Evidence Brief: Cardiac Rehabilitation

Contents

Produced by the Knowledge Management team Evidence Briefs offer an overview of the published reports, research, and evidence on a workforce-related topic.

Date of publication: September 2024

Please acknowledge this work in any resulting paper or presentation as:
Evidence Brief: Cardiac Rehabilitation. Katie Nicholas. (September 2024). UK: Workforce, Training and Education Knowledge Management Team

There may have been an update to this Evidence Brief - to check you are reading the most current version please see the links below:

- Complete Evidence Brief list – link for Workforce, Training and Education staff
- Complete Evidence Brief list – link for External staff

Key publications – the big picture

Guidance for growing and developing the pulmonary rehabilitation multidisciplinary team
Source: NHS England
Publication date: Updated March 2024

The NHS Long Term Plan recognised pulmonary rehabilitation as a high value intervention that can reduce days spent in hospital and improve outcomes for people living with chronic respiratory conditions [1, 2]. It identified the need to expand provision so that more people can benefit from this intervention.

National Audit of Cardiac Rehabilitation: Quality and Outcomes Report 2023
Publication date: 2023
The 2023 NACR Quality and Outcomes Report shows encouraging signs of a recovery within cardiac rehabilitation (CR) services following the pandemic, evident in a higher quality of service delivery and a greater level of patient choice in respect to the mode of delivery of CR. This is indeed good news and programmes should be commended for their work in moving CR to a better position. That said the report also emphasises that there is much more to do in ensuring that all patients who start CR are supported to complete their programme.

Cardiac rehabilitation: a participant's perspective – learning from the pandemic to shape future delivery
Source: British Heart Foundation
Publication date: 2022
Cardiac rehabilitation underwent sudden and dramatic change as a direct result of the COVID-19 Pandemic. Group-based, in-person exercise and education sessions came to an abrupt end for the vast majority of services across the UK, while many switched to remote, online interaction and support, often without the necessary infrastructure (such as suitable office space for virtual consultations, adequate connectivity and IT support) in place. Combined with staff redeployment on an unprecedented scale, this all amounted to a perfect storm for rehabilitation services

Cardiology GIRFT Programme National Specialty Report Free NHS Futures log in required*
Author(s): Getting It Right First Time (GIRFT) NHS
Publication date: February 2021
An estimated 6.1 million people in England1 are currently living with cardiovascular disease (CVD). Although mortality rates from CVD fell by 52% between 1990 and 2013,2 CVD remains one of the biggest killers in the UK.3 Healthcare costs relating to heart and circulatory disease are estimated at £7.4bn each year, while the wider cost to the economy in England is estimated at £15.8bn annually.4Therefore, prevention, diagnosis and management of CVD forms a key part of the NHS England and NHS Improvement (NHSE/I) Long Term Plan.5 The falling CVD mortality rate has been the biggest contributor to increased life expectancy for men and women within the UK. However, demographic shifts within our society mean that CVD-related mortality is increasing. To address this, we need to review the ways cardiac services are delivered and who is delivering them, to ensure both that patients are getting the care they need during the ongoing COVID-19 pandemic, and that services are fit for the future.

Guidelines

Chronic heart failure in adults: diagnosis and management NICE Guidelines NG106
Source: NICE
Publication date: 12th September 2018
See 1.9 Cardiac rehabilitation

Case Studies

Cardiology GIRFT Programme National Specialty Report Free NHS Futures log in required*
Author(s): Getting It Right First Time (GIRFT) NHS
Publication date: February 2021
See p. 39 Delivering cardiac rehab services through a social enterprise model
Atrium Health Ltd is a social enterprise offering cardiac and pulmonary rehabilitation services, physical activity programmes and health promotion interventions. Set up in 2012 in response to rising demand, the service aims to offer seamless care for patients transitioning from acute care to long-term rehabilitation. Atrium employs five staff and operates with a number of service level agreements with the NHS and one direct contract with Coventry and Rugby CCG.

Virtual Rehabilitation Services
Source: NHS England Transformation Directorate
Provide patients with the information they need to lead effective self-management, such as feedback on adherence to the rehabilitation programmes and results in real time.

