British Thoracic Society

BTS Viewpoint

Acute Respiratory Infection (ARI) virtual wards

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Introduction

Over the last 18 months, NHS acute and emergency care services have been under a level of pressure never experienced previously as evidenced by daily headlines charting the impact this has on patients, their carers and NHS staff. Many different factors have contributed to this situation, which have been discussed elsewhere, and this document will not consider that further. However, there is an overwhelming feeling that the events of winter 2022-23 cannot be repeated and providing solutions to some contributing issues is essential to providing 'light at the end of the tunnel' for NHS staff, in particular around staff retention.

Virtual wards including 'Hospital at Home' are seen as one practical solution to help the NHS cope with its current shortage of beds. Alongside frailty, virtual wards dedicated to look after people with acute respiratory infection (ARI) is one of the beacon proposals and is being widely promoted and developed in England. The British Thoracic Society is supportive of many aspects of virtual ward care and many respiratory specialists have delivered 'Hospital at Home' for 20 years or longer for people with COPD. BTS members have been involved in discussion about virtual wards from the outset and, more recently, have contributed to a series of slides produced by GIRFT which provide a high level summary of the guidance and principles.

Many respiratory colleagues are being asked to support or set up virtual wards locally and this article highlights some of the key issues including the benefits of virtual wards, areas where unanswered questions remain, and concerns expressed by some BTS members. Where these could not be covered in the GIRFT document, we will address these in this Viewpoint. This document is not an evidence-based guideline or a position statement, rather an opinion piece reflecting feedback from BTS Officers, Trustees and members.

While ‘Hospital at Home’ exists across the four nations of the United Kingdom of Great Britain and Northern Ireland, this document refers specifically to the recent investment in virtual wards in England.

Although BTS represents all respiratory specialists, including those working in paediatric respiratory medicine, this Viewpoint is directed only at adult respiratory patients. There should also be development of services that can be accessed by children and young people (CYP) and we understand this is being considered currently within NHSE.

The terminology around virtual wards

The stated purpose of virtual wards is to care for people who may otherwise be in hospital, where possible using digital technology to enhance care. For respiratory specialists, this is focused on the treatment of people with acute respiratory infection (ARI). The service structure is derived in part from learning around COVID-19 services and requires physiological monitoring performed by the patient or carer at home, as well as daily senior clinician involvement, clear routes of escalation and leadership. In the current NHS context, the latter requirement is very challenging and is causing concern to many respiratory specialists.

The term ARI virtual wards in itself can be challenging as:

a) in some areas of England, the term ‘virtual ward’ was used previously for intensive community support teams;

b) the term ‘acute respiratory infection’ overlaps with ARI Hubs launched as an initiative to support primary care assessment during the winter of 2022-23. Discussion around how ARI Hubs and ARI Virtual Wards work alongside each other has been, at times, challenging.

To many respiratory specialists the term ‘Hospital at Home’ is more commonly used albeit most respiratory ‘Hospital at Home’ services have not previously included remote monitoring or central monitoring hubs.

Notwithstanding the terminology, current guidance is not particularly clear on how ARI Hubs should work in tandem with ARI virtual wards and further guidance would be beneficial, particularly in relation to which type of respiratory condition is appropriate for each service. We also recommend clearer messaging that the operation and leadership of ARI Hubs does not require respiratory specialist involvement. Forthcoming NICE guidance may help clarify some of these issues. Further explanation of how these services work together is available through the links provided at the end of this document.

What about workforce?

The current primary challenge for the NHS is a lack of qualified staff which this past winter’s events have shown to be a crisis. BTS has long campaigned in this area and more recently designated this as one of our single biggest issues, reflected in the 2022 BTS Workforce report A Respiratory Workforce for the Future. When BTS was first contacted by the NHS England virtual ward team we highlighted this as our primary concern and urged that any proposal about virtual wards needed to be accompanied by plans for how specialist time would be funded and delivered. At present, an NHS workforce plan is promised but has not yet been forthcoming. BTS continues to emphasise that this is the greatest threat to successful and safe implementation of virtual wards. More information about general virtual ward workforce design can be found via the links at the end of this document.

