together.

Research Questions

Quality of virtual medical care and patient satisfaction are key elements which contribute to the overall success of launching home video visits within any participating health care organization. Research question to consider for understanding the quality of video visits include:

- What elements of the virtual video visit are evaluated when examining patient satisfaction?
- Are health care organizations and physicians who participate in video visits able to use the data and patient feedback to improve marketability and leverage competitor's edge?

Analysis will provide statistical data referencing patient satisfaction in various areas concerning video visit convenience, ease of use, quality of equipment and overall experience.

Chapter 2

Literature Review

A literature review was conducted through the use of numerous databases accessible via the University of Tennessee Library to include PubMed, CINAHL, Discovery Service and Google Scholar via Google's search engine. Searchable keywords include virtual visits, virtual health, e-visits, cost effectiveness, video visits, telemedicine, primary care physicians and telehealth. Contributing articles were published in journals such as the *Journal of the American Medical Informatics Association*, *International Journal of Environmental Research and Public Health*, *European Journal of ePractice* and the *Journal of Telemedicine and Telecare*. Articles were chosen based on concise explanation of video visits with details discussing its effectiveness and its role in current electronic healthcare with analysis focusing on virtual visits vs. in person visits.

Review of Findings

Research focused on physicians and their interactions with patients via virtual health portals. To jumpstart the research, an article review was conducted to understand the basics of video visits and what types of interactions occur between physicians and patients when communicating electronically. "The present study is an extension of a pilot study that compared virtual visits to face-to-face visits in a primary care setting. The objectives were to examine the feasibility, effectiveness and acceptability of a face-to-face office visit compared to a virtual visit. The aims were: (1) to compare the physician's ability to diagnose and treat subjects in both settings; (2) to identify gaps in diagnostic or therapeutic abilities of the physician; and (3) to examine patient and physician satisfaction," (Dixon & Stahl, 2009). Research gathered helped justify and support the superiority of virtual care visits vs. in person. Similarly the mention of

virtual care as the preferred alternative provides perspective on the direction health care companies may opt to go. “With declining reimbursement, rising overhead and increasing productivity demands, family physicians must seek alternative methods for interacting with patients that offer appropriate payment, lend greater efficiency, support sound clinical judgment and boost the patient-physician relationship. Virtual office visits do all of these things,” (Eads, 2007).

Furthermore, insight on preventing the spread of communicable disease provides significant justification for the use of video visits. “As the news of the pandemic outbreaks occurs, and as patients start seeing flu like symptoms, it’s natural for patients to show up in hospitals and urgent care centres. The care givers that the patients with flu interact are at higher risk of exposure. The US occupational safety and health administration (OSHA) has classified healthcare workplaces to be at very high or high exposure risk. As patients start to see symptoms, the ability to interact with their care teams from their home using video solutions, enables early and convenient care. The care team is also able to educate the patients on driving their wellness during the pandemic using relevant information. The goal of this is to enable early elimination by prescreening. When a patient calls for scheduling an appointment, they can be prescreened. A video enabled prescreening workflow can be used to identify healthy patients and sick patients. This can help avoid healthy patients from coming to the hospital and at the same time provide special care to sick patients,” (Vargheese, 2014).

Literature review encompassed collecting survey results from patients who may or may not participate in video visits with their primary care physicians. As mentioned in this third article, the approach research followed a similar survey method which will provide instant feedback to how patients feel about utilizing video visits in comparison to in person visits. “The

studies employed a variety of different methods to assess patients' or doctors' acceptance of a system. Most studies have used questionnaires and in some cases in-depth interviews. In-depth interviews can allow the investigation and clarification of responses but their success depends on the training and abilities of the interviewers, which will vary. They are also expensive. A questionnaire, on the other hand, guarantees that all subjects under study are exposed to the same assessment, and it is a convenient method of data collection that can be used in more than one study. It allows data to be collected from many people in a short time at relatively low cost," (Demeris, Speedie & Finkelstein, 2003). Gathering first hand results from surveys provided substantial support in proving that health services via virtual visits is a beneficial alternative to in person contact. To further break down the questionnaire, asking questions such as the ease of use, turnaround time for physician feedback or response, methods used to communicate via virtual health visits such as email or text messages, and what patients liked or disliked about the video visits.