Cardiac Nurse Practitioner role profiles and development plans to create competence-based jobs roles – Mid and South Essex NHS Foundation Trust
Source: Skills for Health
Cardiac nurse practitioners at Broomfield Hospital, part of the Mid and South Essex NHS Foundation Trust, used the CHD Competence Framework to review roles and responsibilities within the nursing team and to develop competence-based job descriptions. In turn, this led to the drafting of personal development plans which were used as part of the appraisal process.

Developing the role of Acute Coronary Syndrome Nurses using Skills for Health Competencies – Betsi Cadwaladr University Health Board
Source: Skills for Health
Wrexham Maelor Hospital, within the Betsi Cadwaladr University Health Board, developed an Acute Coronary Syndrome Nurse with the support of Consultant Cardiologists and other senior colleagues, the Cardiac Services Manager at Wrexham Maelor Hospital to put in place plans for a non-physician led Rapid Access Chest Pain Clinic. The key to its success would be a new role, at the advanced practitioner level, of Acute Coronary Syndrome (ACS) Nurse.

The Star for workforce redesign

More resources and tools are available by searching **"heart"** in the Star

Statistics

You can find relevant statistics on the Health and Care Statistics Landscape

National Audit of Cardiac rehabilitation
Source: NHS England Digital
The National Audit of Cardiac Rehabilitation (NACR) collects comprehensive audit data to support the monitoring and improvement of cardiovascular prevention and rehabilitation services in terms of access, equity in provision, quality and clinical outcomes.

National Data Programme

Workforce, Training and Education staff can look at the National Data Warehouse (NDL) SharePoint site to find out more about datasets and Tableau products.

Published Peer Reviewed Research

Advanced Practice

Conference abstract: An evaluation of advanced practice within a local cardiac rehabilitation service in north east Wales Abstract all available
Item Type: Journal Article
Authors: Norman, J.
Publication Date: 2023
Journal: Heart 109(5), pp. A6–A7
[Wales]

Abstract: Background Research has suggested that managing medical risk is vital for secondary prevention and to optimise prognostic benefits. Advanced Practitioners are ideally placed to manage this component of Cardiac Rehabilitation (CR) however, have not always been seen as essential members of the multidisciplinary team. Aim To explore data pertaining to the independent prescribing of cardio protective pharmacotherapy and advanced clinical consultations, in order to review how Advanced Practitioners contribute to the medical risk management of patients. Methods We have three Advanced Practitioners working within the local CR service. Two data subsets were reviewed retrospectively; this included a review of all clinical contacts made by an Advanced Practitioner, comprising either face to face or telephone consultations. A further review of all medication amendments made, over a recent three month period, added a further dimension to this evaluation. The latter was categorised by the number of prescriptions issued, according to drug type (figure 1). Results Over a 3 month period in 2023, all Advanced Practitioner consultations (n=187) were reviewed. The majority of consultations were via telephone (n=107), with the rest being delivered face to face (n=80). More than half of all consultations resulted in a medication alteration taking place (n=100), mostly for cardio protective or lipid lowering purposes. In addition to this, there were 18 cases of deprescribing noted, demonstrating that optimisation may involve the cessation or reduction of medication, as opposed to dose increases. Conclusion An Advanced Practitioner can significantly improve the medical risk management of patients attending CR. This directs a significant amount of work away from General Practitioners and cardiologists, whilst increasing convenience for patients already attending CR programmes. The results of this local audit will contribute to a wider body of knowledge, including an ongoing review of Advanced Practice across Wales.

