

REHABILITATION NEEDS OF PEOPLE AFFECTED BY THE IMPACT OF COVID-19

PURPOSE

This guidance focuses on the rehabilitation needs of people who have been directly and indirectly affected by Covid-19, while recognising that rehabilitation is also a core component of the majority of essential and specialist services as set out in the **Essentials Services Framework**. It is a resource to support organisations and services to deliver appropriate and timely rehabilitation to people who have been affected by Covid-19 in Wales, to enable them to return to their optimal level of independence and well-being.

This guidance applies to all citizens in Wales, including children and young people, older people, people with learning disabilities, and those living with long term health conditions. It is part of the overarching framework for rehabilitation in Wales, which can be found here:

<https://gov.wales/health-and-social-care-services-rehabilitation-framework-2020-2021>

<https://llyw.cymru/fframwaith-adsefydlu-gwasanaethau-iechyd-chymdeithasol-2020-i-2021-0>

There is likely to be an increased demand in rehabilitation in all settings due to the Covid-19 pandemic across 4 populations:

POPULATION 1	People post Covid-19: those recovering from extended time in critical care and hospital and those with prolonged symptoms of Covid-19 recovering in the community
POPULATION 2	People awaiting paused urgent and routine planned care who have further deterioration in their function
POPULATION 3	People avoiding accessing services during the pandemic who are now at risk of harm e.g. disability and ill-health
POPULATION 4	Socially isolated/shielded groups where the lockdown is leading to decreased levels of activity and social connectivity, altered consumption of food, substance misuse, the loss of physical and mental wellbeing and thus increased health risk

This guidance is separated into sections outlining the requirements for these different populations affected by Covid-19 and it is supported by a forthcoming separate evaluation framework and modelling resource.

This document aims to:

- Identify the needs of people who have been directly or indirectly affected by Covid-19 in order to provide the appropriate rehabilitation in the most appropriate setting, enabling them to return to their optimal level of independence and wellbeing.
- Provide a common language for describing rehabilitation for people who have been affected by Covid-19 for use across health, social care and third sector organisations providing rehabilitation and support.
- Align with existing organisation and specialist service pathways and evaluation frameworks.
- Support the principles and actions in the [Allied Health Professional Framework: Looking Forward Together](#) (Welsh Government, 2019) and the [Primary Care Model for Wales](#) (Primary Care One, 2019).

CONTEXT

The first peak of the Covid-19 pandemic has passed. The health and care system is now considering how it meets the longer-term rehabilitation needs of people who have had Covid-19 and those whose health and level of activity and participation in occupations important to them has been impacted indirectly by the pandemic. We must ensure that services are able to function so that outcomes are not adversely affected by the necessary pandemic response. It is likely that society will be living with this pandemic until a vaccination is available and so continued vigilance and flexibility are needed.

Rehabilitation, as described by the World Health Organisation (WHO), optimises a person's functioning and reduces the experience of disability by addressing the impact of a health condition on their everyday life. Rehabilitation expands the focus of health beyond preventative and curative care, to ensure people with a health condition can remain as independent as possible and participate in education, work and meaningful life roles (Krug, 2017).

The guidance uses the WHO International Classification of Functioning, Disability and Health (ICF) to describe rehabilitation interventions at an impairment, activity and participation level. See appendix one for definitions.

Dietz (2011) describes 4 elements of rehabilitation: preventive, restorative, supportive, palliative:

