COMMENTARY

Neuro-rehabilitation service during COVID-19 pandemic: Best practices from UK

Mohamed Sakel,[1] Karen Saunders,[2] Jettender Chandi,[3] Shyqyri Haxha,[4] Rafey Faruqui[5]

Abstract

This paper provides the context of COVID-19 outbreak with special reference to hospital-based neurorehabilitation services in the UK and transferrable lessons for similar services globally. While the COVID-19 pandemic has created numerous challenges at all levels and forced us to confront our own vulnerabilities as individuals, teams, services, communities and on the global stage, it has also simultaneously offered us opportunities for transformation.

Converting catastrophe into opportunity requires creativity, diligence, innovation, strategy and vision. This reflection serves to identify the challenges we encountered, the solutions we applied and the opportunities that we have taken. In the wake of an information avalanche, service and clinical practice challenge, service capacity challenge and above all, a unique and timely reminder of our own humanity and the inter-connectedness and fragility of human societies, we have endeavoured to identify and describe some crucial leadership facets, which are supporting our journey through this global health crisis.

Keywords: Neuro-rehabilitation, COVID-19, Pandemic, Leadership, UK, Coronavirus.

Introduction

An outbreak of pneumonia of unknown cause was initially reported in Wuhan, China on 31 December 2019 to the World Health Organization (WHO).[1] The respiratory tract infection was subsequently identified as being caused by a new coronavirus Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) with coronavirus disease (COVID-19) being the term given to describe the disease.[2] Since then, it has rapidly spread to many other countries in the world and was officially declared a "pandemic" by WHO on March 11th 2020.[3] To date, there have been 2,505,367 positive COVID-19 cases reported globally and 171,850 confirmed deaths.[4]

Transmission of the SARS-CoV-2 virus can occur by pre-symptomatic and asymptomatic individuals, who are unaware that they are infected with the virus and it is this high level of transmissibility of the virus that has resulted in the disruption of health services and systems throughout the world.[5]

The UK healthcare system has responded to the pandemic by increasing acute bed capacity for the admission of severely ill patients with COVID-19, re-organising services, opening new temporary hospitals and prioritising the discharge of long-term rehabilitation patients.

Neuro-Rehabilitation in Kent, UK

The Neuro-rehabilitation service at East Kent Hospitals University NHS Foundation Trust serves an estimated local population of around 800,000 people. This service provides specialist assessment and treatment for people with neurological injuries and disease, within a multi-disciplinary team setting, which includes a 19 bedded In-patient Unit and Out-patient clinics. Neuro-rehabilitation has been defined as "a process of assessment, treatment and management by which the individual (and their family/carers) are supported to achieve their maximum potential for physical, social and psychological function, participation in society and quality of living."[6]

The onset of the COVID-19 Pandemic and subsequent UK Government Lock down presented multiple immediate challenges.

Information challenge

The first challenge has been to gather relevant, accurate and reliable information on what is known about the virus and to understand how the Service would be impacted. Despite a large volume of information related to COVID-

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[1]Director of Neuro-rehabilitation Service and Consultant Physician, [2]Consultant Research Fellow and Clinical Specialist Neurophysiotherapist, [3]Consultant Neuropsychiatrist, Kent and Medway NHS and Social Care Partnership Trust, [4]Physician Associate in Neuro-rehabilitation, East Kent Hospitals University NHS Foundation Trust, [5]Department of Micro-wave Photonics and Sensors, Royal Holloway University of London, UK.
Correspondence: Karen Saunders. Email: karen.saunders10@nhs.net

Table of Best Practice: Neuro-rehabilitation Service (UK).

