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Cardiff and Vale
University Health Board

Keeping Me Well COVID-19 Rehabilitation Model

May 2020



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The Cardiff and Vale University Health Board Rehabilitation model (February 2020)¹, was developed within the context of local and national strategies²⁻⁵, aiming to put the patient/citizen at the centre of care. It was co-produced and designed in relation to our model citizen “Wyn”, to help him live well, being inclusive of both physical and mental health. The aim of the model is to empower patients to take control and responsibility for their ongoing health and wellbeing, equipped with skills and knowledge to manage their ongoing rehabilitation needs with support from rehabilitation professionals on the path to independence.

Since March 2020 rehabilitation has been interrupted for many. As well as Wyn’s wider family who have not received treatment during the pandemic, there is a new cohort of people recovering from the virus, who have significant rehabilitation needs. The difference with this Covid-19 Rehabilitation model is that many patients recovering from the virus begin their rehabilitation journey in hospital, at the higher tiers of need, with the most severely impacted by COVID-19 receiving critical care (i.e. Specialised rehabilitation Tier 5). The aim will be to step down rehabilitation towards Tiers 1 and 2 to enable Wyn to live independently. During the period of lockdown we have missed the contribution that communities and third sector partners can bring to supporting Wyn, and look forward to them returning.

Recognising the need for prolonged social distancing and extended ‘shielding’ for some, we have developed on-line resources to support Wyn and his family to live well, these are under development, to be launched on 24th June 2020, and further developed over the summer, to support rehabilitation both now and in the longer term beyond COVID. Available at: www.keepingmewell.com

Once again we have again drawn on UK⁶⁻⁸, international evidence^{9,10}, and guidance from professional bodies,¹¹⁻¹⁷ as well as the learning gained through the pandemic¹⁸. There is an opportunity to work more collaboratively as we rebuild services. This includes the strengthening of multidisciplinary working across our health and care system, maximising the use of workforce skills, and the step change in embracing digital technology.

Dr. Fiona Jenkins: Executive Director Therapies and Health Sciences, May 2020



The Need for Rehabilitation post COVID-19

Rehabilitation is critical to ensuring our population recovers from the impacts of the pandemic and for the long-term sustainability of our Health and Social Care system. AHP's are at the centre in shaping the rehabilitation agenda while working as part of the wider multidisciplinary and multiagency teams across all sectors⁷. This collective approach is necessary as we anticipate an increase in the need for rehabilitation across four main population groups⁵:

Cohort 1: Recovering
from diagnosed /
suspected COVID

Cohort 2: Awaiting
paused planned care

Cohort 3: Avoided
access to care

Cohort 4: Socially
isolated

Alongside these groups, there is growing evidence that COVID-19 has impacted on the well-being of the wider community.

It is vital to meet the rehabilitation needs of adults and children in these at-risk groups. AHP's will collectively support people to recover, regain health and wellbeing, reach their potential, and ultimately flourish as we all recover from the pandemic. It is critical that these people have access to rehabilitation whilst recognising the prolonged need for social isolation for many. This is a time for us to be innovative in our rehabilitation provision. The prudent¹⁹ and value based healthcare approaches see pathways as an starting point for determining patient need and from a resource planning perspective, it is essential that we individualise and integrate our rehabilitation, care planning and provision to deliver a value based approach²⁰.

Never has the population needed rehabilitation on such a scale before, and never have the AHPs been so ready to make a difference to people's lives, we are here to help people keep living well.



1: People Recovering from COVID-19

COVID-19 is a multi-systemic condition and some of the effects are long lasting. Experience from China and Italy suggests that at least one third of patients discharged from hospital following COVID-19 require assistance in Activities of Daily Living⁵. The impact of COVID-19 on recovery remains unclear, however, what is apparent is that the patients currently admitted to, and/or recently discharge from critical care demonstrate significant physical weakness, higher incidences of delirium (when compared to standard critical care cohort) and challenges in completing personal activities of daily living (e.g. washing, dressing etc.) with neurological sequelae⁶. This is further compounded by viral fatigue affecting both the ability to participate in rehabilitation and the likely trajectory of recovery.

Their rehabilitation needs will include:

- Ongoing respiratory rehabilitation
- Fatigue management
- Dietetic intervention to support recovery from nutritional depletion and regain strength
- Interventions to improve swallowing and communication
- Physical Rehabilitation to recover pre-morbid fitness levels and to return to daily activities, including work, family, education and social roles
- Psychological interventions to overcome the experience of critical care interventions and the reduced quality of life as a result of the above difficulties



Cohort 2: Awaiting
paused planned care

2: People with Paused Planned Care

- People who have not received usual interventions or whose planned care has been paused may have experienced further deterioration in their function
- Rehabilitation will be required to mitigate any impacts of the pause in accessing services or as a result of their reduced activity and participation
- Access to a range of rehabilitation interventions will be required to support people to recover to previous levels of health and well-being and to prepare them for any planned interventions using enhanced recovery and prehabilitation, a concept we have called Prehab2rehab
- Co-produced rehabilitation, self-management and social prescribing programmes may be required to support people while their planned care is paused



Cohort 3: Avoided
access to care

3: People who avoided Accessing Health Services

In response to the “Stay at Home, Protect the NHS and Save Lives” Governmental requirement, the public has altered behaviour in relation to accessing healthcare. Primary Care and emergency care activity significantly reduced during lock down weeks with fewer people accessing available health and social care services.

It is likely that some people may have delayed contact with health services to their own detriment.