- **Preventative rehabilitation** occurs shortly after a new diagnosis or onset of new impairments. The aim is to provide education, advice and interventions to prevent or slow onset of further impairments and maintain a person's level of ability. This is a common form of rehabilitation in long-term conditions, such as cancer, COPD and many neurological conditions. It also underpins supported self-management and can include interventions aimed at maintaining ability for as long as possible.
- **Restorative rehabilitation** focusses on interventions that improve impairments such as muscle strength or respiratory function and cognitive impairment to get maximal recovery of function. This is a common form of rehabilitation after surgery, illness or acute events such as a major trauma or a stroke.
- **Supportive rehabilitation** increases a person's self-care ability and mobility using methods such as providing self-help devices and teaching people compensatory strategies or alternative ways of doing things. This may include the provision of assistive equipment or environmental modifications. This is sometimes referred to as adaptive rehabilitation (Dietz, 1980).
- **Palliative rehabilitation** enables people with life limiting conditions to lead a high quality of life physically, psychologically and socially, while respecting their wishes. It often focusses on relieving symptoms, such as pain, dyspnoea and oedema, preventing contractures, breathing assistance, psychological wellbeing, relaxation or the use of assistive device, in order to maximise functional independence and support comfort, dignity and quality of life.

Prehabilitation is a term used to describe the practice of optimising an individual's functional ability and minimising impairment prior to surgery, with the aim of improving postoperative outcomes (Durrand, 2019). It may be considered preventative rehabilitation or restorative, or described as therapeutic play in the case of children enabling them to achieve their milestones and acquire new skills.

Reablement refers to an enabling approach and associated services that provide rehabilitation for older people with physical or mental disabilities. It helps them adapt to their condition by learning or re-learning the skills needed to function in everyday life (Social Care Institute for Excellence, 2013). The focus is on promoting and optimising functional

independence by practicing activities, rather than interventions aimed at improving underlying impairments (Tessier et al., 2016).

People affected both directly and indirectly by Covid-19 are likely to benefit from different elements of rehabilitation at different times in the rehabilitation pathway.

The WHO recognises rehabilitation as an investment with cost benefits for both the individuals and society as it can help to; avoid costly hospitalization, reduce hospital length of stay, and prevent re-admissions. Rehabilitation enables individuals to participate in education and gainful employment, remain independent at home, and therefore minimises the need for financial or caregiver support. The forthcoming supporting evaluation framework will help organisations and services to demonstrate this.

There has been significant change and disruption to rehabilitation services across Wales because of the Covid-19 pandemic. Change has happened at great speed through the application of both workforce and digital enablers. Some of this system change and transformation in healthcare delivery is positive and should be captured and adopted for the longer-term benefit of everyone.

UNDERLYING PRINCIPLES OF REHABILITATION

There are several principles of rehabilitation which underpin the guidance for all 4 populations affected by the Covid-19 pandemic.

- All rehabilitation interventions and plans should be coproduced with the individuals who require them. Approaches to coproduction and shared decision making are included in the resource section of the guidance (*coming soon*).
- Individuals should be supported to manage their own health and well-being wherever possible. Approaches to supporting self-management are included in the resource section.
- New ways of working, such as using novel technologies, should be introduced wherever they can to improve people's experiences, reduce risk to individuals and health and social care professionals and improve effectiveness of services. Examples of technologies that can be used in rehabilitation are included in the resource section.
- The unique knowledge and skills of different health and social care professionals should be recognised. Registered health and social care professionals should be supported to work to the top of their licence at advanced practice level and/or in extended roles. The role of health and care support workers requires ongoing development and implementation. Health Education and Improvement for Wales (HEIW) have a pivotal role to play in developing training in rehabilitation and an enabling approach across all settings and services to maximise every contact and provide confidence and tools to deliver this, which is being taken forward in a parallel workstream.
- Integrated ways of working should be explored where possible to reduce the number of contacts from different health and social care professionals to minimise risk to service users and service providers and maximise efficiency of services.
- Rehabilitation should be provided at home or as close to home as possible. Some rehabilitation has to be provided in hospital settings depending on the severity, complexity and predictability of the person's condition and the intensity of intervention, facilities and equipment required. Factors influencing where rehabilitation should take place are included in Appendix One. Rehabilitation services should focus on providing the right conditions to maximise a person's recovery and independence, as highlighted in the "[Right-Sizing Community Services to Support Discharge from Hospital](#)" national report.

