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# Virtual Clinics in Gastroenterology: a new era

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## Abstract

Virtual clinics are a relatively new and innovative approach to assessing and monitoring patients at a distance. This paper adds to a growing body of evidence supporting the use of virtual clinics in the field of Gastroenterology. This paper highlights the benefits in terms of patient satisfaction, reduced time to travel and reduced non attendance rates within services. A cautionary note is highlighted by patients that this should not replace face to face consultations. Further research is recommended in terms of qualitatively capturing the experience of patients, families and nurses using virtual clinics

Keywords: virtual clinics, gastroenterology, nurses, barrier, facilitators

**Keywords:** virtual clinics, gastroenterology, benefits, challenges

**Key Points:** Gastroenterology services are delivered in traditional settings, however there is a growing body of evidence to support the use of virtual or telephone clinics. Patient satisfaction is reported as high following virtual or telephone clinic appointments and non attendance rates have been shown to significantly reduce. As yet, there have been no comparisons between telephone or video consultations and patient and clinicians perceptions of these. Further research is required on the use of virtual clinics within Gastroenterology services.

**Reflective questions:**

Are there any areas within your area of practice that could adapt to the use of telephone or virtual clinics?

How would this benefit to the patient, the organisation and you as a healthcare professional?

Do you perceive any barriers to the implementation of E Health within your practice? If so, how could you overcome these barriers?

## Introduction

Technology has transformed the way in which people interact with services globally with millions of people using the internet to access health information and advice (Kruse and Beane, 2018). The use of applications (apps) has grown exponentially in recent years with health and lifestyle apps cited as the most downloaded to support people to monitor and manage their health and wellbeing (Hartman et al., 2019). Social networking and communication are a central focus of technology use today with many devices used in miniature format or via telephone/mobile devices (Stanko and Sena, 2019). Despite this rapid growth of technology use worldwide, healthcare in the UK has been relatively slow to adopt new ways of monitoring and communicating with patients (Rimpilainen et al., 2018). Multiple studies have highlighted technology acceptance, infrastructure and information governance as some of the reasons why nurses in the UK have been slow to adopt digital technologies (Koivunen and Saranto, 2018; Holden et al., 2016).

Against this backdrop, the NHS in the UK have set out a clear strategic direction to use digital innovations and solutions to ease the pressure/demands on the NHS (Scottish Government; 2017, Department of Health, 2017). This has opened out the possibilities of transforming and redesigning services by offering digital health to empower individuals to self-manage and self monitor their conditions and for clinicians to use technology to work innovatively, more effectively and efficiently (Scottish Government, 2017; NHS, 2019). This ambition has borne fruit more recently with the advent of COVID19 changing the landscape of traditional care delivery with telephone and virtual clinics being routinely adopted (Wherton et al., 2020).

Gastroenterology services are delivered in traditional settings, i.e. hospital-based settings via outpatient clinics and in-patient care when required. Recent UK figures revealed that 15.8

million people were seen in an outpatient/hospital-based setting in England in 2018/19; and 4.2 million in Scotland in the same period. 1.8 million of these appointments relate to Gastroenterology in NHS England and 158,366 within NHS Scotland. Interestingly, consistency is noted across the UK with 8% of patients not attending their first Consultant led outpatient appointment (NHS England, 2019; Public health Scotland, 2020). Recent advancements in the use of virtual clinics and teleconsultations has led to some pockets of innovation in outpatient services across the UK. For example, NHS Digital (2020) outpatient activity identified 36,437 first appointments as tele-consultations; and 137,848 follow ups were undertaken using tele-consultation. This clearly shows that teleconsultations are being used albeit on a low scale. Furthermore, it highlights the need for consistent use and measurement across the UK for innovation to be upscaled and considered mainstream amongst nurses and doctors.

This is supported by the Royal College of Physicians who argue that with the growing use of technology rather than in-person face to face outpatient appointments may no longer be the quickest way to provide specialist advice or ongoing care (Royal College of Physicians, 2018).