As social distancing restrictions reduce, people are coming forward to seek interventions and rehabilitation to enable them to recover. Provision will need to include emotional, psychological and physical recovery. This includes provision for people with cancers, dementia and cardio-vascular disease, those who require children’s services as well as people with learning, physical and sensory disabilities.

The interdependence of rehabilitation within the essential service pathways, such as those for cancer and urgent surgery which will gradually return, is a critical component of quality and high value care.



4: Socially Isolated and Shielded Groups

The shielded and vulnerable populations already faced considerable challenges. Additionally, they have undergone reduced interaction with people, less participation in activities and their normal relationships. For some, impacts of the pandemic lockdown will include loss of employment, family or friends, altered consumption of food, substance misuse and the loss of physical and mental wellbeing.

Poverty and reduced opportunities to learn and develop will potentially have long-term consequences, requiring intervention from a range services including: Health, Social Care, Education and third sector partners.

Rehabilitation interventions will need to focus on recovering lost abilities and skills and enabling participation in education, work and social activities. This includes physical fitness and stamina, confidence, interpersonal skills and interaction with others, improved nutrition and communication as well as psychological interventions. For some, rehabilitation will need to compensate for loss of skills or increased frailty.

For children and young people, development of skills may have been delayed and rehabilitation will be needed to maximise skill attainment. This includes communication and language development in readiness for school alongside social interaction opportunities missed out during isolation.



The Secondary Effects of COVID-19

Apart from the impact of the virus itself there are others effects from COVID-19:

- **Inability to deliver normal rehabilitation services:** Rehabilitation services for patients at all stages of the pathway have been reduced due to re-deployment of staff, staff sickness, reconfiguration of beds, restriction of face to face treatment and care in the community
- **Separation of families:** Patients undergoing inpatient rehabilitation for any condition being isolated from family and friends with hospitals not allowing visitors, impact of lockdown and shielding
- **Choice suspension:** Patients and families not having a choice about placement for longer term care, without support of their families
- **Socio-economic effects:** Including, furlough status, unemployment, poverty, and high likelihood of economic recession
- **Education:** Including limitation of schooling, its impact on families and interruption to training of health and social care professionals
- **Relationships:** Including isolation, disruption of family life and increased rates of domestic abuse
- **Emotional wellbeing:** Affected by experiences of death and disability at work and at home, fear and uncertainty
- **Mental Health:** Increased presentation of those with pre existing mental health condition and those struggling to cope during the pandemic





Principles of the COVID-19 Rehabilitation model

1. Patients who are hospitalised should have their rehabilitation needs and goals assessed as soon as practicably possible
2. Rehabilitation should be provided by a multidisciplinary team, across the whole health and care system
3. Hospitalised patients should start rehabilitation as early as clinically possible based on individualised clinical assessment and rehabilitation goals, for those with the highest levels of need, ideally while they are in intensive care
4. The personalised rehabilitation needs and goals of patients should be communicated effectively with the patient and with teams responsible for their ongoing care at every transfer point along their care pathway
5. A Rehabilitation Prescription should be used for those stepping down from critical care to other tiers of rehabilitation
6. Patient reported outcomes and patient experience should be collected and measured
7. Patients who are ready to go home should have supported discharge and community-based rehabilitation pre arranged
8. Patients who are ready to leave hospital but require long-term care should be discharged to an appropriate care setting following the required period of isolation
9. The use of digital resources to support rehabilitation should be embraced and extended
10. Rehabilitation typically involves close face-to-face care, so staff should have access to all the necessary Personal Protective Equipment (PPE) to manage this safely, at the specification needed for the intervention being undertaken.





Staff Pledge: COVID-19 Rehabilitation Model

We will maintain our commitment to people of Cardiff and the Vale of Glamorgan: We will continue to adopt a whole-population and whole systems approach to rehabilitation. While we currently prioritise interventions for those at greatest risk, we will ensure that the needs of others are not overlooked. We will engage through new ways of working, to achieve greater reach and to minimise avoidable deterioration.

We will pursue personalised care: We will focus on what matters to “Wyn”, using shared decision-making to work in partnership with them and others and embracing opportunities to support self-management through co-production and patient activation.⁵ We will adopt holistic approaches to rehabilitation, recognising the physical, psychological and social impact of the pandemic.

We will embrace new ways of working: The pandemic has demanded our quick adoption of new ways of working; our use of digital technology and our approach to skill mix. Innovative practices that have shown value will be retained and offered further development to ensure a legacy benefit.

We will use all available resources: We will proactively and creatively support students, AHP’s returning to the NHS, colleagues in social care and the voluntary/independent sectors, family and friends to maximise rehabilitation. We will support practitioners to use skills at the top of their licence. We will adopt the principles of social prescribing, recognising that physical, psychological and social health and wellbeing will be supported through a holistic approach, and we will use community assets safely during the pandemic and beyond.






We will take care of ourselves and our colleagues: We will prioritise self-care and build team resilience by ensuring we are working in a physically and psychologically safe environment whilst enabling access wellbeing resources. Where AHPs have changed roles during the pandemic, we will support them to return to their AHP services and further advance the professions by building on their new skills and knowledge. Everyone’s contribution will be valued, whether this is frontline delivery of rehabilitation or other essential activities that enable and enhance this.