REHABILITATION MODEL

All elements of rehabilitation require multi-professional and multi-agency input, working in an integrated way. A stepped care rehabilitation model is proposed, based on a person-centred approach. This stepped care model can be mapped to the six-component model of the whole system approach described in the National Clinical Framework (NCF):

Enable me to grow well, live well and age well	Enable me to stay well and support myself	Assess and monitor me closely	Step up my care and keep me at home	Give me good care not in my own home	Step-down my care and get me home safely
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The stepped care rehabilitation model provides guidance on what element of rehabilitation may be required across the whole system for the 4 populations.

It is not intended to specify how or where rehabilitation should be delivered, but is designed to support health boards, social care and third sector services to describe their offer to individuals depending on the component of rehabilitation they need.

It can also support the mapping of existing services in order to inform service developments to mitigate any gaps.

The staff delivering rehabilitation will need the relevant level of knowledge and skill to deliver personalised rehabilitation programmes. Health Education and Improvement Wales (HEIW) are supporting a parallel multi-professional, multi-agency working group to develop a training and education resource package.

The forthcoming modelling resource and evaluation framework will help identify demand for and evaluate impact of rehabilitation provided.

Stepped Care Rehabilitation Model

NCF Component	Enable me to live well	Enable me to stay well and support myself	Assess and monitor me closely	Step up my care and keep me at home	Give me good care not in my own home	Step-down my care and get me home safely
Element of rehabilitation	Public Health Initiatives Includes; Maintaining healthy routines, activities and relationships that matter to me Keeping emotionally and physically fit and well Make Every Contact Count (MECC) Social Prescribing Nutrition Skills for Life	Primary & Community based (health, social care and third sector) Includes: Maintaining healthy routines, activities and relationships that matter to me Keeping emotionally and physically fit and well Direct Access for advice and support First Contact Practitioners Supported Self- Management Optimisation / Prehabilitation Therapeutic Play Vocational Rehabilitation Occupational Health Social Prescribing Community Connectors Nutrition Skills for Life Peer Support Groups	Primary & Community based (health, social care and third sector) Includes: Anticipatory Care Approach Direct Access for advice and support First Contact Practitioners Transdisciplinary Teams Condition Specific Interdisciplinary Teams Locality based Multi professional Teams Virtual Wards Occupational Health Peer Support Groups	Primary & Community based (health, social care and third sector) Includes: Mental health recovery Reablement Prehabilitation Rehabilitation Specialist evidence-based condition-specific rehabilitation Multimorbidity rehabilitation: stratified model of delivery encompassing condition specific as well as symptomatic rehabilitation for individuals with multiple conditions struggling to self-manage (cardiac or pulmonary disease, cancer, stroke, diabetes, and falls) Anticipatory Care Planning Palliative Care Rehabilitation Assistive equipment and environmental modifications Vocational Rehabilitation Occupational Health Peer Support Groups	Inpatient facility Includes: Rehabilitation Units Appropriately adapted Field Hospitals Care Homes Therapy led Community hospitals Intermediate Care facility supporting Discharge to Recover then Assess Pathway 3	Primary & Community based (health, social care and third sector) Includes: Discharge to Recover then Assess Pathways 2 and 4 (in a person's own home or existing intermediate care placement), which can involve any single or combination of the following: Optimisation Reablement Rehabilitation Specialist evidence-based condition-specific rehabilitation Multimorbidity rehabilitation: stratified model of delivery encompassing condition specific as well as symptomatic rehabilitation for individuals with multiple conditions struggling to self-manage (cardiac or pulmonary disease, cancer, stroke, diabetes, and falls) Mental health recovery Anticipatory Care Planning Palliative Care Rehabilitation Assistive equipment and environmental modifications Vocational Rehabilitation Occupational Health Peer Support Groups

People post-COVID-19

Based on modelling, details of which will be published in a forthcoming paper, the following likely cohorts of people who have had Covid-19 have been identified.