Virtual consultation is proving useful to ensure patients receive efficient and effective care in a way that is suitable for both themselves and their families (Duncan and Russell, 2019). Hunter et al. (2012) add that some patients may not want or need to attend hospital when they are well even though they still require ongoing specialist monitoring and virtual appointments can improve attendance rates. Mesko et al. (2017) caution that the over reliance on technology can disrupt the care experience the patient would experience with traditional in person contact.

Although telephone clinics have been well established within adult services for several years, there is little in the literature regarding their use in paediatrics. Nevertheless within the adult

literature, there is clear evidence demonstrating the many benefits associated with telephone consultations including; being cost effective, more convenient as less time is taken off work and the impact on social life is reduced, improved quality of care, and a decrease in non attendance rates (Hunter et al, 2012; Duncan and Russell, 2019).

The adoption of new ways of working during the COVID19 pandemic has prompted a review of the literature on the use of virtual clinics within the field of gastroenterology, highlighting the perceived benefits and potential barriers to its use. Furthermore, the author will also provide some recommendations for future practice to enable the collection of much needed data looking into the effectiveness of virtual clinics in the field of gastroenterology.

## **Methodology**

A review of the literature on virtual clinics in Gastroenterology services was conducted by searching PubMed, Medline, CINAHL and the Knowledge Network using the keywords e-health, e-health strategies, defining e-health, virtual clinics, telephone clinics, gastroenterology, nutrition, paediatrics and e-health gap. Combinations of all keywords gave a total of 2,151,679 articles. This was narrowed down by specifically searching for Gastroenterology papers with combinations of paediatrics, e-health and telephone clinics giving a total of 48 articles (Table 1). Two papers related to paediatrics, with no papers specifically relating to complex nutrition and ten papers related to Adult Inflammatory Bowel Disease (IBD). An inclusion criterion was used to narrow the selection of articles which included, articles written in the English language, full text articles available, and a date limit was set at the introduction of e-health in the year 2000 to show the progression of virtual clinics. Table 2 describes the papers identified and used in this review.

## **Table 2: Included papers**

<b>Authors and year of publication</b>	<b>Study Type</b>	<b>Sample Size</b>	<b>Outcomes</b>
Bator et al. 2014	Quantitative	1032	Significant cost to families when attending face to face appointments. Interested in virtual appointments but would not wish them to fully replace face to face.
Gethins et al. 2007	Quantitative (Patient Satisfaction questionnaire)	57	Patients satisfied with telephone clinic reviews. Reduction in non attendance rates
Hunter et al. 2012	Quantitative (Patient Satisfaction questionnaire)	120	High rate of patient satisfaction with virtual clinics. Reduction in non attendance rates.
Duncan and Russell, 2019	Quantitative (Patient Satisfaction questionnaire)	120	Advantages of telephone clinics highlighted as reduced travel time, no school/work absences. Reduction in non attendance rates.

## **Discussion**

Bator et al. (2014) carried out a study in Ontario to quantify the financial and time costs that families incurred attending a single paediatric surgical outpatient clinic. 1574 families were approached to complete an anonymous questionnaire regarding the costs associated with their visit, 1032 families participated (66%). Measures of cost included distance travelled, money spent on travel and other expenses such as food, parking, childcare and time taken off work. They noted that there is a significant cost burden both monetary and time for families attending traditional outpatient appointments. At least one parent took one day unpaid leave



to attend. Moreover, families expressed an interest in using technology, however, would not wish this to replace all face to face consultations.

In a retrospective review of newly implemented telephone clinics within an adult IBD service Gethins et al. (2007) report that patients were subjected to long waiting times for face to face clinical review, and by the time the appointment arrived they identified being well at this time. Therefore, patients were given the opportunity to opt into telephone clinics instead of conventional outpatient clinic appointments if they fitted the inclusion criteria of being on maintenance treatment, stable, and have been diagnosed for more than 1 year. During the 4-month study period, 49 patients met the criteria for telephone clinic review. Patient satisfaction questionnaires were sent to 57 patients and 95% of respondents were satisfied with their telephone clinic review. 53% of respondents felt that a face to face hospital outpatient appointment was not required and non-attendance rates fell from 12% for traditional outpatient appointments to 6% for telephone clinic appointments. Whilst dated this study has shown that telephone clinics have been popular with patients for over a decade. In addition, they have shown to ease some of the burden on already stretched services, however there are some limitations noted. Patients who self-selected into telephone clinics are more likely to be well and more receptive to telephone reviews. Additionally, there is some discrepancy noted between the number of patients who attended a telephone clinic review (n=49) and those who completed the questionnaire (n=57). The sample size in this study is small and the lack of information around the recruitment strategy introduces potential bias therefore the results should be read with caution.