Virtual wards are appearing in many shapes and sizes and some are progressing faster due to previous structures, such as whether integrated care systems already existed and their maturity. From the outset, in our conversations with national virtual ward leaders it is recognised that this is a transformation programme which will require time to build capability and capacity in the medium to long term and that different virtual wards will develop at different paces depending on many factors including workforce, current services and delivery models. Feedback from BTS members tells us this is not always the message they receive from local leaders and is why it is key that we document this.

There is some concern about the level and scope of clinical leadership required in virtual wards. Current guidance, published by GIRFT, recommends that virtual wards should be supervised by a named senior, consultant level clinician and this individual could be a physician, nurse, AHP or GP. A virtual ward needs to be staffed for 12 hours a day, seven days a week, with additional out-of-hours cover, which may be best delivered regionally. Many community respiratory teams do not currently provide this level of cover, which will require increased resource.

BTS members have expressed concern about the lack of clarity about where the staff to deliver virtual wards will come from without further overwhelming respiratory specialists. A further issue highlighted by BTS members is around continued funding from 2025. The current NHS England plan is to continue funding virtual wards from urgent and emergency care (UEC) funding. This is not ringfenced but much is recurrent and Integrated Care Systems (ICS) will be expected to continue to fund virtual wards from this source.

What are the quick wins? – early supported discharge and admission prevention for people with COPD and bronchiectasis

There is a very strong evidence base for early supported discharge from hospital for people with acute exacerbations (AE) of COPD and this evidence has been available for 20-25 years. Research studies showed 25-30% of people hospitalised were able and willing to be managed at home and this was as safe as managing them in hospital with no increase in readmission. Correct selection of individuals is required, but over time, initial more restrictive referral criteria have been relaxed.

While it is more difficult to prove the precise impact of COPD admission prevention (with the patient referred by primary care), such schemes have operated successfully for many years and, without doubt, have kept a further group of COPD patients out of hospital. Community and Integrated respiratory teams have extended referral to walk-in centres, other community urgent care services and local ambulance services and many teams now promote self-referral as part of COPD self-management. In addition, many services will look after people with acute exacerbations of bronchiectasis, sometimes alongside outpatient parenteral antibiotic therapy (OPAT) teams. One of the most important arguments for these schemes is their undoubted level of popularity with patients and carers.

Despite this, there are areas of the country with no early supported discharge and/or admission prevention service, and in many others these are capacity limited – often due to staffing challenges. Some services do not operate at weekends or outside normal working hours or take new referrals during these times. BTS believes that if virtual wards deliver universal coverage for early discharge and admission prevention for AE COPD and bronchiectasis, this would be an enormous benefit. There would be further benefit for existing teams having access to physiological measurements, such as spirometry and FeNO, in all the patients they look after, to improve efficiency. If services are to be offered to people with bronchiectasis, it is vital that respiratory physiotherapy is incorporated, as is the case in many acute integrated community respiratory teams.

It is important that in developing virtual wards there is no reduction in the current quality of care by replacing respiratory specialist care with more generic non-specialist care. Current virtual ward inclusion and exclusion criteria are very generic and less inclusive/lower acuity than those used by some integrated acute/ community respiratory teams. It is important that services that have worked successfully and safely for many years should not be compelled to change existing criteria, particularly if any change restricts access to the service. We urge that change in practice should be based on clinical research to deliver evidence-based cost-effective medicine.

Sources of referral for virtual wards are wide and it is vital that referral pathways are considered and established. Most 'Hospital at Home' services developed by first taking people home early from hospital after senior clinician review, then expanded to take referrals from primary care after senior clinician review, and over time extended to accept referrals from other NHS providers including emergency treatment centre clinicians and paramedics. Many established teams now accept self-referral by patients known to the team. It is important to allow newly established virtual ward teams to build their experience and confidence by expanding services steadily over an appropriate time period.

Even where there is consensus for the potential benefit of virtual wards, there is modest evidence as to how these services will dovetail with existing services and pathways for COPD, bronchiectasis, and pneumonia. BTS will continue to work with NHS England, NICE and other professional bodies to examine how best to align new virtual ward pathways with BTS, NICE guidance and current practice.