- 11% who need rehabilitation at home
- 6% who need rehabilitation in a bedded facility, such as a care home or community hospital
- 1% who will need inpatient rehabilitation

Rehabilitation needs will depend on the severity and complexity of symptoms experienced. The elements of rehabilitation likely to be required are:

- Support to enable individuals to be in control of their rehabilitation (shared decision making, education, self-management programmes)
- Ongoing respiratory rehabilitation (managing breathlessness, increasing exercise tolerance and levels of activity)
- Fatigue management (pacing, sleep hygiene, mindfulness techniques, graded exercise programmes)
- Nutrition / hydration to improve strength, function and independence (dietary plans, prescription of dietary supplements)
- 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 (peer support, counselling, acceptance and commitment therapy, cognitive behavioural therapy)

As well as a wide range of severity of disease there is also a wide range of complexity. A range of complications of Covid-19 have been identified in a small population as outlined in Appendix Two. NHS England has produced guidance describing the typical expected health care needs of people who have been discharged from hospital after an acute episode of COVID-19, available at <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/06/C0388-after-care-needs-of-inpatients-recovering-from-covid-19-5-june-2020-1.pdf>. There will also be the complexity of secondary complications due to individuals' co-morbidities and their social and economic situations.

The following scenarios have been developed to demonstrate how individual rehabilitation plans can be developed based on the stepped care rehabilitation model.

Population Group 1 Scenarios

Malcolm lives alone. He is a diabetic, but was a fit and well 60-year-old, who took to his bed for 5 days with Covid-19 symptoms. He's made a good physical recovery back to baseline, but is still experiencing fatigue, has high anxiety and has lost confidence in his ability to go out and get back to work and previous interests and activities.

Enable me to live well	Enable me to stay well and support myself	Assess and monitor me closely	Step up my care and keep me at home	Give me good care not in my own home	Step-down my care and get me home safely
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Malcolm needs a review of his diabetes with support from diabetic specialist nurse and a dietitian. He may also benefit from support and advice from an occupational therapist regarding fatigue management and vocational support, enabling him to return to undertaking the occupations important to him. This could possibly take place through virtual consultation, either telephone or video. Support from Community Connectors may also improve his confidence to go back to some of his previous interests.

Mabel is 82. She lives with her daughter and has COPD, but was independent with personal care. She has previously attended pulmonary rehabilitation in a group setting. She previously enjoyed shopping and meeting friends for coffee or lunch. Covid-19 has exacerbated her breathlessness and she has lost the ability to walk unassisted, but has stayed at home.

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Mabel needs reablement support in the short term, focussing on mobility, breathlessness and pacing whilst undertaking personal care and meal preparation activities. She may also benefit from a virtual rehabilitation group programme, either condition specific (i.e. pulmonary rehabilitation) or a multimorbidity programme encompassing condition specific as well as symptomatic rehabilitation for individuals with multiple conditions struggling to self-manage.

Michael is 48 and is married with two teenage children. He was previously fit and well and enjoyed doing triathlons. He had a long ICU stay, was ventilated for 10 days and developed serious complications, including encephalitis, resulting in a cognitive impairment and motor and sensory hemiparesis. He has a tracheostomy and a NG tube.

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Michael needs a period of intensive rehabilitation in an inpatient setting, with input from dietitian, occupational therapy, physiotherapy, psychology, speech and language therapy. He needs to be able to access tracking hoist, treadmill, hydrotherapy, specialist seating, tracheostomy weaning and psychological support. Depending on his progress, plans for discharge, suitability of his home environment and access to assistive/enabling equipment, he may be able to step down into community rehabilitation beds closer to home, before being discharged with support from his local Community Neurological or Rehabilitation Team. Psychological care and support will be a key requirement of his rehabilitation needs.