Survey Methods Evaluated

Numerous survey methods such as questionnaires, sample surveys limited to patients participating in video visits, as well as statistical data supporting economic impact for using virtual visits were evaluated. Some of the articles reviewed share a similar experimental approach which involved the use of video visits ranging from communication impacting email, telephone contact, patient portals, and instant access to personal medical information at the click of a button. The below table provides a breakdown of variables for *some* articles that utilized the

survey method in retrieving patient responses who participated in video visits.

Table 1: Review of e-Visit Articles

Author(s), Year	Survey Method	Variables	Results
Demiris, Speedie, Finelstein & Harris, 2003.	10 patients and 10 nurses from one urban and three rural home care agencies	Virtual visit accessibility, equipment used, analysis of virtual visits	A home care study received virtual visits from nurses via analogue video-phones in their homes. They received standard home care services and two virtual visits per week. The visits were video-recorded and then reviewed on quality of virtual visits.
Dixon & Stahl, 2009	A randomized crossover design of 175 patients	Type of virtual visit, type of physicians involved, in person visits	Compared desktop videoconferencing to conventional face-to-face visits for a range of commonly presenting problems in a general practice. A total of 175 patients were recruited. Patients were randomized to one of two arms of the study. In the first arm, the patients completed a visit (virtual or face-to-face) with a physician; they then completed a second visit via the other modality with another physician. In the second arm of the study, subjects had both visits face-to-face; different physicians conducted the two face-to-face consultations
Demiris, Speedie, Finelstein, Lundgren & Ideker, 2001.	122 virtual visits and content analysis performed for 30	Virtual visit accessibility, type of virtual visit, physician participation	The study's objective was to analyze "virtual" home care visits that utilize telemedicine technology and to investigate the type and quality of interaction between provider and patient. The setting was the TeleHomeCare Project which provides TV-based videoconferencing. Patients are receiving standard home care services with an addition of virtual visits. 122 virtual visits were reviewed and a content analysis was performed for 30 of these.

Demiris, Speedie, Finelstein & Harris, 2000.	20-item questionnaire was developed and tested on 32 subjects	questionnaire items, response time, type of virtual visit	Developed a questionnaire to assess patients' impressions of the risks and benefits of home telecare. A preliminary 20-item questionnaire was developed and tested on 32 subjects. It proved to be of acceptable reliability (Cronbach's alpha of 0.8) and validity, but three items appeared to be redundant. The final 17-item version was tested twice on 10 more subjects and was found to have high test-retest reliability. Most subjects showed an overall positive attitude towards home telecare and agreed it could improve their health.
Birati & Roth, 2011	randomized, 977 to the remote monitoring treatment group and 473 patients to the conventional follow-up group	Types of virtual visits, length of research, patient participation	Total in-office visits were reduced by 45% in the home monitoring group at 12 months. Eighty-six percent of all the remote monitoring group follow-ups were performed using remote monitoring only, indicating that this method provided sufficient assessment in these cases.

Chapter 3

Methodology

Survey questions and results were obtained from the chief Physician of the Telemedicine Program affiliated with a major U.S. Health Care Company that is presently active in using video visits and engaging with their patients via video house calls. Surveys were sent to patients from the member patient satisfaction committee upon completion of their video visit call, to help providers and the company obtain feedback from patient experience (T.B. Holsteen, personal communication, June 3, 2015). The following questions appeared on the survey:

1. How would you have chosen to receive care if house calls was not available?
2. Did you find having the video consultation more or less convenient than your alternative?
3. Based on your level of satisfaction with your experience, what rating would you give to your video consultation overall?
4. What rating would you give to the representative that initiated your video session and made the hand off to the physician?
5. What rating would you give to the physician you saw for your video consultation?
6. How would you rate the ease of using the technology?
7. How would you rate the quality of audio?
8. How would you rate the quality of video?
9. How do you connect for the company for this video consultation?
10. How was your device connected?
11. Will you use house calls again in the future?
12. Would you recommend house calls to your family/friends?

