**Appendix 4:** Definitions of interventions

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| **Intervention** | **Definition** |
| **SELF-MANAGEMENT** | NHS England describes (supported) self-management as ‘health and care professionals tailor their approaches to working with people, based on the person’s individual assets, needs and preferences, as well as taking account of any inequalities and accessibility barriers, and so working in a personalized way based on ‘what matters’ to the person. It also means ensuring approaches such as health coaching, peer support and self-management education are systematically put in place to help build knowledge, skills and confidence.’ (NHS England)\* |
| **CASE MANAGEMENT** | Case management (CM) is the process of planning, coordinating and reviewing the care of an individual. We used the definition cited by the King's Fund in the UK ‘A collaborative process of assessment, planning, facilitation, care coordination, evaluation, and advocacy for options and services to meet an individual's and family's comprehensive health needs through communication and available resources to promote quality cost-effective outcomes’.[Kings fund] (Huntley et al. 2013, 2016)39.41 |
| **TRANSITIONAL CARE** | Transitional care that includes hospital discharge and follow-up at the next location of care in addition to engagement of the person and carer in these processes. [Bauer, Fitzgerald, Haesler, & Manfrin, 2009] (Allen et al. 2017)60 |
| **REABLEMENT** | “Reablement is a home care approach aiming at improving services for older people and the concept is gaining increasing attention. Various terms or reablement include ‘‘restorative home care’’ programs (Ryburn et al., 2009) or, in Scandinavian countries, ‘‘every-day rehabilitation’’. The term is not consistently deﬁned and there appear to be diﬀerences in what constitutes ‘‘everyday rehabilitation’’ between diﬀerent national contexts, and also diﬀerent models for such services.”- (Petterson 2017)70  “The intervention did not need to be called reablement or restorative care, but had to promote functional independence, be of short duration (6–12 weeks) and be provided by paid workers as part of homecare services. The intervention had to be multidisciplinary in nature.”- (Tessier 2016)71 |
| **SOCIAL SUPPORT** | A useful definition of social support is modified from Gale *et al.* 2018 who describe *synthetic social support*; synthetic because it is distinct from the support embedded in spontaneous social networks: it is non-reciprocal, it offered on a strictly time limited basis and lay health/social workers are accountable for the relationship and the social networks produced are targeted rather than spontaneous. [Gale 2018]\* |
| **REHABILITATION** | The American Thoracic Society and the European Respiratory Society define pulmonary rehabilitation (PR) as “a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies, which include, but are not limited to, exercise training, education, and behavior change. The intention of pulmonary rehabilitation is to improve the physical and psychological condition of people and to promote long-term adherence of health-enhancing behaviors.” (Moore et al. 2016)27  Pulmonary rehabilitation is defined as “a comprehensive intervention based on a thorough patient assessment followed by patient-tailored therapies that include, but are not limited to, exercise training, education, and behavior change, designed to improve the physical and psychological condition of people with chronic respiratory disease and to promote the long-term adherence to health-enhancing behaviors” (Jenkins et al. 2018)29  We focused on supervised exercise training because this component has been shown to be integral to success in PR. In addition, we felt that an evaluation of this type of intervention was warranted, given the time and resources required for delivery. Given that the effects of PR have been shown to diminish within 6 to 12 months, we defined maintenance exercise as physical training (aerobic and/or resistance) at least once monthly for ≥ 6 months (Beauchamp et al. 2013)30  respiratory muscle training and Breathing control exercises of slow and deep breathing, diaphragmatic breathing, pursed lip breathing, relaxation techniques and body position exercises in humans evaluating the effects on breathlessness or dyspnea, other symptoms and quality of life in adult patients (>18 years) at all stages of COPD (Borge et al. 2014)31  Tai Chi is a traditional Chinese exercise that involves human physical activity, breath expiration and inspiration, and mind regulation. Tai Chi also involves soft movements and coordination of respiration and movement (Wu et al. 2014)32 |
| **MEDICATION REVIEW** | Hospital at home (HaH) is the delivery of hospital ward-level care in the patient’s home as a substitute for routine hospitalization. Patients who have clinical indications for admission to a hospital ward are offered monitoring, face-to-face clinical care from nurses and physicians, diagnostic testing (e.g. laboratory investigations, electrocardiograms, radiography), and intravenous (IV) medication in their homes (Loh et al. 2016)45  Medication review was defined as any kind of systematic assessment of a patient’s medications with the aim to evaluation and optimise his or her drug treatment (National Prescribing Centre Classification) (Wallerstedt et al. 2014)47  Polypharmacy has been described as the use of four or more medications (Cooper et al. 2015)48  Potentially inappropriate prescribing (PIP) is a term that encompasses the prescribing of potentially inappropriate medication (PIM) where risks and costs outweigh potential benefits, as well as potential prescribing omission (PPO), where clinically beneficial medications may not be prescribed for a number of reasons (Taylor et al. 2016)49 |
| **VACCINATION PROGRAMME** | Strain-specific immune responses to the influenza virus haemagglutinin surface glycoprotein measured by a haemagglutination inhibition (HI) test are widely accepted indicators of immunogenicity.  Seroconversion is at least a 4-fold increase in serum HI titre post-vaccination compared with baseline. The seroconversion rate in a population is considered sufficient for seasonal influenza vaccine by the European Committee for Medicinal Products for Human Use (CHMP) when above 40% in subjects aged 18-60 years and above 30% in subjects older that 60 years.  The seroprotection rate is defined as the proportion of the population with HI titres>=1:40 at four weeks post-vaccination. The seroprotection rate in a population is considered sufficient for seasonal influenza vaccines by CHMP when above 70% in subjects aged 18-60 years and above 60% in subjects older than 60 years and by CBER when the lower limit of the 95% CI is at least 70% in 18-60 year olds and at least 60% in subjects older than 60 years.  Safety of vaccination was studied by comparing local and systemic effects of influenza and placebo vaccination. COPD exacerbations up to 14 days post-vaccination were considered a possible adverse effect of vaccination.  Vaccination efficacy is commonly defined as the direct effect of a vaccine measured in pre-licensure randomised clinical trials where vaccination is allocated under optimal conditions, comparing a vaccinated group with a placebo group in the same population (Bekkat- Berkani et al. 2017)50 |
| **HOSPITAL AT HOME** | Hospital at home (HaH) is the delivery of hospital ward-level care in the patient’s home as a substitute for routine hospitalization. Patients who have clinical indications for admission to a hospital ward are offered monitoring, face-to-face clinical care from nurses and physicians, diagnostic testing (e.g. laboratory investigations, electrocardiograms, radiography), and intravenous (IV) medication in their homes (Qaddoura et al. 2015)67 |

\*NHS England. Supported self management. <https://www.england.nhs.uk/ourwork/patient-participation/self-care/>. Accessed 18th June 2020

\*Gale NK, Kenyon S, MacArthur C, et al. Synthetic social support: theorizing lay health worker interventions. Soc Sci Med. 2018;196:96–105.