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Technical Support for Rapid Replacement of Face-to-Face Events with Online Events due to the COVID-19 Pandemic: A Case Study from Kyushu University Hospital

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Abstract

There are many studies addressing how to shift events from face-to-face to virtual under a pre-planned schedule. However, because of the COVID-19 pandemic, rapid replacement of face-to-face events with online events was required at Kyushu University Hospital in Japan. There is limited research on how to accomplish this type of shift in events and no specific guidance exists for making necessary changes. This study aimed to fill this gap in knowledge by evaluating the characteristics and technical support needs of 62 administrative and educational events (25 grouped events) organized by 15 university departments between March and May 2020. We also distributed open-ended questionnaires to the departments that received technical support for their events. Technical support services comprised professional support services and equipment/system support. Three of the most frequently required support services were equipment/system support, on-site support, and venue arrangement. More than half (9/16) of administrative events included individuals from outside of the university, while those that were limited to individuals within Kyushu University also included multiple departments. Results also indicated that a physical "headquarters" room was important to many departments, despite the potential risk of disease transmission. Although online events are relatively simple for large numbers of people to access, they require a large amount of technical support, including technical management and direction.

Keywords:

Information and Communication Technology, Technology Implementation, COVID-19

Introduction

The COVID-19 pandemic has led people around the world to dramatically change how they work. In late February, the Japanese Ministry of Health, Labour and Welfare released basic policies for disease control, which urged companies to quickly implement teleworking arrangements and asked them to re-examine the necessity of hosting public events [1]. Remote work arrangements were previously unfamiliar to most workers. Kyushu University Hospital, which comprises a hospital and campus for medical students, was affected by these policies.

Although online event has become common, in the past they could be pre-planned using a reasonable timeline. Little information is available on how to rapidly replace in-person with online events, including the types of technical support that are required. University hospitals not only facilitate medical practice, but also organize administrative and educational events. These events, if held face-to-face, can present an infection risk for medical staff, students and clerks. Beginning February 27th, 2020, the Telemedicine Development Center of Asia (TEMDEC), one of the departments at Kyushu University Hospital, was tasked with providing technical support for face-to-face events that were transitioning to online events [2].

This study evaluated the technical support required for the rapid implementation of online events at Kyushu University Hospital through TEMDEC activities. Medical care provision, the main function of university hospitals, was excluded from this research because they involve a different set of issues [3-5].

Methods

The study evaluated 62 face-to-face events that were shifted to online platform with the technical support of TEMDEC between March 18th and May 29th, 2020. After grouping related sequential events, the total number of grouped events was 25. Definitions of event type and style are shown in Table 1. Event type was classified into administrative, which comprised committees and oral examinations, and educational, which comprised research study meetings and lectures. We identified the following characteristics of each event: department, number of participants, style of online event, online platform, and event type. Regarding the grouped events, the number of events which included outside participants were counted.

Using TEMDEC's client records, we classified the types of technical support that were needed for each event and then counted the number of events in each category, using grouped events as the unit of measure.

Additionally, open-ended questionnaires for clients were distributed to each department via Google Forms (Google LLC, Mountain View, CA). Items of the questionnaire are as below.

Table 1- Definitions of event type, style and technical supports in this research

Category	Classification		Definition
Event	Administration	Committee	Information sharing by gathering delegates in Kyushu University Hospital and outside parties
		Oral examination	Examination for doctoral students
	Education	Research study meeting	Case study and research meeting
		Lecture	For students and for new staffs
Style	Videoconferencing		Real-time interaction of audio, camera and content images
	Webinar		Real-time broadcasting which participants can comment by chat with registration
	Live streaming		Real-time broadcast without any registration
	On-demand video		Uploaded video which participants can watch anytime

1. The reason for seeking technical support
2. Good element of technical support
3. Any changes due to shifting to online event
4. Advantage of online event
5. Disadvantage of online event.

Answers in each questionnaire were coded by authors, and the number of each code was counted.

Results

Overview of events

Tables 2a and 2b show the characteristics of the events supported by TEMDEC. The most common number of participants per event was between 11 and 50 people (24/62, 39%), followed by 51 to 250 people (21/62, 34%). Ten events (16%) had ten or fewer participants, and the number was not recorded for seven events. Most events (n=58, 94%) were videoconferences. Among the remaining four events, two were webinars (3%), one was live streamed (2%) and one was video-on-demand (2%). The live streaming was replaced by videoconferencing at the next sequential event. Most of the events used Zoom (San Jose, CA) for videoconferencing and webinar (59/62, 95%), followed by Vidyo (Hackensack, NJ) for videoconferencing and live streaming (2/62, 4%), and YouTube (Google LLC) for video-on-demand (1/62, 2%). Events were most commonly research study meetings (25/62, 40%), followed by committees (20/62, 30%), lectures (15/62, 24%), and oral examinations (2/62, 3%). Events were organized by 15 departments.