Variables and Rationale

Method of choice to receive care. 1) Clinical Decision Unit or Urgent care location 2) Primary Care doctor 3) Emergency room 4) Urgent care center not affiliated with the company 5) Stayed at home for self-treatment 6) Other

Rationale: Choosing anything other than a video visit would limit the study in responsive feedback pertaining to virtual care experience

Video consultation convenience. 1) Much more convenient than the alternative 2) Somewhat more convenient than the alternative 3) About the same than the alternative 4) Somewhat less convenient than the alternative 5) Much less convenient than the alternative

Rationale: This provides insight to first impressions of video visits as the purpose of conducting these types of visits rest heavily on the convenience factor.

Overall consultation rating. 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Although the perspective of overall experience varies from patient to patient, generalization for first impression feedback of whether one likes video visits or not is useful to know for marketability and patient satisfaction purposes.

Rating the representative. 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Experience with the representative varies in terms of how they assisted and what they assisted with. Providing instructional guidance and making sure proper documentation regarding the visit is available if needed to be retrieved later for review.

Rating the physician. 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Patient satisfaction relies heavy on provider experience and although the question appears to be more of a generalization, patients may respond based on physician

knowledge, familiarity with patient, how patient engagement occurred and reception to patient concerns.

Rating the ease of use of technology. 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Understanding patient reception towards the use of web camera video visits and becoming familiar with technology that supports these types of patient to provider interactions.

Rate the quality of audio: 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Effective communication between provider and patient is necessary for successful usage of video visits.

Quality of video: 1) Excellent 2) Very Good 3) Good 4) Fair 5) Poor

Rationale: Live stream and quality of video is the foundation for even launching the use of video visit type encounters between patients and providers.

Connecting with the video consultation: 1) Smart phone on Apple IOS (e.g. iphone), 2) Smart phone on Android OS (e.g. Samsung Galaxy) 3) Smart phone on Windows OS (e.g. Nokia Lumia) 4) Tablet on Apple IOS (e.g. iPad) 5) Tablet on Android OS (e.g. Google Nexus) 6) Tablet on Windows OS 7) Desktop or laptop computer with a webcam 8) Other

Rationale: Having various platforms with video capability to accommodate video visits in case one option is not available over the other.

Device connected via: 1) Wired 2) Wi-Fi (wireless) 3) Mobile data (e.g. 4G LTE), 4) Other 5) Don't know.

Rationale: Understanding how patients are connected and determining what may attribute to the quality of the video conference or the lack there of due to poor internet connection.

Use house calls in the future: 1) Yes 2) No

Rationale: Patient satisfaction question which vilifies the continued support and use of video visits in the future.

Recommend house calls to family/friends: 1) Yes 2) No

Rationale: Spreading the word and encouraging friends and family by word of mouth experience as first hand participants will generally encourage non users to try video visits.

Population and Sample Design

Mail surveys are sent to participating members of the affiliated Healthcare Company by the member patient satisfaction committee. Those who participated in the video visit interactive call are provided the option to respond via mail or electronically via logging into the member satisfaction website provided. Stratification is based on medical center and participating specialty type and limited analysis to include video visits.

Data Collection Procedure

Request was made to the member patient satisfaction committee to access data concerning member satisfaction after participating in video visits. Upon receiving response from member services, data was tabulated in Excel and presented via tables, pie charts and graphical depiction of results. Data represented the number of video visits conducted within the varying specialties year to date as of 7/31/2015 as well as patient satisfaction survey results from July 1st 2014-July 31st 2015.