Where else have acute respiratory infection virtual wards shown to be effective? – COVID-19 virtual wards

During winter 2020-21, virtual wards were established to provide enhanced monitoring at home of people with COVID-19 who did not need to be in hospital but who were at high risk of deterioration and subsequent admission. There is an appeal to replicating such services more generally when patients have an established trajectory of improvement. There are different challenges when faced both with a variety of different phenotypes of one disease, and with different diseases, which have a variable and unpredictable trajectory. There are a wide range of causes of ARI and it is important that this is recognised and any proposals for this cohort must address this challenge around diagnosis and support needed.

Other areas suggested for virtual ward support

The British Thoracic Society is founded on the principles of evidence-based medicine, clinical research and the synthesis of this into clinical guidelines. One of the major challenges for many respiratory specialists is the paucity, or in some cases absence, of evidence for the efficacy and cost effectiveness for some elements of virtual wards, beyond these core conditions. There are legitimate questions about, on the one hand safety, and on the other hand, 'safety netting' (people who would never have been admitted to hospital). Virtual wards have been promoted to some secondary care organisations as 'additional beds' leading to concerns that clinicians will be pressurised to use virtual wards for people who do not meet inclusion criteria and where it is unclear whether that would be safe.

What about pneumonia?

Pneumonia is a serious and potentially life-threatening illness and a cohort of people covering all ages require management in hospital for monitoring, parenteral antibiotics and sometimes ventilatory and circulatory support. There are simple scoring systems, such as CURB-65, to stratify risk and provide prognostication and these can help guide hospital and community clinicians as to who does and does not require hospitalisation. Community acquired pneumonia has been subject to a national CQUIN based on the BTS Care Bundle for community acquired pneumonia.

There is limited research examining early supported discharge for people with pneumonia and the published outcomes suggest little benefit. The scientific evidence base does not consider enhanced monitoring such as virtual wards, and criteria are not established for who may be safe to monitor rather than keep in hospital. Where UK respiratory teams have delivered admission avoidance, early discharge and virtual monitoring of people with proven pneumonia, we encourage them to submit their outcomes to peer review and publication. Where evidence does not exist, BTS would urge that research is conducted to establish optimal and safe use of virtual wards and their cost-effectiveness. Without this it is difficult for respiratory specialists to be clear about the safety and efficacy of virtual wards for other indications, such as pneumonia.

Acute discharge with oxygen

During the COVID-19 pandemic many existing community teams sent people home early from hospital where provision of short-term home oxygen therapy could facilitate early discharge. In the main such schemes were targeted at people with a single condition (COVID-19 pneumonia) who were clearly on a steady trajectory of improvement. While this is another area of potential patients that can be enrolled onto a virtual ward the numbers are far less than at the height of the pandemic.

It must be stressed that teams could deliver this service to COVID-19 patients because of much lower rates of AE COPD in 2020 and 2021 and oxygen teams being diverted to supporting COVID-19 work. Neither community respiratory services nor oxygen teams in either community or acute providers have the capacity to deliver and monitor oxygen therapy in the home setting while continuing their role in delivering acute oxygen advice, home oxygen assessments and reviews [*BTS Home Oxygen Guideline*]. If such oxygen therapy is to be delivered as part of a virtual ward service, then additional staff, who are trained to recognise the issues of safe oxygen prescribing, will be needed.

This activity contrasts starkly with any suggestion that acutely ill people with one of many respiratory conditions plus a new oxygen requirement should be supplied with oxygen and discharged to virtual ward monitoring. We would consider this to be potentially hazardous and unsafe, and any such service would require a robust, scientific research evidence base.

How to align ARI virtual wards with frailty virtual wards

Virtual wards are under development for both acute respiratory infection and frailty, and there is likely to be considerable overlap. Frail individuals commonly develop acute respiratory infections and many frail individuals, when dying, are often labelled as having pneumonia. For optimal virtual ward implementation, it is important that pathways are developed that address the overlap and where and how they should be expected to interact; these may well be better delivered regionally or locally rather than nationally.