Margaret has previously had a stroke. She lives with her husband and was managing at home with a care package, with one person calling twice a day to help with washing and dressing and coming down stairs in the morning, and going upstairs and getting into bed at night. Margaret contracted Covid-19 and her functional ability has deteriorated so that she is no longer able to manage the stairs and needs help at night to get on and off her bed to use her commode. Her husband is not able to support her with this. She agreed with her GP that she did not want to be admitted to a District General Hospital.

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Whilst Margaret's Covid-19 symptoms were mild, a few days feeling unwell in bed have resulted in a loss of strength and confidence, and it is recognised that the intensity of rehabilitation required to optimise her function would be difficult to achieve in her own home. She would therefore benefit from a short stay in a therapy led community hospital or care setting to have rehabilitation. With rehabilitation in this setting she should be able to regain the ability to do the stairs and get out of bed to use a commode at night. The [Discharge to Recover then Assess Pathway 2](#) would also be implemented to ensure Margaret returns home with the appropriate level of care support.

People who have not received usual interventions or whose planned care has been paused

As a result of the Covid-19 pandemic, many interventions were cancelled or paused to reduce the risk of exposing people to Covid-19 and support the acute hospital care capacity required to deal with the pandemic.

People who have not received usual interventions or whose planned care has been paused, may have experienced further deterioration in their function. As a result of changes in function, rehabilitation will be required to mitigate any impacts of this change. This is the group referred to in population 2.

In Wales, all routine surgery and non-urgent outpatient appointments were cancelled on March 14th 2020. There were also a number of treatments paused, including some cancer treatments, and rehabilitation interventions, as teams throughout Wales diverted resources towards the frontline. This resulted in not only a potential to deteriorate in function, but also uncertainty to the population receiving these services.

Significantly, changes to planned care may persist for some time; following the SARS epidemic in Taiwan service volumes for certain outpatient services had not recovered to baseline levels over 2 years later and this included rehabilitation (Chu et al., 2008).

The importance of early detection and diagnosis has been well documented (McGuigan et al., 2018, World Health Organisation, 2020). It is clear with the pausing of some NHS services many individuals will be presenting later for diagnostic tests and may require a greater degree of intervention to improve function.

This is a complex and difficult area to quantify the impact as the majority of people will have coped without services and suffered few if any ill-effects. However, there will be a cohort who have significantly deteriorated during the lockdown and will require rehabilitation to aid recovery.

There are common rehabilitation needs across all 4 population groups, including;

- Dietetic intervention to support recovery from nutritional depletion and regain strength (dietary plans, prescription of dietary supplements)
- Support for individuals from areas of social deprivation to access prehabilitation and rehabilitation services
- Support to enable individuals to make decisions regarding their rehabilitation goals and associated plan (shared decision making, education, self-management programmes)
- Fatigue management (pacing, sleep hygiene, mindfulness techniques, graded exercise programmes)
- Interventions to improve swallowing and communication
- Physical rehabilitation to recover fitness levels and to return to daily activities, including work, family, education and social roles
- Psychological interventions to overcome the anxiety and fear of accessing healthcare whilst Covid-19 remains a threat

However, there are aspects of rehabilitation that are likely to be unique to population 2 and will depend on the length of time services have been paused, along with the severity and complexity of symptoms experienced. The unique elements of rehabilitation are likely to include:

- Those on a cancer pathway with deteriorating weight loss and physical decline (prehabilitation including graded exercise programmes, fatigue and weight loss management)
- Developing robust clinical triage systems to enable appropriate waiting list management

- Virtual consultations for individuals and therapeutic groups. Utilising telephone and video technological solutions to provide rehabilitation advice, assessment, treatment and signposting to on-line resources.
- Undertaking an Anticipatory Care approach to rehabilitation service delivery targeting those people who have been waiting on routine outpatient lists and are now at risk of developing complex chronic conditions.

The following scenarios have been developed to demonstrate how individual rehabilitation plans can be developed based on the six components of care model.