How the COVID-19 Rehabilitation Model Works

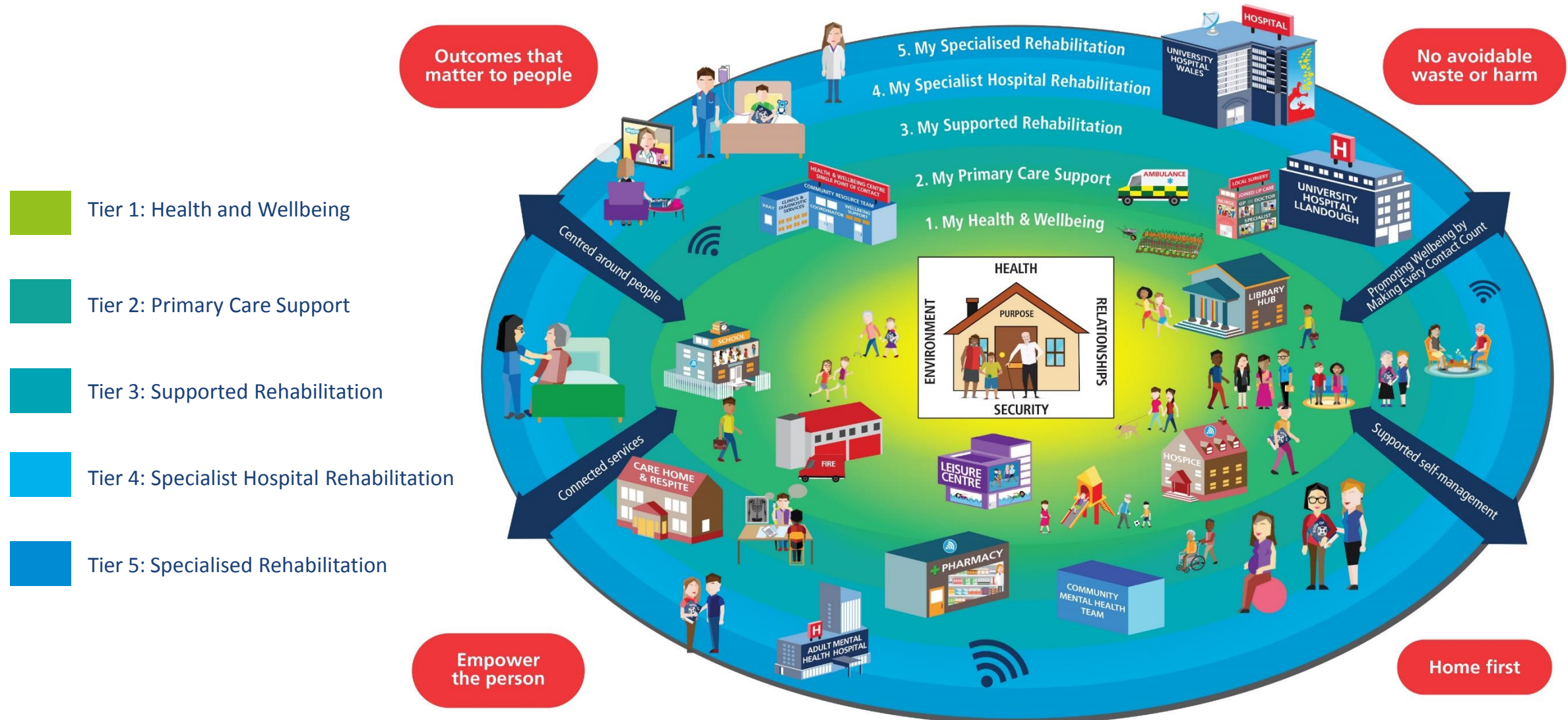
Our Model for Rehabilitation has 5 Tiers, these illustrate the different types of rehabilitation that may be offered. In the recovery from Covid-19 the model is presented from the higher tiers to lower, as patients with the virus, are likely to have received care in this sequence as they progress their rehabilitation journey.

Those who have had their rehabilitation interrupted by the pandemic, but not have COVID-19, will access rehabilitation at the tiers appropriate for them. Not everyone will go through every Tier, but Tier 1 remains the goal for all, to help people live well and keep well.

-  **Tier 5 - Specialised Rehabilitation:** e.g. Critical Care, Tertiary rehabilitation (Rookwood), or specialised neurological rehabilitation provided in community settings.
-  **Tier 4 - Specialist Hospital Rehabilitation:** e.g. Post critical care COVID ward with CPAP, NIV, tracheostomy, psychological or ambulatory needs.
-  **Tier 3 - Supported Rehabilitation:** e.g. Hospital step down in a COVID ward, or a non-COVID ward, or a COVID rehabilitation programme in the community.
-  **Tier 2 - Primary Care Support:** e.g. Using technology and on-line resources, including 'Attend Anywhere'²², and a bespoke digital set of resources to support rehabilitation, getting back to provide face-to-face care as needed and when possible for both physical and mental health.
-  **Tier 1 - Health and Wellbeing:** e.g. A range of community 'assets' to help Wyn thrive and maintain his level of rehabilitation and independence. Mindful that these will only become available as lockdown and social isolation ease.