Aim/s	How?	Next steps	Desired outcome/s
Source relevant accurate information	◆ Task may be delegated to senior individuals ◆ Identify key professional organizations to contact ◆ Establish contact with relevant organisations and/or services to open mutually beneficial communication channels ◆ Consider services provided by universities	◆ Share this information with the team ◆ Advise team to be cautious when watching television and social media news channels	◆ Awareness and understanding of key information relevant to health and safety and clinical practice ◆ Reduce provocation of anxieties related to sensationalist reportingand/or mis-representation of events ◆ Reduce over-exposure to mis-information
Identify health status of all staff and patients with regard to COVID-19	◆ All staff and patients must be tested for COVID-19	◆ Service Director Lead to have access to this confidential information so that Lead has clear picture of who is COVID-19 positive and who is COVID-19 negative	◆ Health and safety of staff and patients ◆ Accurate identification of extent of COVID-19 infection to enable service plans to be made accordingly
Access information on Personal Protective Equipment (PPE) and training for staff	◆ Seek information on PPE through the hospital communication system	◆ All staff to attend training sessions on PPE ◆ Hospital to provide appropriate PPE as required	◆ Protection of all staff working with patients who may be asymptomatic (but infected with COVID-19) or diagnosed COVID-19 positive
Support for staff to maintain physical health	◆ Ensure staff are supported to take rest breaks during work shifts ◆ Consider provision of facilities for staff to use for rest ◆ Ensure there is adequate food and drinks supply for staff on site ◆ Encourage staff to consider physical fitness activitiesto benefit health possible at home, for example: learning yoga (online videos) and cardiovascular exercise tutorials (online videos)	◆ Alternate staff break times ◆ Communication of food supply needs to hospital canteen/suppliers ◆ Change use of lesser used areas to provide secure quiet rest area/s for staff	◆ Promote health and wellbeing of staff ◆ Enable staff to sustain longer working shifts by reducing the risk of exhaustion
Support for staff to maintain psychological and emotional health	◆ Encourage staff to make use of online resources and electronic applications, designed to support mental health, for example: wellbeing and mindfulness apps; meditation audio recordings ◆ Encourage use of audio resources, for example: listening to educational radio programs and podcasts. ◆ Encourage staff to maintain regular communication contact via text and phone calls ◆ Encourage and enable staff to usealternative means of communication, using video technologies for example: WhatsApp; Zoom; Skype ◆ Gather information on bereavement resources available to support staff, who experience the loss of a colleague or family member to COVID-19	◆ Provision of information on available resources ◆ Share and enable access to video communication technologies ◆ Initiation of group/team communications using video technologies ◆ Share awareness of how individuals can access bereavement support services	◆ To enable staff to maintain mental and emotional health ◆ To keep team spirit and morale up
Staff and Service Support	◆ Service Director Lead to continue to take the lead in handling any complaints that arise	◆ Reinforce staff knowledge of this	◆ Re-assurance for staff that they continue to be fully supported
Optimise service efficiency under pressure	◆ Identify individual staff members, competent and capable of expanding their development to increase their professional role practice competently	◆ Empowerment and enablement of professional skill competency and development ◆ Shared inter-disciplinary working by the team	◆ Supported effective performance of the neuro-rehabilitation service

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Aim/s	How?	Next steps	Desired outcome/s
Explore and enable service improvement by transformation using new technologies and/or ways of working Explore opportunities for research focused on better understanding COVID-19 and our ability to support population health Promote opportunities for Continued Professional Learning and Development	◆ Establish a pragmatic approach for operational service delivery with more inter-disciplinary working ◆ Video or telephone consultation appointments offered as an alternative to face-to-face Out-patient appointments ◆ Consider the new environment and ways of working and the questions that naturally arise ◆ Listening to and taking part in online Webinars and learning discussions ◆ Presentation of Neuro-rehabilitation clinical practice and related topics of interest via Webinars to interested audiences ◆ Consideration of development of collaborative educational webinars in shared areas of clinical practice	◆ Trial of appropriate video technology software, for example: accuRx, Zoom, WhatsApp, Skype ◆ Consider grant application for research funding ◆ Building collaborative international networks for learning ◆ Individual learning via reflection	◆ Safe, effective, efficient and sustainable out-patient appointment service for patients, staff and hospital organisation ◆ Gain research funding for team to start process of clinical research knowledge synthesis (qualitative and quantitative) ◆ Individual and team learning and development ◆ Contribution to education of health and social care professionals in UK and international communities

19 becoming widely available, it quickly became apparent that there was a lack of any specific guidance, tailored to neuro-rehabilitation services. Therefore, we contacted the British Society of Rehabilitation Medicine and other international rehabilitation organisations to seek relevant information for the service.