Many people, particularly those who are older and more frail, need nursing and personal care support which had traditionally been provided in hospital. Such support still needs to be available consistently and clear pathways are needed in this area.

Follow-up of patients after virtual ward monitoring

It is long established that many people with significant respiratory conditions are undiagnosed [*British Lung Foundation. Invisible Lives: Chronic Obstructive Pulmonary Disease (COPD) - finding the missing millions. 2007*]. For a sizable minority of people with COPD, their first presentation is an acute hospital admission and this extends to other respiratory conditions. A majority of COPD patients admitted to hospitals in England are discharged without anyone confirming their diagnosis [*National Respiratory Audit Programme*]. These figures will have deteriorated significantly over recent years, with the effective cessation of community spirometry during the COVID-19 pandemic, and there is evidence to suggest the number of patients in primary care with a confirmed diagnosis has reduced dramatically.

The 'missed opportunity' is that, if diagnosed and treated, many of these people would not require hospital admission as we have many treatments known to reduce hospitalisation in these cohorts. Part of this reflects the poor state of respiratory diagnostics, something which predates COVID-19, and is an area which needs urgent improvement and, if addressed, will improve virtual ward function.

It is essential that every healthcare contact is made to count, and this translates to robust follow-up after a virtual ward episode of care. It is essential that national and local pathways are established dictating onward referral following virtual ward care. This may include 'missing' diagnostics. Ideally this should be delivered by Integrated Care teams who have access to all services including pulmonary rehabilitation. The robust follow-up of people with community acquired pneumonia is also vital as pneumonia can be the initial presentation of lung cancer. BTS members have highlighted the challenges this presents to already overstretched services and expressed concern.

The Respiratory Futures Website

One of the core purposes of Respiratory Futures is information sharing. Several successful virtual wards already exist, both pilot schemes and early adopters, and sharing that early experience is likely to be valuable. Much of that information will be published by NHSE and BTS commits to helping facilitate that information sharing and enhanced practice via Respiratory Futures. This should include shared pathways, novel developments, shared experience and access to education.

There is also a virtual ward FutureNHS space which includes resources such as SOPs, case studies, recordings of virtual ward communities of practice sessions and clinical summit sessions on topics such as workforce, evaluation, patient and carer involvement and clinical leadership. Details of where to find further information are shown below.

Conclusions

Virtual wards are a form of 'Hospital at Home' and some respiratory specialists have developed and expanded these services over more than 20 years to help prevent admissions and to enable early discharge from hospital. To date these have typically focused on people with acute infections complicating COPD and bronchiectasis and BTS agrees they may work well for other lung infections, but this should be evidenced by publication of service developments and clinical trials. The development of key performance indicators will be vital to optimise virtual ward services.

For this model to be a long-term success then workforce shortages have to be countered as, for many respiratory specialists, these are additional services and the current development asks more from a workforce already working above capacity. This is particularly important when considering leadership of these services. Virtual wards need to be aligned with, and incorporated into, existing services and a focus on diagnostics and follow-up is vital. Most of all, we urge realism and recognition that it may take time to build capability and capacity.

Pathways of care need to be developed with acute providers and Integrated Care Boards and this provides a valuable opportunity to integrate care and harness the benefits of Integrated and Community Respiratory Teams. BTS is fully supportive of greater care integration and the benefits this provides to patients and their carers.

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Where to find more information

GIRFT virtual ward slides – a high level summary of virtual ward principles and operation

NHS England – Resources, guidance and networks – includes supporting guidance on implementing virtual wards.

NHS England – Delivery plan for recovering urgent and emergency care services

NHS England – Supporting clinical leadership in virtual wards – A guide for integrated care system clinical leaders – virtual ward guide for ICS clinical leadership.

Virtual Wards Network – FutureNHS Collaboration Platform (this platform requires registration and is password protected) - includes cases studies, resources such as SOPs, recordings of virtual ward communities of practice sessions and clinical summit sessions on topics such as workforce, evaluation, patient and carer involvement.

Communities of Practice – the national virtual ward team also run communities of practice. Regions and ICS also have their own virtual ward clinical groups.