Helping People to Live Well: Cardiff and Vale Rehabilitation Model¹





Tier 5: My Specialised Rehabilitation: Critical Care

- Approximately 60% of patients admitted to critical care develop ongoing physical and non-physical morbidity which increases their risk of death, increases both critical care and hospital length of stay, and has profound long-term effects on function on discharge from hospital. Evidence from patients recovering from acute respiratory distress syndrome (ARDS) still demonstrate exercise limitation, physical and psychological sequelae and decreased quality of life up to 5 years post hospital discharge.
- The patients - Wyn or his family - being admitted to critical care are in general, younger than the average critical care population, more often male, with pre-existing comorbidities especially increased BMI and diabetes and several from BAME heritage. A significant proportion were in employment prior to becoming unwell and many had existing care responsibilities. As a result, these patients are likely to require greater levels of rehabilitation to return them to pre-admission levels of physical and psychological function.
- The NICE produced clinical guidelines 'Rehabilitation After Critical Illness' (CG83)²³ recognises the importance of rehabilitation across the recovery continuum and the requirement for critical care follow-up services to continue to influence patient recovery. This requirement for rehabilitation at all stages of recovery is also recognised within the Guidelines for the Provision of Intensive Care Services (GPICS v2²⁴).
- Rehabilitation must be initiated as early as possible within critical care. This must be multi-disciplinary with focus on physical, occupational, and psychological function²⁵. Focus must be placed on weaning from mechanical ventilation (where required) and weaning from artificial airways including tracheostomies.
- Risk stratification must be implemented to determine likelihood of ongoing physical and psychological morbidity, with those 'at risk' of morbidity having comprehensive rehabilitation assessments.
- For those 'at risk' or those with prolonged lengths of stay, at least one weekly MDT meetings should be held to discuss: Ongoing ventilator/tracheostomy weaning; rehabilitation strategies; communication; and discharge planning. Ideally these meetings would include consultant intensivists, clinical psychology, nursing, therapies, and a member of the intensive rehabilitation ward MDT. Additional input may also be sought from specialist rehabilitation services e.g. spinal cord injuries, neurosciences and the tracheostomy team, as indicated.



- Specialist rehabilitation services play a vital role in management of patients after their immediate medical and surgical needs have been met, and maximising their recovery and supporting safe transition back to the community. In doing so they help reduce the burden on acute and front line services and indeed are a critical component of the acute care pathway. Without specialist rehabilitation patient's outcomes will be compromised.
- A small number of patients who contract COVID-19 will have more complex rehabilitation needs or a slower trajectory towards recovery. In this instance Wyn may require specialist rehabilitation, and other rehabilitation services for longer periods.
- Specialist rehabilitation practitioners have particular skills in the diagnosis, management and prognostication of complex disability.
- People with complex disability present with a diverse mixture of medical, physical, sensory, cognitive, communicative, mental health, behavioural, psychological and social problems, which require specialist input from a wide range of rehabilitation professionals, equipment and facilities.
- Wyn may have long-term disability requiring on-going support. Multiagency care is key, including joined up health and social care alongside support of third sector organisations.



- Patients with significant ongoing rehabilitation needs, or those continuing to wean from low levels of ventilation (including NIV / CPAP) +/- weaning from a tracheostomy should be discharged to an intensive rehabilitation ward within UHW. This should not include patients where specialist pathways are already in place e.g. neurosurgery or spinal cord injuries.
- The intensive rehabilitation ward will require input from respiratory physicians and specialist non-invasive ventilation teams to support weaning from ventilation. The ward must have a high AHP presence focused on delivering multi-disciplinary individualised intervention.
- This ward should have input from AHP's working within critical care alongside AHP's with experience in medical rehabilitation. The benefits of this format allow improved continuity of patient care and prevents the temporary deterioration or plateauing of patient progression often observed when patients move between clinical areas. Additional input will also be provided by the Cardiff Tracheostomy Team to facilitate timely tracheostomy weaning and decannulation, and to support staff caring for patients with tracheostomies.
- It may be necessary to cohort areas of the ward for infection control purposes including the use of aerosol generating procedures (e.g. tracheostomies, NIV, CPAP) and based on patient need.



- Patients discharged from critical care deemed not to require the Intensive Rehabilitation Ward (IRW) or those discharge from the IRW will be transferred to the acute ward most appropriate for their individual needs and ongoing medical presentations. The rehabilitation prescription should follow the patient to ensure continuity of care.
- Patient must receive an individualised co-produced treatment plan based on their specific needs, with agreed goals, provide by the MDT with the specialised skills required.
- Within the acute ward focus must be placed on preparation for discharge including early decisions on likely discharge destination and support required on discharge. If a period of quarantine is needed this should be factored into the best location for treatment to be provided.
- As more people are discharged from hospital, with COVID-19 the 'Discharge to Recover then Assess model²⁶' forming the basis of the discharge service requirements. Discharge information should include signposting the appropriate next place for care provision this could include community rehabilitation and support services as needed.



- Aligned with the Cardiff and Vale UHB strategy, 'Shaping our Future Wellbeing'², the focus must be on supporting patients to be discharged to and live within the community. However, for some patient's further non-acute supported rehabilitation may be required. This rehabilitation includes services such as rehabilitation in step down facilities such as Barry Hospital, St David's Hospital, UHL and Dragons Heart Hospital.
- Rehabilitation professionals and the wider MDT with support staff will guide Wyn to remain active to keep his independence and prevent him deconditioning, maintaining a healthy weight and supporting his wellbeing. It is essential to enable him to return home at the soonest opportunity and only stay in hospital if his needs are not able to be met within primary care, this could include a period of quarantine as determined by local agreements between the UHB and our Local Authorities.



- When ready for discharge home from hospital Wyn may still have significant rehabilitation needs, which can be met with appropriate input from AHP's. This could include support from services specific to Wyn's presenting health problems e.g. pulmonary or cardiac rehabilitation programmes, or provided by on-line resources and digital methods. The return to opening of community facilities such as leisure centres and community groups with support from the third sector and voluntary agencies will be essential in supporting Wyn.
- Planned hospital care for some people awaiting surgery or treatment may be delayed during the COVID outbreak. Rehabilitation professionals will contribute to providing rehabilitation and self management advice to reduce any impact of delays as well as to ensure the best physical and mental health is maintained during periods of delay. This 'prehab2rehab' rehabilitation can be undertaken with guidance²¹, at home.