The global proliferation and spread of information on COVID-19 from diverse sources across the world has been termed an "infodemic"[7] and being able to selectively filter and identify the key reliable sources has been a team achievement.

Within the UK, we are now able to access a newly established coronavirus analysis and resource Evidence Service,[8, where any question can be submitted by front-line clinicians to evidence experts at Oxford University, who will investigate all published literature on the topic and then systematically review it to be able to ascertain whether there is any research knowledge on the subject or not. Result summaries are published with reference given to organisational guidance (for example from WHO). This is a valuable resource with evidence summaries available to read in English on the website, which are updated regularly.

Clinical Service Challenge

A sudden surge in admission of patients with a COVID-19 positive diagnosis has challenged all services, and has an impact on rehabilitation caseload management. Initially the demand on our service increased mainly due to staff shortage, related to staff that had become infected with the virus, following government health instructions to self-isolate and stay at home until they were better. A key early achievement was being able to gain rapid on-site COVID-19 testing for all neuro-rehabilitation staff and patients. This stabilised the situation by instilling confidence into staff and patients, and enabled a clear accurate identification of those infected with COVID-19.

Health Challenges for Staff

There are serious health risks that have been identified for clinicians and healthcare workers who are supporting or caring for hospital patients at this time. The first risk is that of becoming infected with the virus and to date, there have been 96 deaths of NHS staff from COVID-19 reported nationally in the UK.[9] The mainstay for prevention of infection is the access and supply of personal protective equipment (PPE) with training for staff to use, and we swiftly supported this and implemented all new infection control procedures. Information on PPE, training and infection control processes have all been provided through the internal hospital online information system, and is updated on a daily basis.

Working longer shifts with critical new aspects of infection control can result in more physically demanding working days, which over time can present the physical challenge of exhaustion. In addition to physical fatigue, it has been recognised that there are psychological and emotional challenges for staff, which may be treating and supporting patients, who are not able to have contact

with family members due to the risk of virus transmission.

The majority of staff has experienced anxiety related to the pandemic and the social isolation strategy currently in force by the UK Government. There is a challenge to us that we are confronted more by our own mortality and individual vulnerabilities and circumstances.

Mental health has been identified as an area, which will need more support over the coming weeks as people learn of colleagues, who may have died from COVID-19 and others, who may have become unwell, who are forced to monitor and treat themselves alone at home in self-isolation.

Clinical Practice Challenge: Retention

The majority of patients admitted with COVID-19 come into hospital via acute medical services and therefore there is a challenge that staff could be moved or re-deployed to these areas. Within the UK, neuro-rehabilitation services comprise of specialist staff with specialist expertise, who all work within a professional scope of practice defined by individual knowledge and skills and supported by professional regulation and competencies. Re-deploying skilled specialist staff to new areas would require consideration of how they could be trained in new competencies in a short time, as well as addressing the issues of choice and whether this was a temporary or permanent arrangement. In order for an organisation to retain skilled staff, it is known and recognised that it is highly important that they understand and feel that their contribution is important and valued.

Capacity Challenge

Specialist neuro-rehabilitation services require specialist staff to enable patients with complex neurological needs to receive the care they need and progress in their rehabilitation. The Unit is usually run on an efficient skill-mix with little spare capacity. Hence, the increased demand on the service during the pandemic, with a concomitant decrease in staff resources created a significant capacity challenge. Specialist staff with expertise may be seen as an expensive investment in managerial terms, and one study has reported that about 60% of all costs for a unit can be attributed to staff costs.[10] If other neuro-rehabilitation facilities in the region are closed at this time, then this would also lead to an increased demand for admission to the neuro-rehabilitation service.