Population 2 Scenarios

Jordan is 14 and is awaiting surgery to lengthen his Achilles tendon. He has Cerebral Palsy, and has been struggling to walk as a result of contractures. He was due to have his operation in March but this was cancelled due to the pandemic. Jordan is a very keen footballer and was able to play for short periods, however as a result of the contractures and pain increasing he is now not able to play at all.

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Jordan needs a review of his function by the multi professional team comprising of physiotherapy, occupational therapy, podiatry, orthotics, psychology, and paediatric consultant. This may be undertaken via virtual consultation. Alternative options and strategies to maintain activity, social participation and wellbeing will be the focus of the rehabilitation provision.

Janet has had a diagnosis of lung cancer and was due to have a wedge resection in early April which was cancelled as a result of the pandemic. Janet had completed a course of prehabilitation prior to her surgery and was able to walk round her block without stopping. She lives with her husband and has been walking daily with her husband during lockdown. However, she has noticed that she is now much more breathless and is unable to walk all the way round the block. Janet now has to stop several times and can only complete half the distance. Janet is very worried and is starting to struggle to complete tasks at home too, such as going up and down stairs.

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Janet needs a repeat multi-professional assessment by the specialist team as her function has significantly changed. Her rehabilitation goals will focus on optimising her functional capacity, independence and quality of life, maximising her surgical outcomes should any operative treatment be undertaken. This will include pacing, fatigue and breathlessness management and nutritional support. This may be undertaken via a combination of virtual consultation options including individual and group sessions.

People who have avoided accessing services during the pandemic

This population refers to those individuals who have avoided accessing health and social care services during the pandemic.

Throughout the United Kingdom, there was a dramatic reduction in Emergency Department (ED) attendances. In Wales it is estimated that there was a 30% reduction. There was also estimated to be a further 30% reduction in those who presented to ED being admitted to hospital (Owens, 2020). This led to a dramatic reduction in unscheduled care, with most hospitals having a significant number of empty ward beds (West, 2020). Community services also reported a reduction in referral rates. Many people have refused any healthcare interventions for fear of contracting Covid-19. Instead choosing to manage at home with family members. This has resulted in an initial decrease in demand for social care packages.

Similar situations were seen during the SARS epidemic in Toronto where medical admissions decreased by 10-12% and high acuity visits to emergency departments fell by 37% (Schull et al., 2007). The impact of avoiding care is starting to be seen across health and social care, with people emerging from lockdown in crisis. This is resulting in greater levels of intervention being required in terms of both rehabilitation and social care support where for example family members are no longer able to provide the required level of support.

As with populations 1 and 2 the rehabilitation needs will depend on the severity and complexity of symptoms experienced. The rehabilitation challenges for population 3 are likely to include:

- Absence of supportive clinics and groups e.g. Memory services and associated delays in diagnosis, Falls and Frailty groups and Podiatry foot clinics.
- Delays in accessing paediatric services and the associated stress placed on families
- Carer fatigue
- Diabetes related deterioration
- Respite care provision
- Support for individuals from areas of social deprivation to access supportive rehabilitation and social care services in a timely manner via virtual consultation
- Prioritising delivery of chronic conditions and self-management support against increasing rehabilitation demands for populations one and two

The scenarios overleaf have been developed to demonstrate how individual rehabilitation plans can be developed based on the six components of care model.

Population 3 Scenarios

Anthony is 84 and has type 2 diabetes, is obese and has recently been diagnosed with dementia. He lives with his wife and was receiving tri-weekly visits from the District Nursing team to help dress an ulcer on his left foot. Anthony was mobile around the house and garden but was unable to walk outside. His wife does all the shopping, meals and cleaning. As a result of the pandemic, all the visits from the district nursing team were cancelled, they did teach Anthony's wife how to dress the ulcers. His mobility has deteriorated and he is now no longer able to walk upstairs, so has been sleeping in the chair for the past 3 weeks. Anthony does not want to be admitted to a hospital or leave his house.

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Anthony would benefit from support by his local Community Resource Team focussing on strategies to maximise his functional ability and addressing clinical needs regarding his feet. Falls prevention and carer support will be key areas of support, along with any modifications required to enable safe and independent mobility to all areas of his home environment that he wishes to access.