Patients admitted to critical care experience significant physical, occupational, and psychological morbidity. To support these patients critical care rehabilitation pathways must be established aligned with the national guidance.

Due to the pandemic and increased numbers of patients admitted to critical care there is emphasis to strengthen these services. All patients who received critical care must be offered a critical care follow-up appointment at 3-months post hospital discharge. This is recommended by national guidelines including NICE CG83²², GPICS v2²³ and NHS England post COVID rehabilitation guidelines⁷.

At this multi-disciplinary clinic patients must be screened, assessed, and referred to appropriate services for both physical and psychological function. These clinics will need to be held 'virtually' to support social distancing.

A key component for the success of the critical care follow-up service will be the ability to refer and signpost patients onto relevant community and secondary care services as indicated. This may include signposting to: COVID rehabilitation programme, community neurological team, community resource team, therapy outpatient services (including psychology), Mental health services and secondary care services such as ENT and respiratory medicine.



- This tier of the rehabilitation wraps support around Wyn, and is closely connected to his community and the environment in which he lives. It is anticipated that there will be an increase requirement for community services for post COVID critical care patients.
- Community services such as community resource teams, community neurology programme, and COVID rehabilitation will be vital in aiding returning of function. Specialist secondary care (e.g. respiratory, ENT, wound healing) and therapy services (speech and language therapy, musculoskeletal physiotherapy, dietetics, podiatry and occupational therapy) and Mental Health services will have an increase in demand. These services will need to adapt given social distancing recommendations.
- Wyn may contract a mild/moderate case of COVID -19 and manage symptoms at home with the support of primary care rehabilitation services to recover.
- Primary care services for those impacted by COVID lockdown and isolation will also be vital in rehabilitating Wyn.



- Rehabilitation will be focussed to support what matters to Wyn. This will be aimed at supporting Wyn to flourish and to live independently. During the pandemic Wyn will have rehabilitation supported by health professionals and trained staff via on-line tools and virtual services such as 'Attend Anywhere'¹² and a specially developed set of on line rehabilitation support tools will be available. Other support in the community that will be available to help Wyn and his family include; Social Care, Public Health, Local Authority, Independent and Charitable organisations.
- If Wyn has dementia he may require more support during the outbreak such as managing medication and establishing and adapting to new rules and routines. Some skills may be lost as a result of reduced opportunities and Wyn may be at risk of deconditioning. Support to develop a new routine including activities to support a sense of value, as well as mental and physical wellbeing will be important in order to minimise deconditioning.



This tier of rehabilitation sees Wyn accessing community assets to support him to live a longer healthier and happier life and to remain active and independent, in his own home, during and post COVID-19

Anxiety may have escalated during the pandemic as usual routines and visitors have been interrupted and temporary closure of many community support services has been necessary. Whether Wyn has been hospitalised with COVID - 19 or stayed at home, there will have been an impact on his wellbeing during this time, and the period post COVID, and the return to reduced isolation and lockdown will enable Wyn to re-engage with his family, friends and social interests, all vitally important to enable him to keep well.

Virtual consultations by way of video or telephone support is available and it will be important for Wyn's health and wellbeing that he finds ways to stay mentally and physically active.

Technology, such as smart phone apps and e-communication with health services will play an increasingly important part in meeting Wyn's health, care and rehabilitation needs, reducing the requirement to access hospitals and for face-to-face contact.