Administrative vs educational

Among the 25 grouped events, there were more administrative events (16/25, 64%) than educational events (9/25, 36%). The administrative events comprised 14 committee meetings and 2 oral examinations, and the educational events 6 research study meetings and 3 lectures.

Figure 1 shows grouped events classified by whether they were limited to individuals within Kyushu University. More than half (9/16, 56%) of administrative events included outside participants. All of the administrative events that were limited to Kyushu University participants included multiple departments.

Technical support

Table 3 shows the types of technical support that were provided for grouped events; events could use multiple technical

support services. Support services were divided into professional support services, which comprises five sub-categories, and equipment/system support. The most frequent technical support service was equipment/system support (23/25, 92%), followed by on-site support (18/25, 72%) and venue arrangement (17/25, 68%). Four events (16%) required only equipment/system support.

Questionnaire findings

Ten of sixteen departments (63%) completed questionnaires (Table 4). Each category may contain multiple codes made by one client. With regards to the reason for seeking technical support, three departments answered that they wanted professional support services and one answered that they wanted equipment/system support. All of the responses on good element of technical supports related to professional support services. Six departments answered that there was no change in their program when face-to-face events were replaced by online events. However, three departments answered that there was a need to shorten the duration of their events. Advantages of online events compared with face-to-face meetings, in order of frequency of response, were reduced travel time (n=5), decreased infection risk (n=3), ability to adjust schedules (n=3), increased number of attendees (n=2), and ability to have a more active discussion by chat (n=1). The most common disadvantage of online events reported by respondents was lack of personal communication with other participants (n=5). Three departments answered that a disadvantage was non-verbal factors such as the impact on participant's reactions, the atmosphere of the event and participant comfort. One department mentioned that it was difficult to speak up at online events and one mentioned technical issues.

Table 2a- Characteristics of total supported events

Category		Number
Participants	10 or less	10 (16%)
	11 – 50	24 (39%)
	51 – 250	21 (34%)
	No data	7 (11%)
Style	Videoconferencing	58 (94%)
	Webinar	2 (3%)
	Live streaming	1 (2%)
	On-demand video	1 (2%)
Platform	Zoom	59 (95%)
	Vidyo	2 (3%)
	YouTube	1 (2%)
Event type	Committee	20 (32%)
	Oral examination	2 (3%)
	Study meeting	25 (40%)
	Lecture	15 (24%)

Table 2b- Characteristics of total supported events

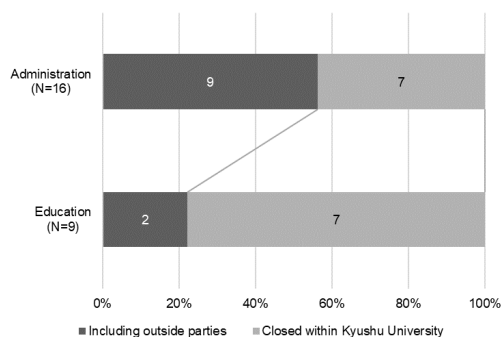| Category		Number
Department	Student Affairs Division	15 (24%)
	Department of Nephrology, Hypertension & Strokology	15 (24%)
	General Affairs Division	7 (11%)
	Department of Gastroenterology	7 (11%)
	Department of Otorhinolaryngology Head & Neck Surgery	4 (6%)
	Medical Management Division	3 (5%)
	Department of Ophthalmology	3 (5%)
	Department of Pediatric Surgery	1 (2%)
	Department of Breast Surgery	1 (2%)
	Department of Medicine and Biosystemic Science	1 (2%)
	Department of Surgery & Oncology	1 (2%)
	Research Support Division	
	Department of Endoscopic Diagnostics & Therapeutics	1 (2%)
	Department of Anesthesiology & Critical Care Medicine	1 (2%)
	Health Networking Center	1 (2%)