Brian is 92 and fell at home 4 weeks ago. His daughter moved in with him to help look after him during the pandemic. Since his fall, Brian's mobility has been slowly deteriorating and for the past 10 days he has been unable to get out of bed. He has now stopped eating and drinking and has become very confused. Paramedics recommended admission to acute hospital.

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Brian may benefit from a short stay in an inpatient unit to determine the cause of his deterioration and receive appropriate treatment and rehabilitation. Implementing the Discharge to Recover then Assess (D2RA) pathway will be crucial, with nutritional support and mobilisation to minimise sarcopenia, a key focus of rehabilitation support.

People who have been advised to shield or are socially isolating

This population refers to those individuals who have been advised to shield or are socially isolating due to being vulnerable, including the population living in care home settings.

Approximately 130,000 shielding letters were sent out by the Welsh Government advising those people to stay at home for 12 weeks. However, there is another cohort of people who were advised to isolate due to their vulnerable status, as a result of their age or underlying medical condition. Therefore, the true size of population 4 is not known.

This is a particularly challenging group to predict rehabilitation needs, as they have had very little if any contact with health professionals, so there is little clinical evidence to relate to this population. However, there is a growing concern on the longer-term impact of social isolation leading to chronic loneliness and the potential long-term impact on physical and mental well-being (Banerjee and Rai, 2020, Tolares et al., 2020). Consequently, there are a number of concerns in relation to this group, including:

- How will they re-integrate back into their communities bearing in mind the communities they left 12 weeks ago are very different now, e.g. shopping – queues outside, card only, social distancing
- How will they access healthcare, many may not have the technology to support using digital platforms
- Anxiety and fear levels may prevent many from coming out of isolation unless they have support to do so
- Loss of confidence; we know this is a factor in the elderly
- Parents of children who do not feel comfortable about the current level of information provided around return to school
- Children and young people experiencing vicarious trauma as a result of a cohabiting family member having been unwell during the pandemic, or having died during this time.

There are many elements of rehabilitation that are likely to be similar to those of the other populations. However, there is an expectation that there may be a great need for psychological services within this group, as highlighted by The King's Fund (Wellings, 2020). The unique elements of rehabilitation likely to be required are:

- Support for individuals to re-integrate into communities and understand the changes in society as a result of the pandemic e.g. social distancing, some people wearing masks, queues outside shops.
- Advice and treatment for increased levels of anxiety and depression.

The scenarios overleaf have been developed to demonstrate how individual rehabilitation plans can be developed based on the six components of care model.

Population 4 Scenarios

John lives alone, he is 76 and fit and well with no underlying medical conditions. As a result of the pandemic John self-isolated. His family live away but they have organised food deliveries for him during lockdown. John has noticed over the past 12 weeks he has increasing pain in his right hip. He is struggling to mow his grass. John has telephoned his General Practice who have given him a prescription for painkillers. John has not yet been to the pharmacy to collect his prescription as he is fearful of going out. John mentioned this to his daughter and she has telephoned the pharmacy to arrange them to deliver it. John does not own a smart phone or tablet.

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John would benefit from a review by the Primary Care Team in order to explore whether the painkillers have addressed his pain in his hip, as well as understand his concerns in order to ensure he is able to undertake the occupations important to him in his preferred environment. This may include support from Occupational Therapy and Physiotherapy, but also signposting to local third sector or community schemes.

Kate is 12 and has learning difficulties. She lives at home with her Mum, Megan, and has been off school since March. Megan is a diabetic, and they not been out since the lockdown began. Kate is physically very active and enjoys socialising with her friends. She keeps asking her Mum when they can go back to school and go outside to play. Megan is very nervous as she knows it will be difficult to ensure Kate practises social distancing.