Survivors from COVID-19 Challenge

There have been early observations from Intensive Care Units (ICUs) in the UK that survivors of COVID-19, who have been treated on ICUs, may have survived, but will often have profound muscle weakness. Observations have included that survivors may have issues with swallowing and speech; may be unable to sit unaided; may be unable to lift their arms up; need to be taught to breathe and walk again; and some may have post-traumatic stress with body image and cognitive problems. This is in addition to direct neurological impairment, for example, encephalitis, which can be caused by COVID-19. Rehabilitation following ICU treatment may well require long-term support to enable the individual to regain sufficient strength and abilities to return to their previous life if possible. How and where these rehabilitation needs are met, will depend on availability of rehabilitation services, staff capacity and social care support networks.

Leadership Reflection of Helpful Steps

Leading the service through the COVID-19 pandemic has required efforts by all team members on numerous levels. The first key step was to ensure a calm professional demeanour and physical presence to counteract the chaos and confusion that was apparent in the early stages of the impact of the pandemic on the service and healthcare systems. This approach gave re-assurance to staff and patients at a time of acute crisis.

To build on this, we then gathered and shared relevant information with senior staff in the service, to increase their awareness of support and knowledge. To address the health challenges, we quickly clarified the important issue of accessing and training on the use of PPE. We encouraged awareness regarding wellbeing applications and online resources to support mental health over the coming weeks. We advised staff to make strategic plans not just for the present, but for the next few weeks and think about their daily activities and how to structure their time to incorporate health supporting activities.

We established alternative communication systems to support senior staff (for example, WhatsApp group, Research Skype team, Zoom meetings) and have started to use other available alternative software, such as Microsoft Office Teams, which enable effective communication and sharing of group activities. This has encouraged team spirit and morale.

Further support and re-assurance was given, when the Clinical Service Lead re-iterated continuation of responsibility for handling complaints. It should be expected that complaints would likely increase at this time as patients may have family members, who could be frustrated and who might then project this stress at staff.

Another step forwards, was the careful identification of

members of staff, who could be empowered and enabled to further develop their roles to take on more complex work than usual, within their professional legal boundaries for example, Physician Associate and Rehabilitation Assistants.

To consolidate the adoption of a distributed leadership approach, we established the operational principle of how to function pragmatically over this time period. For example, we split the team so that some staff groups could rest alternately, and we have encouraged the service to operate in a more inter-disciplinary manner. For example, ward clerk would co-ordinate all admissions; the physiotherapy lead would seek clarification queries for all new referrals; the psychology lead would set up an alternative video system to enable a discussion forum.

Opportunities

We have taken this opportunity to adopt and utilise the accuRx software system for outpatient clinic appointments, which enables us to offer video consultation appointments safely to people living at home. This eliminates the risk of virus transmission and reduces the risk of a patient developing COVID-19. It also removes the need for the patient to travel into hospital for an appointment, which adds to the efficiency of the service and reduces the organisational carbon footprint. This can also provide research opportunities to consider the change in practice as an intervention, the possibility of whether it is feasible to develop a web-based spasticity assessment tool and consider clinical indications for botulinum toxin injection with PPE cover.

We are also supporting collaboration with the International Rehabilitation Forum,[11] which is developing a COVID-19 Rehabilitation Screening tool. In this way, we can further demonstrate the benefits and value of the neuro-rehabilitation service to the organisation, so that it becomes more widely recognised and understood to be a critical need, rather than perhaps an optional extra in a large university hospital organisation.

The development and adoption of new technologies and rehabilitation tools gives an opportunity for service development during a time of crisis. As we enable the service and staff to undertake these quality improvement measures, we have the potential to demonstrate that the service could operate as a higher Level 1 Unit (defined as supporting a minimum of 75% Category 1 patients[10]).

In terms of learning and development, we have taken the opportunity to increase and enhance awareness of neuro-

rehabilitation clinical practice in the UK, by presenting webinars for interested audiences. Recently, we presented a Webinar by Zoom for an audience of approximately 1000 attendees in India, which was very well received.

Conclusion

Opportunities for service and healthcare transformation to meet the global challenge of the COVID-19 pandemic are many. This paper offers ideas and perspectives on meeting a variety of challenges presented by the pandemic and also how different leadership models and approaches can help to achieve different goals at different times. We hope that this encourages and supports communities across the world at this time of global crisis.

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