Figure 1- Number of events which included outside parties

Table 3- Technical support items for grouped events

Category		Definition	Number
Professional support services	System selection and event producing	Consulting how to replace the face-to-face meeting to remote by hearing ideas from clients	3 (12%)
	Introduction of function of systems	Telling individual function of system, and other ways to realize clients' needs.	5 (20%)
	Venue arrangement	Setting up equipment at a meeting room or providing videoconferencing room	17 (68%)
	On-site support	Staying with client during event	18 (72%)
	Contents	Preparing movie contents, sharing slides.	11 (44%)
Equipment/system support		Providing technical equipment and VC server temporary	23 (92%)

Table 4- Codes and numbers for each item from descriptions in the questionnaire

Item	Code	Number
The reason for seeking technical support	To get professional support services	3
	To get equipment/system support	1
Good element of technical support	Technical operation	2
	Technical quality control	1
	Troubleshooting	1
Any changes due to shifting online event	None	6
	Shortening of event duration	3
Advantage of online event	Reduced travel time	5
	Decreasing infection risk	3
	Schedule adjustment	3
	Increasing number of attendance	2
	Active discussion by chat	1
Disadvantage of online event	Personal communication with other participants	4
	Non-verbal matter	3
	Difficulty for speaking	1
	Number of technical issues	1

Discussion

Required technical support

In this study, we evaluated short-term technical support for 62 online events, which were quickly implemented to replace face-to-face events because of the COVID-19 pandemic. Stakeholders from various university departments and organizations joined the events. In particular, administrative events, which tended to be more formal, benefited from technical support. Most events used the professional support services that were offered, and the result of questionnaires showed this professional support including operation, quality control and troubleshooting was the key factor of the contribution for rapid replacement in this phase. However, some required only equipment/system support. Kyushu University provided members with videoconferencing accounts for Microsoft Teams and Skype for Business, and there were many online events without TEMDEC support during the research period. Educational events, especially research study meetings, were more informal, and participants tended to have greater familiarity with videoconferencing than individuals who participated in administrative events [6]. However, many organizers of educational events also asked TEMDEC for technical support to assist with planning online events or helping with technical issues.
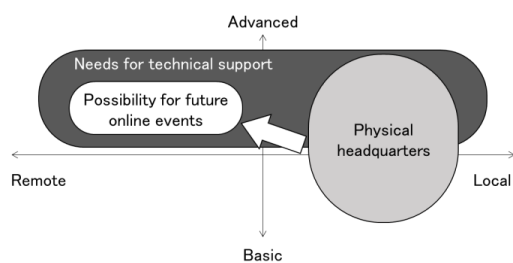
Technical support for online events in this study did not include basic service matters such as port setting or monitoring networks. As Kudo et al. mentioned, technological developments have made it easy for users to access high-quality videoconferencing and connect to real-time interactive services [7]. Lewis et al. reported that, for distance medical learning, technical support services should include technical management and event management (what and how to arrange equipment/system and what and how to share content), especially for formal and large events [8].

Physical headquarters

Two of the most common technical support services that were requested, other than equipment/system support, were on-site support and venue arrangement. There were no requests for remote support during this research term. These results indicated that clients found a physical "headquarters" room important for the following reasons.

1. Teamwork between event organizers and technical support staff to (A) confirm the function and specification of videoconferencing, (B) make decisions and take action in case of technical issues.

2. Offline chatting to increase communication among participants. As mentioned in the literature regarding online events, lack of communication is an inherent disadvantage of online platforms [9].

3. As a physical location for participants who could not attend online because of technical difficulties.

Although having a physical headquarters may be contrary to some epidemic prevention recommendations, may allow less scheduling flexibility and involves more travel time, it can make an online event more inclusive. Additionally, on-site support should be considered to handle technical issues, especially in this early phase of implementing online events [10]. Remote technical support is considered to be required as people adapt online events in the future (Figure 2).

Figure 2- Required technical support

Face-to-face versus online

Our research found that the disadvantages of online events, most notably reduced personal communication among participants, seemed to be a minor issue. However, these disadvantages came from a short-term implementation by basic use of videoconferencing, webinar, live-streaming and on-demand video. There are different types of events which require long-term preparation, such as academic congresses, and uses additional technology, such as virtual reality [9], [11]. From the point of view of a face-to-face vs online event, future research

should consider disadvantages of online from the aspects of variety of condition.

Conclusion

Because most of the face-to-face events at Kyushu University Hospital included stakeholders from various departments and organizations, it was challenging to rapidly replace them with online events. Although it was relatively simple for most participants to access online events, support services such as technical and event management were needed. Additionally, having a physical headquarters for the event was considered to be important to ensure that all participants, even those with technical difficulties, could be included. Remote technical support for online events should be considered in the future.

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