



# COVID-19: the impetus for change—sustaining healthcare team communication in times of social distancing

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Received: 30 April 2020 / Accepted: 30 June 2020 / Published online: 13 July 2020  
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## Abstract

The COVID-19 pandemic has challenged existing healthcare systems and has made prevention of healthcare personnel exposure a high priority. Essential healthcare services, including multi-disciplinary team (MDT) meetings that make medical decisions, are expected to continue uninterrupted in this time of social distancing. There are a multitude of virtual platforms available to enable remote MDT meetings, and the pandemic has accelerated their arrival into daily healthcare practice. While we deal with a pandemic crisis, we have comprehensively reviewed and reported on the popular platforms and services available for this purpose. While each platform has its own unique features and drawbacks, it is essential to liaise with information technology departments and data governance teams to understand the optimal platforms for use within each healthcare setting.

Level of evidence: Not ratable

**Keywords** MDT · COVID-19 · Multi-disciplinary team meetings · Telemedicine · Remote working

## Introduction

The SARS-CoV-2 virus has the whole world in the clutches of a global pandemic. A total of 213 countries are affected so far, with over 2,700,000 confirmed cases and over 187,000 deaths [1].

The United Kingdom (UK) reported its first coronavirus disease 2019 (COVID-19) positive case on 31 January 2020 [2]. At the time this report is being written, 2 months later, we have 143,468 cases with an estimated case fatality rate (CFR) of 13.6%, not accounting for the asymptomatic or undiagnosed individuals [3, 4]. According to modelling by researchers at the University of Oxford based on ‘susceptibility-infected-recovered model’ of COVID-19, as much as half the population of UK may already be infected [5].

While still unclear, the WHO estimates the R-0 of this novel coronavirus to be between 2 and 2.5. In the setting of a highly transmissible virus, preventing the exposure of healthcare personnel (HCP) at the frontline of this battle is

paramount, to ensure the continued working of the healthcare system that is transitioning from daily business to pandemic control. To set a benchmark, approximately 21% of HCP were infected in the SARS epidemic of 2002 [6].

Consequent to the COVID-19 pandemic, the National Health Service (NHS) declared a Level 4 Incident on 30 January 2020. This marked the beginning of rapidly changing and updated policies, guidelines and recommendations issued on a daily basis by the Royal Colleges and Health Education England (HEE) for HCP working through this crisis. One of the first letters from Sir Steven Simon and Amanda Pritchard announced that emergency admissions, cancer treatment and other clinically urgent care should continue unaffected [7].

Multi-disciplinary team (MDT) meetings form the core of patient care in the UK and consist of specialists of diverse medical backgrounds and roles providing their expert opinions on specific patient management [8]. With the guidelines to avoid gatherings necessary to prevent transmission during the active COVID pandemic, MDTs have had to resort to alternative strategies to ensure that critical patient care is not affected, while continuing to ensure protection of the HCP community.

Given the unusual and fluid circumstances of the ongoing pandemic, virtual health has taken a large step forward in playing a vital role in the care of patients. Telemedicine and virtual technology have allowed the continuation of crucial MDT meetings in a time of social distancing. Many consumer offerings have made audio-visual communications a

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normalised part of daily social connectivity. While the global healthcare systems have been slowly moving towards virtual health applications, the COVID pandemic has accelerated their applicability and use, with the hope that optimal services can be provided in time-sensitive medical decision-making.

This article explores the most commonly used virtual platforms available to facilitate a virtual MDT setup in a short time span and reports the benefits and pitfalls of each in a layman-term format.

## The potential for solutions

There are a multitude of software platforms available to use for real-time video streaming, with potential healthcare applicability. However, the privacy laws around sharing sensitive patient information can be tricky to navigate. While it is easy to get a single session to work in the short term, it is a basic necessity for HCP to work in collaboration with their information technology teams to test bandwidths and allowances of different platforms prior to widespread hospital use. Each software has different system requirements to perform seamlessly, such as updating web browsers, downloading plug-ins or additional software that secure hospital firewalls would traditionally not allow; requiring collaboration with the information technology teams to overcome these barriers. Here we explore the most commonly used virtual boards and report on their suitability for use in HCP MDT meetings within the NHS (Table 1).