Chapter 4

Results

Response Rate of Population

A total of 8,529 video visits occurred YTD as of 7/31/2015. Of the data collected, survey responses from 1,403 members were provided dating from 7/1/2014-7/31/2015. An average score of 92% was yielded for an overall “excellent/very good” experience limited to 10 out of the 12 questions. Percentages were tabulated based on the selection members made responding to the various questions from the survey.

Profile of Sample/Population

Breaking down by the number of chosen responses for each question, the following bar charts depict a visual representation of the patient satisfaction level for each subject to include video rating, audio quality, video quality, representative rating, physician rating, ease of technology, video consultation convenience, future use, recommendation, willingness to be contacted, choice if no video visit care, device connect and device used.

Chart 1- Customer Experience Survey

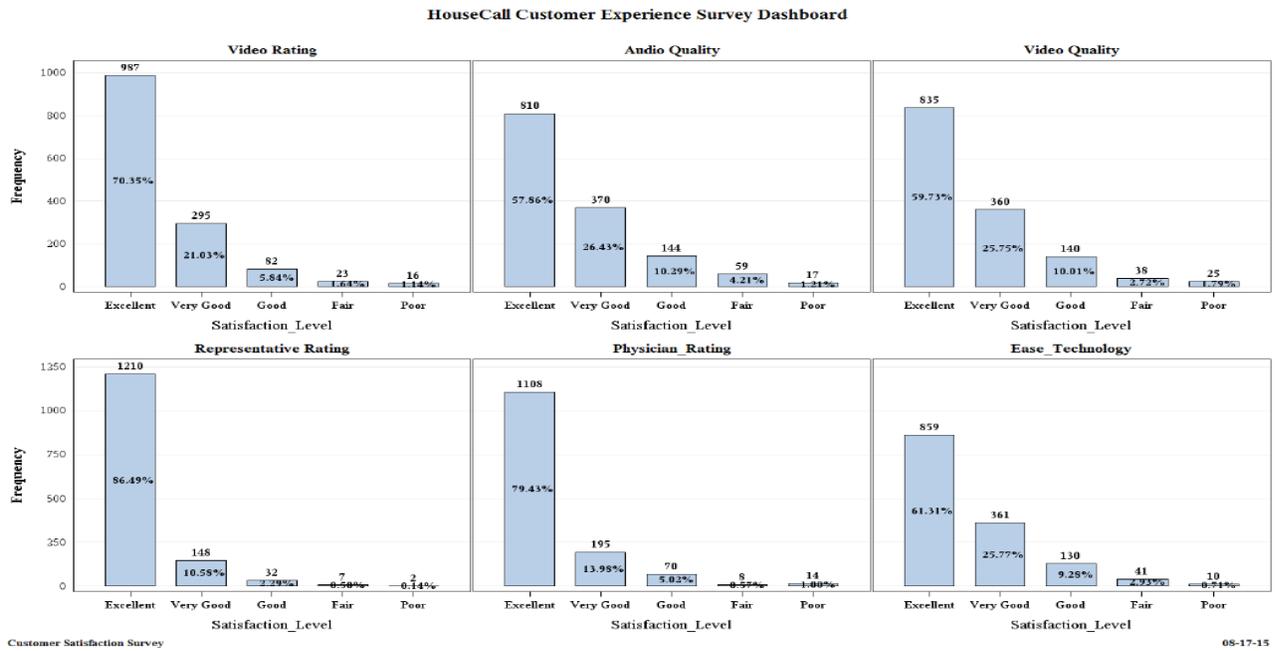


Chart 2- Customer Experience Survey

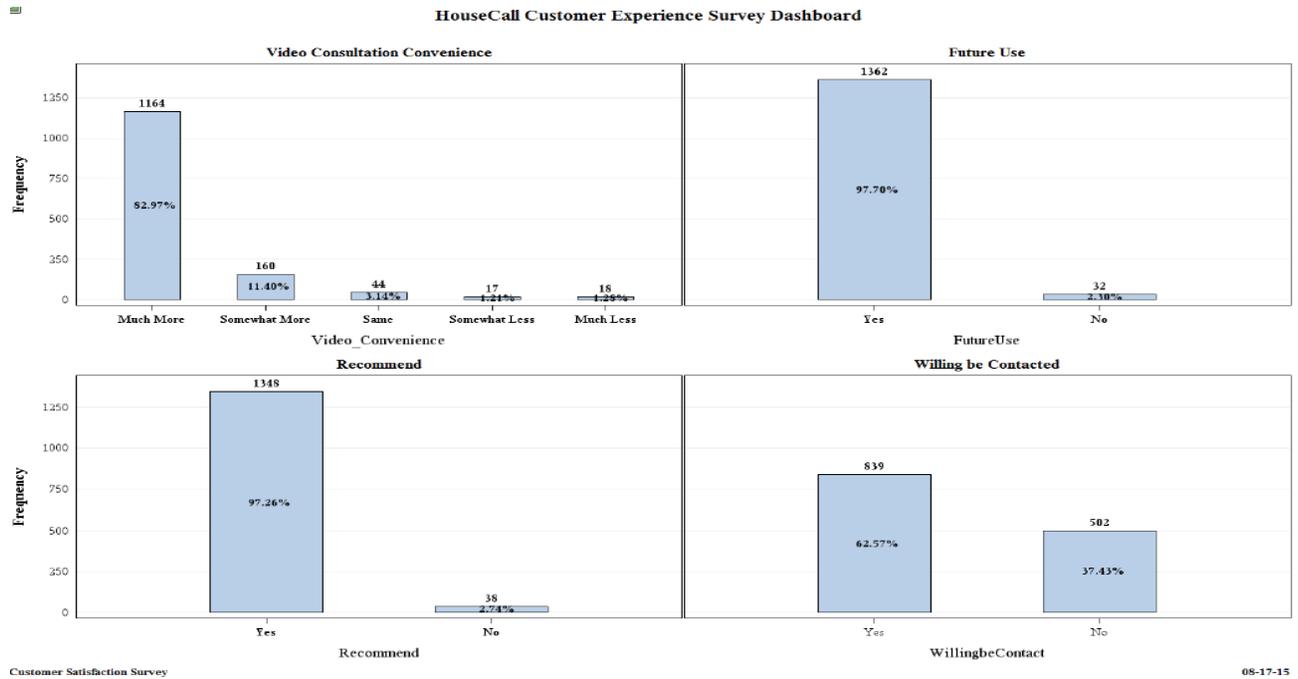


Chart 3- Customer Experience Survey

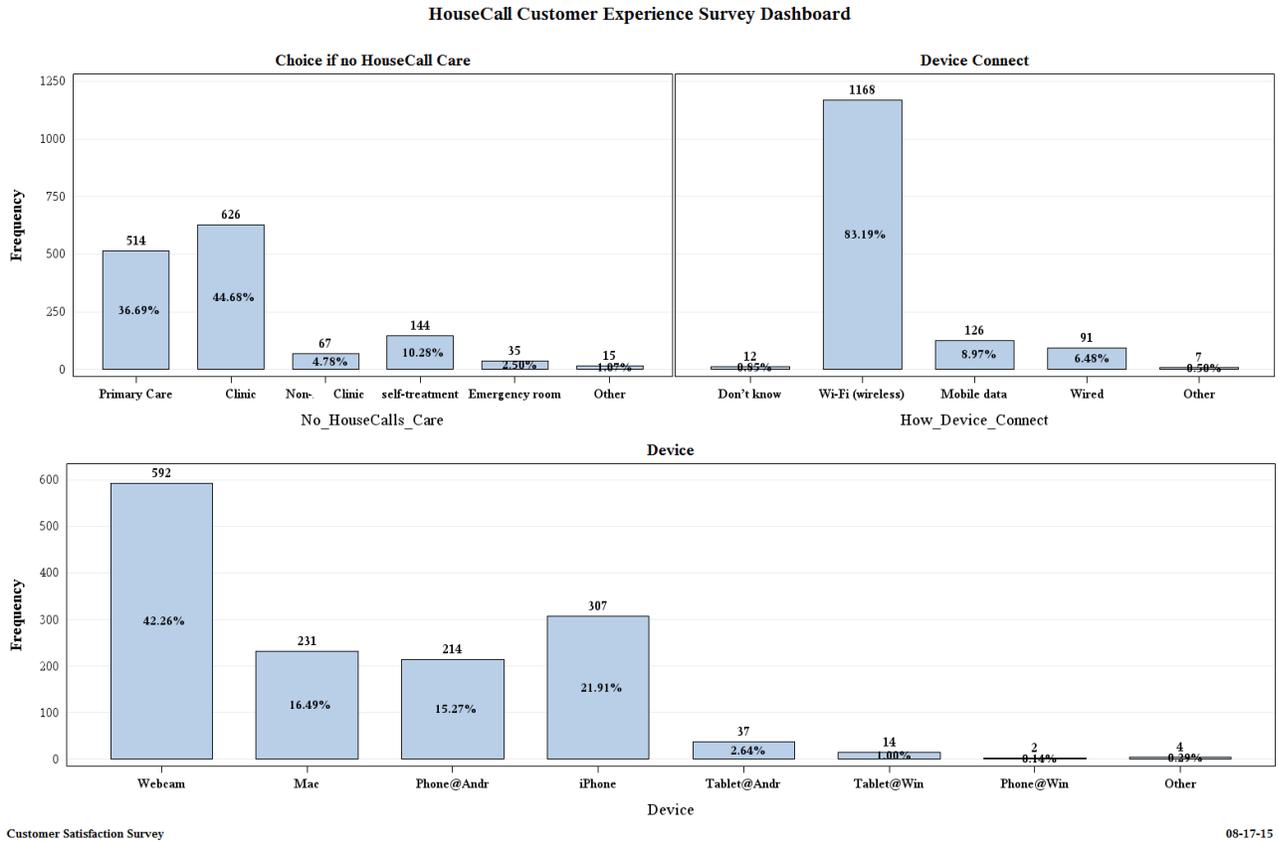


Chart 4- Pie Chart and Bar Chart YTD-7/31/15

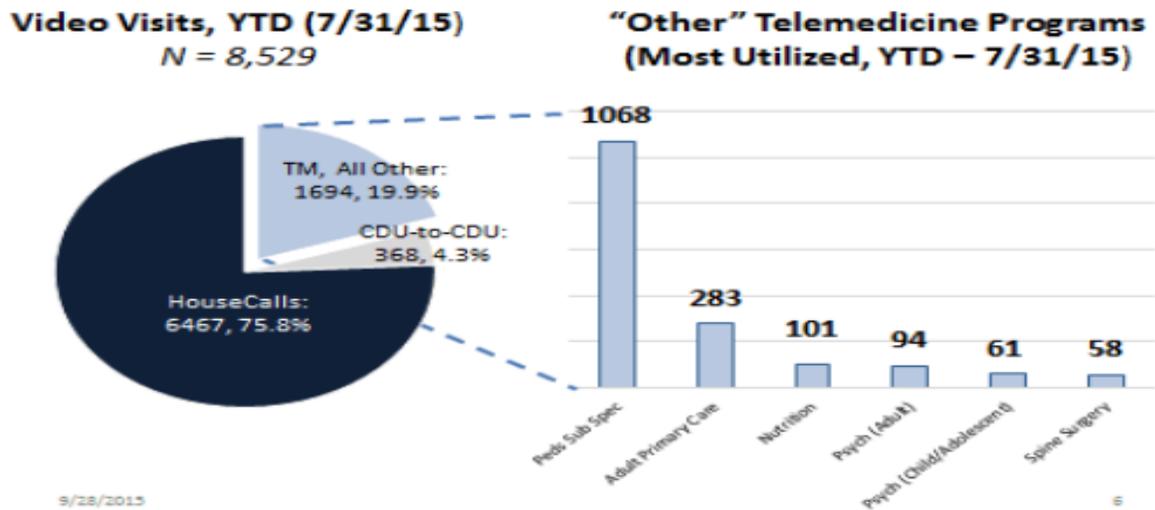


Chart 5- Survey Responses from 7/1/2014-7/31/2015

"HouseCalls" Survey Questions/Responses N = 1403	Percent "Excellent/ Very Good"