Hunter et al. (2012) study introduced virtual clinics within an adult IBD service to replace traditional outpatient clinics. Like Gethins et al (2007) patients were required to be deemed as

stable and on an established management plan. A patient satisfaction survey was carried out on 120 patients who were managed in virtual clinics using an anonymised questionnaire. They reported high patient satisfaction with virtual clinics and 90% of respondents preferred these to traditional outpatient reviews. The main reasons for this were described as being reduced interference with work (84.7%) and social lives (75.7%). Cost savings to the individual were also reduced using the virtual clinic versus the traditional outpatient clinic. Non-attendance rates were noted to be substantially lower in the virtual clinics (3.5%) versus the traditional outpatient clinics (10-20%). Hunter et al. (2012) caution however that as the virtual clinics are filled with stable patients, this often means that more complex patients are being seen in traditional outpatient clinics requiring much more time to be spent on their consultations which potentially adds further strain to the services resources. However, Gethins et al. (2007) purport that face to face clinics should be able to provide longer consultation times to see patients who are unwell, and this ensures they are receiving the most appropriate course of treatment. Following on from Gethins et al. (2007) review, Hunter et al. (2012) highlight that patients are positive about their virtual clinic experience, however the sample population was 20% of the total virtual clinic population again risking some result bias. Additionally, retrospective reviews can add bias to reporting as patients will often remember only parts of their experience.

More recently, Duncan and Russell (2019) have assessed the effects of structured telephone clinics in a paediatric Gastroenterology department. 120 questionnaires were sent to families who had received a telephone clinic appointment with the main reason for the consultation being the communication of results post endoscopy or other diagnostic tests. Similarly, their findings showed a significant reduction in failure to attend rates of 9.2% for telephone clinics as opposed to 21.6% in traditional face to face appointments. The main advantages of

telephone clinic appointments were identified as lack of travel time and maintaining school attendance supporting the results reported by Bator et al. (2014). However, there were some limitations to this study. The low response rate of 33% may introduce some bias into the results as those who were satisfied with the service are potentially more likely to give feedback.

Speigel (2016) suggests that a benefit of virtual clinics is that patients are often more likely to speak freely and openly about their opinions and feelings when not face to face during their consultation, this may be due to feeling a sense of safety when within the home environment (Huntzinger and Bielefeldt, 2018). Conversley, Greenhalgh et al. (2015) suggests that telephone clinic consultations can have a very narrow dialogue, meaning that patients are unable to raise issues spontaneously, however this is not something that the author has noted in her practice. Furthermore, it has been suggested that telephone consultations may miss rare but serious conditions due to inadequate assessment, Greenhalgh et al. (2015) state that the healthcare professional requires great skill and judgement to carry these consultations out. Unfortunately none of the studies have looked at the benefits of telephone clinics compared with video consultations however, Cross and Kane (2017) highlight that although telephone consultations are undoubtedly cheaper and simpler to run, the use of video links allows elements of non verbal communication which is not possible via telephone. Furthermore, it is reported that patients tend to be more focused and engaged during video links compared with telephone interactions (Cross and Kane, 2017).