### Microsoft Teams [9, 10]

This functional offering from Microsoft has recently replaced Skype for Business. It is rapidly gaining ground for collaborative web conferencing. Software and technology professionals have moved to its use for conferences conducted over geographic distances and remote participation.

Microsoft Teams is highly organised, customizable and works seamlessly with other Microsoft Office apps including Microsoft Access and Microsoft Share. It allows for real-time collaborative sharing and editing of Word documents, PowerPoint slides and Excel worksheets. In addition, it has the option to integrate with around 180 third party apps for increased productivity—including electronic health records.

Microsoft Teams meets the enhanced security and compliance requirements for healthcare organisations and privacy laws and has been promoted for use by NHSmail for UK users. It is ready to use in most healthcare systems as most HCP have pre-existing Microsoft/NHS accounts and use Windows on a regular basis. While personal accounts can be set up free of charge, business accounts have several competitive price tier options, allowing up to 250 users to access meetings at one time. Of note, this applications has been made

available free of charge to all NHS organisations for a limited period of time, in the wake of COVID-19 [11].

On the flip side, Teams is primarily set up to be used in a Microsoft environment. Its compartmentalised design gives it a steep learning curve (for, e.g., you may have to dive down four layers deep to find a particular conversation) and lends it an air of formality that can potentially inhibit open dialogue. For this reason, Teams has been described as a ‘love-it-or-leave-it’ product. The fact that it is only available to Office 365 users is its biggest drawback. It has the added requirement of needing external software installed on the operating system.

In summary, Microsoft Teams provides a full arsenal of features and application collaboration, including tight connectivity with Office 365. It is a great team conferencing app if a healthcare system is Microsoft based.

### Cisco WebEx [9, 12]

WebEx meetings bring with it the expectation of a product backed by a large organisation, Cisco. Videoconference can be conducted either via browser/website or a mobile-friendly app, giving it a smooth transition experience between devices.

WebEx leads the field in terms of voice and video quality and can support up to 25 simultaneous video feeds for up to 100 participants. It also supports compatible web-conferencing hardware devices including whiteboards and room projectors for an enhanced experience and allows screen sharing between users. Subscription includes 1 GB of cloud storage.

Security and data encryption is specifically optimised for use in healthcare settings and has the added advantage of enabling remote patient consultation. The cost-free version of WebEx successfully works for most healthcare circumstances, with the option of upgrades as required such as multiple-host meetings, customizable website use and recording.

WebEx, however, allows only one presenter per license but allows for switching between presenters in a single presentation. Having dropped its price considerably in the last few years, this is a very popular platform globally used by healthcare setups.

### Zoom [9, 13, 14]

Zoom Meetings is a user friendly, competitively priced software that works well in low bandwidth situations and is widely being used for social connectivity and by education institutions. It offers a video conferencing solution with in-built messaging features for both desktops as well as mobile phones.

Zoom is relatively easy to set up and offers high-definition (HD) video and audio conferencing for up to a thousand participants at a time, with up to 49 videos on a single screen—for a non-prohibitive price tag. Alternatively, a feature-rich free tier is available which accommodates up to a hundred people for 40 min at a time.

**Table 1** Summary of virtual platforms

	MS Teams	Cisco WebEx	Zoom	Google Hangouts Meet	GoToMeeting	Slack
Mobile app available	Yes	Yes	Yes	Yes	Yes	Yes
Additional software download	Required	Required	Required	Not required	Required	Required
Whiteboard tools	Yes	Yes	Yes	Yes	Yes	Yes
Integration of third party applications	Upton 180 applications	Yes	Yes	Integration with all Google applications	Not supported	10 integrations with other apps*
Number of participants*	250	100	100	100	250	15
Cloud storage	Yes	Yes	Yes	Yes	Yes	Yes
Cost* (GBP/host/month)	Starting at 6	Starting at 11.25	Starting at 11.99	Starting at 4.14	Starting at 10.50	Starting at 5.25
Free version offered	Temporarily offered to NHS organisations	Yes	Yes	No	Yes	Yes
Unique feature	Seamless integration with MS Office	Free version works well for most situations	Works well in low bandwidth situations	Google Suite integration	Mobile friendliness—start meeting on smart phone	Extensive third part app integration. Aims to replace e-mail.
Major pitfall	Highly compartmentalise, steep learning curve	Allows only one presenter per license	No end to end data encryption	Platform not tailored for healthcare system	Not supportive of third party applications	Microsoft integration is not seamless
Data handling	Optimised for healthcare	Optimised for healthcare	Under the scanner for data encryption issues	Meets regulatory requirement	Meets regulatory requirement	Healthcare compliance only available at 'Enterprise' tier.