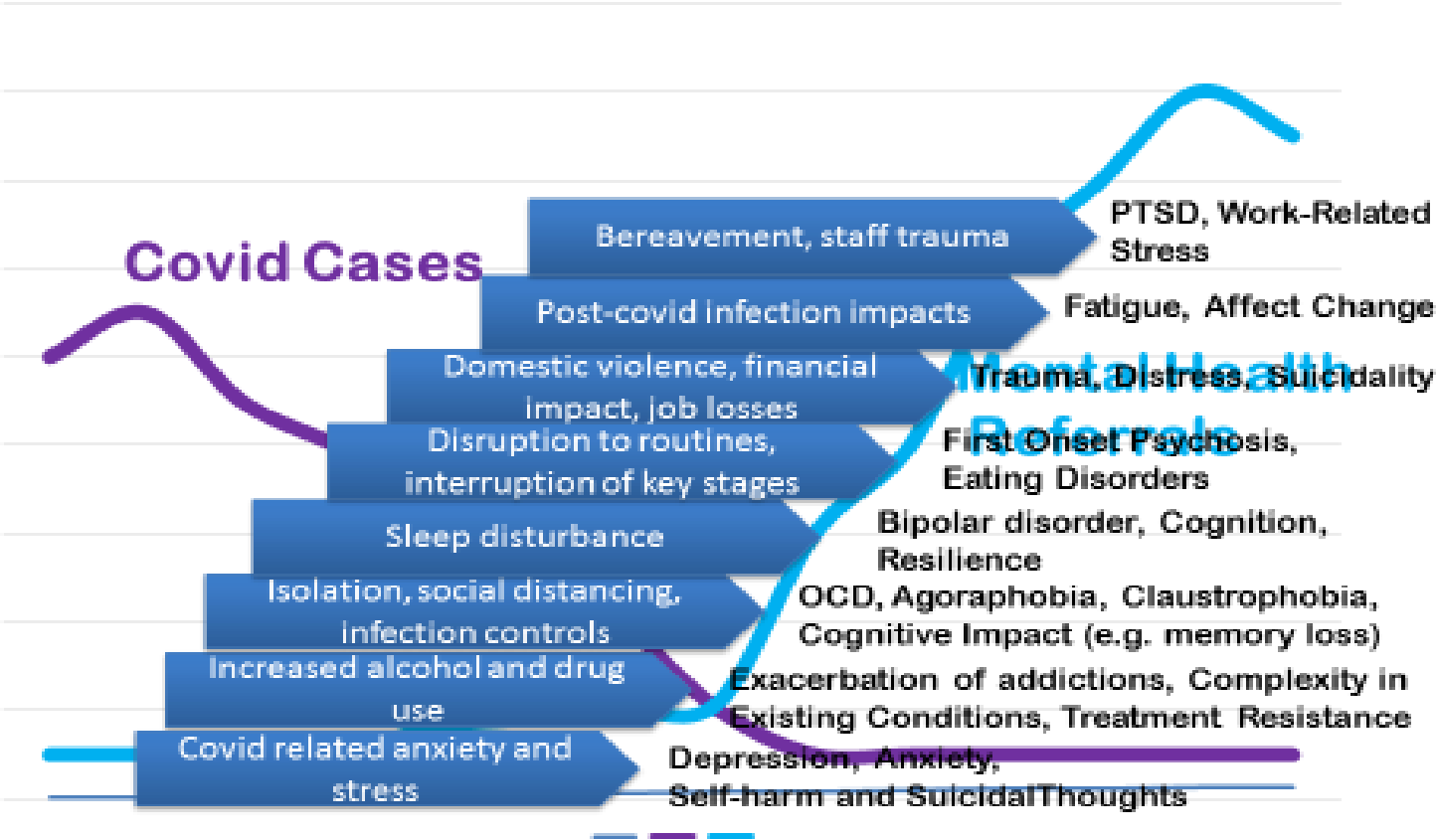
Cerys may be providing a carer function for Wyn, so she also needs to look after her own health and wellbeing. She may feel under greater strain during the outbreak as respite and other support services diminished.



Living in isolation can be a stressful time for people, worrying about relatives or your own health, now and in the future. However, living with others can be equally stressful. The uncertainty, worry and lack of structure can be unsettling when at first glance, it might seem little has changed. For people with existing mental health problems, being at home can mean we have little support in finding information that is helpful for the specific difficulties you are experiencing.

We anticipate that mental health referrals will rise as COVID cases decline, so have been developing plans to meet this need.

Mental Health Rehabilitation



Mental Health COVID Rehabilitation

The team have proactively developed models to flatten the mental health demand curve, including effective signposting to the UHB Tier 0 resources which are arranged by clusters, supporting more care at the lower tiers of need for Wyn and his family. E.g. Wyn may want psychological advice via a phone line consultation or on-line²⁷, receive an OT 'rainbow pack' to ease the impact of isolation, or he might want to join other service users and stakeholders in designing or attending courses developed for staff, service-users and carers,

Working with our patients and partner organisations we have developed services and trusted information and advice for those who may find it difficult to attend groups or get to clinics.

The Stepiau.org²⁸ website has a range of trusted and helpful information about a range of conditions, as well as links to useful organisations^{29,30} that can provide support and advice during this difficult period.



People with dementia have specific health and care needs.³¹ These people and their families will have found the COVID-19 period particularly challenging, either due to having contracted COVID, or being in lockdown at home or in nursing home/residential care. We have given specific attention to the rehabilitation needs of Wyn with dementia, and illustrated this across different rehabilitation tiers.



Tier 1 Dementia : My Health & Wellbeing



This tier of rehabilitation sees Wyn accessing community assets to support him and his family to live longer healthier and happier lives and to remain active and independent, in his own home, during COVID-19.

During the COVID-19 outbreak Wyn is asked to stay at home, follow social distancing, wash his hands regularly, and not touch his face. For people with dementia it may be difficult to understand and remember what is happening. Simple reminder signs around the house can help e.g. a reminder to wash hands in the kitchen or a sign on the door as a reminder to stay at home.

Anxiety may escalate during the COVID-19 pandemic as the person knows that something is wrong and is missing their usual routine and visitors. Developing a new routine will be important and whilst family and friends can not visit, where possible it will be important to stay connected by phone, video calls or post.

The COVID-19 outbreak has resulted in temporary closure of many community support services such as: leisure centres, dementia cafes, dementia choirs, lunch clubs, faith services, activity groups eg. knit and natter, walking groups etc.

However, virtual or telephone support is available and it will be important for Wyn's health and wellbeing that he finds ways to stay mentally and physically active e.g. virtual dementia choir, dementia support groups via Zoom, virtual faith services via YouTube, audio recordings of scripture readings, virtual exercise classes, telephone helplines such as the Alzheimer's Society Dementia Connect support line and online chat service Talking Point, Age Cymru offer a weekly telephone call to older people who are lonely and isolated, and there's the Dementia C.A.L.L. helpline.

Community voluntary services are able to help with shopping and prescription collection/delivery.

Technology, such as smart phone apps and e-communication³² with health services will play an increasingly important part in meeting Wyn's health, care and rehabilitation needs, reducing the requirement to access hospitals and for face to face contact.

Cerys may be providing a carer function for Wyn, so she also needs to look after her health and wellbeing. She may feel under greater strain during the outbreak as respite services are diminished.



Wyn may contract a mild case of COVID-19 and manage symptoms at home with the support of primary care rehabilitation services to recover.