Bator et al. (2014) found that families did not want virtual clinics to fully take the place of face to face consultations. The reason for this may be twofold, firstly, there may be the perception of dehumanising care when you are not in the same room as the healthcare professional

(Mesko et al. 2017). Moreover, Torous and Hsin (2018) suggest that a therapeutic relationship has elements of mutual trust, respect, empathy and positive regard between the patient and care provider which is developed in a traditional clinic setting and built on over time. The implementation of virtual clinics including the lack of touch as a communication aid, and the lack of formality associated with virtual clinics may further enhance the feeling of fragmented care (Jai Ganesh, 2004; Torous and Hsin, 2018) Additionally, the lack of clinical examination of the patient may be seen as potential barrier. With the rapid growth of digital technologies such as wearable biosensors and the view that post-operative wound reviews can be effectively carried out by families emailing photographs, or by video consultations you can see why patients and families may feel anonymous when attending a virtual clinic review (Bator et al., 2014; Spiegel, 2016). The use of virtual clinics challenges traditional ways of working and those barriers identified by offering an innovative way to capture patient data. Furthermore, it supports the concept of self-management and for patients to be involved in shared decision making (Cund et al., 2015). Furthermore, this is endorsed by the Royal College of Nursing (2019) who highlight that effective use of technology would ensure better outcomes for patients due to having more access to data, knowledge, and technology therefore improving services and outcomes. They promote the added bonus that staff would experience higher levels of job satisfaction and empowerment in their roles, while working more effectively and allowing them to devote more time to providing care to patients (RCN, 2019). Further research is required to correlate technology use and job satisfaction amongst nurses.

The included studies have highlighted the use of telephone consultations and virtual clinic consultations using video links. The evidence of the effectiveness of virtual clinics is developing and studies at present are of low quality, informative and useful in guiding the

direction of future research. This paper has highlighted that within Gastroenterology the literature remains limited in terms of the use and effectiveness of virtual clinics from a patient, carer and provider perspective. Moreover, very little attention has been paid to Paediatric Care. Furthermore, there is also limited information regarding patient health outcomes when attending virtual clinics compared to traditional outpatient appointments. The studies discussed highlight high patient satisfaction with virtual clinics, and report that reductions in both monetary and time costs are a great benefit of virtual clinics. There has been little research into the perceived effectiveness of virtual clinics for nursing staff and their experience of running this type of clinic. However, previous patient feedback regarding the individual's experience of conventional outpatient appointments was not reviewed therefore making it difficult to compare results.

## **Conclusion**

This paper has raised the profile of virtual clinics and their potential use in Gastroenterology within both adult and paediatric services. It is acknowledged that Gastroenterology services are delivered in a traditional setting, and although the evidence is limited and of low quality there does appear to be benefits in using virtual clinics in this area. Patients report that benefits of virtual clinics are that they are more convenient, less time is taken off work, travel time is reduced, less impact on social life. From an organisational perspective, benefits are cited in terms of reduced nonattendance rates at clinics. It is important to highlight that although virtual clinics have been well received by patients, many are keen that they do not completely remove the opportunity for face to face consultations. Furthermore, there are some barriers associated with virtual clinics such as potential loss of therapeutic relationship between the healthcare professional and the patient, and a lack of formality leading to a

feeling of fragmented care. It has been suggested that virtual clinics allow patients to be more open about their feelings and opinions due to a feeling of being safe in their home, and there is some disagreement as to whether telephone or video consultations are more effective. However, as yet there have been no studies comparing telephone clinics and video consultations.

Future research/improvement activity is recommended on the use of virtual clinics in Gastroenterology services from the patient's and nurse's perspective. Capturing the patients and professionals' experiences of its use has the potential to inform and advance future Gastroenterology work and services. Furthermore, using quality improvement methodologies staff have the opportunity to test and make changes to practice quickly to meet the needs of the service and in response to changes in technology development.

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**Table 1**

<b>Key words</b>	<b>Number of Articles</b>
E-health, E-health strategies, Defining E-health, Virtual Clinics, Telephone Clinics, Gastroenterology, Nutrition, Paediatrics, E-Health Gap	2,151,679
Gastroenterology, Paediatrics, E-health, Telephone Clinics	48
Adult IBD	10
Paediatrics	2

**Table 2: Included papers**

<b>Authors and year of publication</b>	<b>Study Type</b>	<b>Sample Size</b>	<b>Outcomes</b>
Bator et al. 2014	Quantitative	1032	Significant cost to families when attending face to face appointments.  Interested in virtual appointments but would not wish them to fully replace face to face.
Gethins et al. 2007	Quantitative (Patient Satisfaction questionnaire)	57	Patients satisfied with telephone clinic reviews.  Reduction in non attendance rates
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