\*Vary with different plans

Recent concerns have been raised regarding the lack of end-to-end data encryption on this application and sharing confidential information over this platform which make it unpopular for healthcare use [15, 16].

### Google Hangouts Meet [9, 17]

Google Hangouts is the option of choice for accessible cloud-powered conferencing. It is integrated into G Suite which allows seamless transition and workflow between smartphones, tablets and laptops.

Hangouts Meet is easy to use and user-friendly. It uses smart participation, a fast interface and provides a web-app experience, meaning no additional external software is required. It also provides a dedicated dial-in number that allows employees on the go to join into meetings.

By being within the G Suite platform, it is very easy to use data from other Google-based applications, including Gmail, Google Drive and Google Calendars, to plan meetings and share information during the conference. It can also work with existing conferencing software and hardware (including Skype for Business). Google Hangouts is another competitively priced that allows up to 150 participants at a time.

Although Hangouts Meet complies with various data security regulatory requirements, it is not exclusively tailored for the healthcare system unlike some of the other platforms discussed and thus is a bit rough around the edges for specific healthcare-based use. The lack of up-front hardware costs makes it an attractive alternative for use by small groups.

### GoToMeeting [13, 18]

GoToMeeting, by LogMeIn, has the basic service requirements of providing audio and video conferencing, as well as screen sharing.

This video conferencing app allows the Voice Over Internet Protocol upgrade. What sets it apart from the other larger-use applications is its smartphone-friendly applications and smoother smartphone-based functionality compared with the bigger brand software offerings. The settings can also maximise call and image quality and send out one-tap invites to join into the meetings and discussion boards, similar to other options.

GoToMeeting has tiered cost-based upgrade options to increase participant allowances to accommodate up to 3000 participants and add on administrative features such as real-time drawing tools.

This platform, however, does need additional software download onto computers. Despite being an excellent video-conferencing application, it does little to support third party applications (e.g. Microsoft/Google Suite/EHR), limiting its usefulness in the healthcare setting.

## Slack [13, 19, 20]

Slack is a popular platform for collaboration and is most diverse when it comes to integration of external applications. Despite its name, Slack offers an intuitive platform allowing for screen sharing and reliable video conferencing for professional purposes.

Slack's Information Governance policy and security certification compliance makes it available for immediate use. Slack's overarching goal is to completely replace e-mail communication within organisations.

Its pitfall lies in the allowance of only fifteen participants per call compared with options listed prior. However, this does not prevent its use in small group MDT settings. In addition, its integration with Microsoft-based applications leaves something to be desired.

## Conclusion

There is wide array of virtual media platforms available for the purpose of video conferencing and the above list is by no means exhaustive. It is prudent for healthcare trusts to liaise with their information technology as well as governance teams before settling on a particular application—given the confidential data security implications and highly sensitive information that is discussed at MDT meetings. COVID 19 has ushered in an era of unprecedented change, with technology playing a very crucial role in the future of healthcare. Therefore, further research needs to concentrate on the development of telemedicine designs tailored to long-term sustenance of healthcare collaboration.

**Author Contributions** The idea for this article was conceptualised by CCE. This article has been based on information available provided by different software providers on their websites and on technology review papers and published literature. CCE is a consultant plastic surgeon at Preston and is also the burns lead of the region. As a consequence, he is the lead of several MDT meetings and has wide experience in the virtual platform application of the same. The original draft was led by PPK. VC reviewed and revised drafts of the manuscript. PPK, VC, and CCE wrote the final version. CCE is the guarantor.

## Compliance with ethical standards

**Conflict of interest** Priyatma P. Khincha, Varun Chauhan and Chidi C. Ekwobi declare no conflict of interest.

**Ethical approval** Not applicable to this article.

**Informed consent** No patient or member of public was involved in the writing of this article.

**Funding** None.

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