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Megan needs some support to explore options and strategies that will enable Kate to socialise with her friends in line with social distancing, and increase her confidence her to re-integrate both herself and Kate back into the community. This support may come from her Community Learning Disability Team, her school, or third sector and voluntary organisations.

ACTION FOR HEALTH BOARDS, LOCAL AUTHORITIES AND THIRD SECTOR

This paper is designed to support planning for the additional demand for rehabilitation services caused by the Covid-19 pandemic, recognising the complexity and scope of the rehabilitation reach. It outlines the predicted rehabilitation needs of all 4 defined population groups against a stepped care rehabilitation model, but the demand for these groups is difficult to foretell. The modelling will provide more detail on anticipated demands across the 4 population groups.

There are a wide range of rehabilitation services and teams in place across Wales delivered by health, social care and third sector services. Many of these teams will have a workforce with the knowledge, skills and ability to meet the additional rehabilitation needs from these 4 populations across the stepped care rehabilitation model. The recommendations in the body of this paper are designed to be used in conjunction with local clinical expertise.

The forthcoming modelling resource is designed as a tool for organisations to use in conjunction with local demand and capacity work to address the gaps in service delivery. The tool has made a number of assumptions (based on clinical expertise and currently available evidence). These assumptions are detailed within the modelling resource as is the methodology used to create the tool. It is likely the assumptions will change as the evidence develops.

Notably, there is no current dataset capturing existing demand for or impact of rehabilitation services cross Wales. The forthcoming evaluation framework supports organisations to move towards a common dataset. As this develops, it will inform more accurate modelling.

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APPENDIX ONE: Factors influencing where rehabilitation should take place

	Home	Bedded Facility (care home or community hospital)	Inpatient Rehabilitation
Complexity	Has established rehabilitation needs, plan and goals, that can be met in home environment	↔	Requires ongoing detailed face to face assessments from several different health care professionals (HCP) to establish rehabilitation potential and plan
Intensity	May vary from several hours of interventions per day to one to 2 hours per week. A higher proportion of interventions likely to be delivered by unregistered H&SCPs	↔	Requires several hours of interventions each day delivered by a higher proportion of registered HCP
Workforce	Integrated workforce with relevant knowledge and skills are able to provide rehabilitation interventions. Input from different health and social care professionals can be delivered in home with indirect support via telephone/ telehealth or through other team members.	↔	Requires daily direct contact from several different HCP, working at top of licence
Environment	Environment enables independence and any rehabilitation equipment is available in the home, or in local leisure facilities or outpatient departments	↔	Requires access to highly adapted environment, equipment and facilities to meet rehabilitation goals
Medical and nursing needs	Has predictable medical needs , with needs that can be supported by primary care teams with support from specialists as required.	↔	Has evolving or unpredictable medical needs which require ongoing investigation and treatment
Family and care support	Has family and / or care package that are able to provide care and support rehabilitation 24/7	↔	Requires 24/7 care from registered nurses

APPENDIX TWO: Complications in people recovering from severe cases of Covid-19

(from BSRM paper) <https://www.bsrn.org.uk/downloads/covid-19bsrmissue1-published-27-4-2020.pdf>

Most frequent	Less common
<ul style="list-style-type: none"> • Cardiovascular, pulmonary and musculoskeletal deconditioning. • Restrictive lung disease. • Affective disorders: depression, anxiety, post-traumatic stress disorder. • Post intensive care syndrome, including critical illness polyneuropathy, critical illness myopathy and a combination of these. • Other neurological consequences of the virus and critical care, such as encephalopathy, cerebrovascular events and cerebral hypoxia, • Acute confusional state, at least in the early stages of rehabilitation. • Fatigue. • Cognitive impairment. 	<ul style="list-style-type: none"> • Thromboembolic disease: <ul style="list-style-type: none"> o Myocardial infarction o Stroke o Pulmonary embolism • Musculoskeletal pain and discomfort. • Psychosis. • Dyskinesia. • Posterior reversible encephalopathy syndrome. • Cardiomyopathy.