If Wyn has dementia he may require more support during the outbreak such as managing medication and establishing and adapting to new rules and routines. Some skills may be lost as a result of reduced opportunities and Wyn may be at risk of deconditioning. Support to develop a new routine including activities to support a sense of value, as well as mental and physical wellbeing will be important in order to minimise deconditioning. Community rehabilitation may be needed to help Wyn regain confidence and maximise his return, where possible, to previous skills and activities.

organisations.

A wide, colorful illustration of a city skyline. From left to right, it features a red bridge, a blue skyscraper, an orange building with a flag, a purple domed building, a green building, an orange building with the number '28', a red sailboat, a yellow building, a blue bridge, a large yellow sun, and three people (a boy, a woman, and an older man) walking on a path. The background is a light blue sky with birds.

Other elements in the community will be available to support Wyn and his family; social care, public health, Local Authority, independent and charitable organisations.

Tier 3 Dementia : My Supported Rehabilitation



- Wyn may need either emergency or be awaiting planned hospital treatment during the COVID-19 outbreak.
- Rehabilitation professionals will support Wyn to remain active to keep his independence and prevent him getting weak, maintain a healthy weight and support his wellbeing during an emergency admission. It is essential to enable him to return home at the soonest opportunity and only access hospital if his needs are not able to be met within primary care.
- Planned hospital care may be delayed during the outbreak. Rehabilitation professionals will contribute to discussions on whether delays to treatment are in Wyn's best interest and provide prehabilitation and self management advice to reduce any impact of delays as well as to ensure he is in the best physical and mental health prior to treatment.
- Whether the admission is planned or an emergency if Wyn needs support of Rehabilitation Professionals to improve his physical or mental health this will be provided with the aim to support him back to his home as quickly as possible and for as long as this is possible.
- If Wyn contracts COVID-19 and requires hospital care he may be at greater risk of delirium and exacerbation of dementia symptoms. It will be essential that rehabilitation professionals follow delirium prevention and management processes and that non-pharmological therapies are available.
- There are a range of online and bedside resources which provide activities to make people's hospital experience better e.g. relaxation, music, games^{28,29,32,33}

Return to tiered diagram



Tier 4 Dementia: My Specialist Hospital Rehabilitation



- Specialist rehabilitation services play a vital role in management of patients typically admitted to hospital by taking patients after their immediate medical and surgical needs have been met, and maximising their recovery and supporting safe transition back to the community. In doing so they help reduce the burden on acute and front line services and indeed are a critical component of the acute care pathway. Without specialist rehabilitation patient's outcomes will be compromised.
- A small number of patients who contract COVID-19 will have more complex rehabilitation needs or a slower trajectory towards recovery. In this instance Wyn may require specialist rehabilitation and rehabilitation services for longer periods.
- Specialist rehabilitation practitioners have particular skills in the diagnosis, management and prognostication of complex disability.
- People with complex disability present with a diverse mixture of medical, physical, sensory, cognitive, communicative, mental health, behavioural, psychological and social problems, which require specialist input from a wide range of rehabilitation professionals, equipment and facilities.
- Wyn may have long-term disability requiring on-going support. Multiagency care is key, including joined up health and social care alongside support of third sector organisations.



Palliative Rehabilitation

Some people will be on an End of Life pathway and receiving palliative care. Rehabilitation at this stage of life can make a significant difference for both patients and their families.

Rehabilitative palliative care aims to optimise people's function and wellbeing and to enable them to live as independently and fully as possible, with choice and autonomy, within the limitations of advancing illness.

It is an approach that empowers people such as Wyn to adapt to their new state of being with dignity and provides an active support system to help them anticipate and cope constructively with losses resulting from deteriorating health.

Rehabilitative palliative care supports people to live fully until they die. COVID-19 positive patients will have specific needs, not least the requirement for isolation, missing family support. Special consideration has been given to this patient group³⁴. who may receive palliative rehabilitation in hospital, hospice or at home.



Outcome Measures

To measure Wyn's outcome from the COVID period, whether he contracted COVID-19 and spent time in hospital, or whether impacted by social isolation, it is important we capture data on his rehabilitation, to understand what has worked well and how his health and functioning has been impacted, and progress made during rehabilitation. Some of these will be clinical reported outcome and some patient reported outcomes (PROMS)

There are many different outcome measures that could be used, and work has been undertaken across Wales, which we have inputted to regarding a range of possible PROMS³⁵.

From a wide range of outcomes considered we have selected the following in red as our minimum data set, and will keep this under review in light of evolving guidance,³⁶ some of these relate to the status of the patient, and others measure the impact of rehabilitation.

Each AHP may choose to collect additional PROMS specific to Wyn's presenting needs and will also collect a range of process measures related to their service provision. Each profession has a comprehensive plan for measuring outcomes.

In addition patient experience will be captured, using the UHB framework.