Overall Perception: Video Met All Needs	91%
Audio Quality	84%
Video Quality	85%
Representative Rating	98%
Physician Rating	93%
Ease of Using Technology	87%
Convenience	94%
Would Use Again	98%
Would Recommend	97%
Average Score	92%

Timeframe: 7/1/2014 – 7/31/2015

Adapted Materials and all Rights Reserved for Charts 1-5 by KPMG provided by Dr. D. V. Truong. Personal communication, September 28, 2015.

Chapter 5

Conclusion and Recommendation

Summary of Findings

The number of members who responded to the questionnaire totaled 1,403. Of the video visit survey questions and responses, an average score of 92% was tabulated to represent overall experience with video visits as either “excellent” or “very good”. The overall perception of video visits meeting all needs rated 91% as excellent/very good. Audio quality rating at 84% as excellent/very good. Video quality rating at 85%, representative rating 98%, Physician rating 93%, ease of using technology 87%, convenience 94%, would use again 98% and 97% would recommend using video visits all rating within excellent/very good. Video visits were utilized in varying specialties to include Pediatrics, Adult Primary Care, Nutrition, Psychiatry Adult, Psychiatry Child, Spine Surgery, Urgent care and other classifications.

Conclusion

Upon reviewing the data and summary of findings it can be concluded that with an overall rating of 92% for an excellent and very good experience, patient participation via video visit provides justification for the need to continue promoting the use of virtual health technologies. Providers have an opportunity to see more patients vs. in person visits eliminating the middle man of having to check in, fill out paper work and nurse triage. Patients are presented the opportunity to communicate using various technologies such as tablets, web cams, lap tops and mobile devices. The convenience of being able to use varying virtual technologies does not limit the patient from having to use a specific device for a video visit encounter.

Implications of Study

This study was able to provide solid data and results associated with patient satisfaction and overall experience when participating in video visits. It is important to note that patient satisfaction is a key driver to achieving reimbursements through varying programs provided by CMS and other Federal Health Care agencies. Physicians are able to boost production and incorporate more patients on their schedules to accommodate the patient population. Patients who are too sick or may be prone to spreading communicable diseases to other patients or medical staff (especially during flu season), have an advantage of seeking medical care through video visits which prevents putting oneself and others at risk. Not only do Physicians gain an opportunity to see more patients, but patients are able to save time and money from having to visit a provider in person.

Recommendations

Although the study did provide insight to some indications of cost effectiveness and patient satisfaction when participating in video visits, data did not reflect on other advantage points for using the virtual technology such as trends associated with communicable disease like the flu and numerical data on cost savings and spending. Additional research associated with competitors and comparative data to see how the market is trending with video visit integration would also be beneficial to understand. To further improve the study, questions may also be expanded on the survey to include what the reason for visit was, understanding if copays associated with the visit were the same or adjusted, reporting data on patient location based on mileage from the facility and how long the visit actually lasted. This investigation would add to the efficiency of using video visits and potentially improve delivery to be able to expand use case to more specialties and not just to the ones mentioned in this study.

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