Measure	Tool
Critical care assessment	UKROC minimum dataset³⁷, CPAx³⁸
Patient complexity	Rehabilitation complexity scale³⁹
Patient frailty	Rockwood frailty score⁴⁰ (Over 65s) , Nutrition score⁴¹ (WAASP), Penetration Aspiration Scale
Rehabilitation status	Rehabilitation prescription⁶
Confident to manage own health in the long term	Patient Activation Measure, General Self Efficacy Scale, Adapted Therapy Outcome Measure
Quality of life- returned to previous level of independence and well being	EQ5D-5L⁴², WHO-DAS2⁴³, Aus TOMs⁴⁴, MOHO⁴⁵ PROMIS 10, SF-12, SF36
Physical impairment	Muscle Strength, Sit to Stand
Level of function/activity	Derbyshire Outcome Measure, Bartel Index, FIM, FIM+FAM⁴⁶, Elderly Mobility Scale⁴⁷ (Over 65s), Therapy Outcome Measures⁴⁸ , Grade Roughness Breathiness Asthenia Strain (GRBAS), Penetration-aspiration scale
Wellbeing/mood	WEMBS, ReQoI, And CORE-COM, PHQ 9⁴⁹, GAD 7⁵⁰ , CORE-10, DISC ,HAD, TSQ⁵¹
Achieved goals that matter to Wyn	Goal Attainment Scale⁵² Adapted Therapy Outcome Measure, Recovery star
Cognition	ACE 111, MOCA





Patient Experience Measures

Patient Experience Framework

Real Time Short Surveys Used to obtain views on key patient experience indicators whilst patients, carers and service users are in our care (such as in hospital) or very shortly afterwards (such as on discharge or immediately after an out-patient appointment)	Retrospective Surveys post discharge or any clinical encounter in any setting to gain in-depth feedback of service user experience. They can also incorporate quality of life measures and Patient Reported Outcome/Experience measures (PROM/PREM)
Proactive/Reactive Provide opportunities for all service users/families/carers to provide feedback. Includes feedback cards, permanent and temporary online surveys and emerging methods such as text, QR codes and social media.	Balancing Concerns and complaints Compliments Patient stories Focus groups Third party surveys such as Community Health Council and voluntary organisations

Patient Experience Activity

In patient survey on 400 tablets

Post discharge survey of patients and families

QR codes on posters
On going on line surveys

Concerns being collated via a 7 day enquiry line
Compliments monitored
Patient and carer stories in progress



The COVID Rehabilitation Prescription (RP)

We will also be introducing the use of the COVID Rehabilitation Prescription⁶ was first developed in the context of the Major Trauma Networks. Introduced at an early stage in the recovery pathway, the RP identifies each individual's need for rehabilitation and specifies how these will be met after discharge from the major trauma centre. A minimum RP dataset is now mandated for collection in the Trauma Audit and Research Network (TARN) registry. The same principle can equally be applied for other disabling illness/injury and a modified RP has been for use in the current COVID-19 situation, and is commended for use with patients recovering from COVID-19.

The RP should travel with the patient and should be reviewed and updated at appropriate intervals to record actions undertaken to implement the recommendations.

The key data elements of the RP are:

- Does the patient have on-going needs for rehabilitation? Y/N
- If yes, rehabilitation needs checklist:
 - o Physical needs for rehabilitation
 - o Cognitive or mood disturbance
 - o Psychosocial needs
- Are they being transferred to the appropriate facility? Y/N
 - o What type of rehabilitation does the patient need?
 - o What is their discharge destination?
 - o What is the reason for variance?
- A brief description of further needs for rehabilitation.

Using the RP prior to hospital discharge and for those patients who are not identified as having needs initially but are recognised 1-2 months after recovery from the acute illness will allow the patient's rehabilitation pathway to be planned. It will also allow recurrent review of rehabilitation needs at population level in order to target services. For patients with more complex needs the RP may be extended to a specialist RP providing more details





Digital Support

Providing rehabilitation during the pandemic has been a great opportunity to make a step change in the use of technology to provide contact with patients and give resources to support rehabilitation. We will:

- Use 'Attend Anywhere'²² the NHS Wales video consultation service and other suitable digital solutions reducing the need for face to face assessment and treatment
- Determine the preferred digital platform to support group rehabilitation classes
- Roll out and use 'Microsoft Teams'⁵⁵ communication platform
- Explore the use of 'Patient Knows Best'⁵⁶ to offer an alternative to traditional post hospital follow up care

The UHB already has some excellent patient information, but will be developing a website specifically to support COVID rehabilitation, focussed to keep Wyn well. This will be found at: www.keepingmewell.com

This suite of digital resources are for patients and their families/carers to give support for COVID rehabilitation (including prehabilitation²¹). The resource will be presented as:

My Journey – which will map top the 4 different groups needing COVID rehabilitation

My Symptoms – which will enable a search for specific guidance e.g. fatigue management

This will become available in mid June, and will be further developed over the summer, with videos, exercises, webinars and advice with signposting to trusted sources of information to help Wyn and family with their COVID rehabilitation, helping to keep them well.



Conclusion

The COVID-19 pandemic, is an ongoing pandemic of coronavirus disease 2019 caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The impact on the global population in terms of spread of the disease, and its mortality is unprecedented in modern times and at a scale that health services have never previously experienced, with a significant need for prolonged rehabilitation to aid recovery⁴⁹.

The impact on our population in Cardiff and Vale is similar to other major cities worldwide, affecting health of our population. Although presenting largely as a respiratory disease, the impact has been significant on wider physical and mental health. The majority of patients have mild to moderate disease and recover after isolating at home. Others with significant disease have required hospitalisation, and the most severely affected requiring intensive care. Sadly those with co-morbidities and pre-existing health conditions have been most vulnerable requiring “shielding” and resultant isolation. End of life care has required support at a larger scale than ever before.⁵⁰ There has also been significant deterioration in the health of many people impacted by the period of lockdown.

In Cardiff and Vale UHB we have a model for rehabilitation, which has been adapted to meet the needs of our patients, like Wyn, recovering from COVID to learn skills to keep well. The scale of the rehabilitation need is unprecedented, making demand/ capacity and workforce planning a challenge, but we aim to develop our rehabilitation skills, work prudently and embrace technology, supporting our population to help them thrive again.



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