Advanced practitioner cardiology follow-up clinic - A cardiac rehabilitation led service
Item Type: Conference Proceeding
Authors: Jones, C.
Publication Date: 2021
Publication Details: Physiotherapy (United Kingdom). Conference: Virtual Physiotherapy UK 2020 Conference. Virtual, Online. 113(Supplement 1) (pp e113); Elsevier Ltd, [Wales]
Abstract: Purpose: For the last 10 years, patients in North East Wales who had suffered a cardiac event and/or intervention such as PCI or CABG were followed up in cardiology clinics by Chest Pain Assessment nurses rather than Cardiologists. Cardiac Rehabilitation (CR) is provided as a separate service. Following the introduction of ACPs (3 nurses, 1 Physiotherapist) in CR, it has been observed that patient assessment and treatment is being duplicated between the 2 services. With the aim of streamlining services and avoiding this duplication, we took the decision to merge the services and absorb post intervention clinic into the CR service. It is hoped that the integration of the 2 services will lead to a more cost and time efficient journey for cardiac patients through the utilisation of advanced practice knowledge and skills. Method(s): We compared the 2 services. Follow-up after a cardiac event requires: 1. Clinical history taking and review of current cardiac symptoms. 2. Clinical assessment (blood pressure, heart rate and rhythm and chest auscultation). 3. Diagnostics to include blood tests (lipids, kidney function, liver function and glucose levels), ECG, echocardiogram, and cardiac stress tests. 4. Cardioprotective medicine management (commencement and titration of medicines such as ACE-Inhibitors, Beta-blockers and anti-anginal medication). Result(s): Following the addition of ACPs to the CR team, these requirements are increasingly met throughout the duration of a patient's Cardiac Rehabilitation journey, before the patient reaches the follow-up cardiology clinic. We identified the need to formalise the ACP's assessment during CR to safely eradicate the requirement for standalone cardiology follow up clinic. It would be necessary for all patients to be seen at some point during their Cardiac Rehabilitation. Conclusion(s): North East Wales Cardiac Rehabilitation service follows BACPR's guidance for best practice (British Association for Cardiac Prevention and Rehabilitation Standards and Core Components, 2017) when structuring their programme's. With the addition of advanced skills, all of the follow-up clinic requirements could be met whilst also adhering to the BACPR's Standards and Core Components. Impact: All patients will be seen by an ACP during their rehab - an ACP will run a regular follow up CR clinic. A letter will be dictated at this clinic and the admin will order case notes and transcribe the letters. For patients who have undergone cardiac interventions or suffered an MI and do not attend CR (very few), they will be invited to a standalone clinic which will run only once every 6-8 weeks depending on need. The potential impact is a cost-saving of approximately 6800 per year (5 h per week of ACP (band 7 or 8a) time absorbed into existing CR service). There is also a time saving for patients and reduced impact on the CR service, as staff will be available for general CR input where they would previously have covered time taken for standalone follow-up clinic. It will strengthen the case for an increase in ACPs within CR in other areas in the UK - potential cost saving if existing services have a follow-up with consultants - 105,000.00 per year. Funding acknowledgements: Not funded.

Allied Health Professionals

Are exercise prescriptions for patients with cardiovascular disease, made by physiotherapists, in agreement with European recommendations?
Item Type: Journal Article
Authors: Marinus, N.;Cornelissen, V.;Meesen, R.;Coninx, K. and Hansen, D.
Publication Date: 2024
Journal: European Journal of Cardiovascular Nursing 23(3), pp. 230–240
[Belgium]
Abstract: Aims Physiotherapists often treat patients with (elevated risk for) cardiovascular disease (CVD), and should thus be able to provide evidence-based exercise advice to these patients. This study, therefore, aims to examine whether exercise prescriptions by physiotherapists to patients with CVD are in accordance with European recommendations. Methods This prospective observational survey included forty-seven Belgian physiotherapists. The participants agreed to prescribe ex- and results ercise intensity, frequency, session duration, program duration, and exercise type (endurance or strength training) for the same three patient cases. Exercise prescriptions were compared between physiotherapists and relations with their characteristics were studied. The agreement between physiotherapists' exercise prescriptions and those from European recommendations ('agreement score': based on a maximal score of 60/per case) was assessed. A wide inter-clinician variability was noticed for all exercise modalities, leading to a large variance for total peak-effort training minutes (from 461 up to 9000 over the three cases). The exercise frequency was prescribed fully out of range of the recommendations and the prescription of additional exercise modes was generally flawed. Exercise intensity and program duration were prescribed partially correct. The addition of strength exercises and session duration was prescribed correctly. This led to physiotherapist agreement scores of 25.3 +/- 9.6, 23.2 +/- 9.9, and 27.1 +/- 10.6 (all out of 60), for cases one, two, and three, respectively. A greater agreement score was found in younger colleagues and those holding a Ph.D. Conclusion Exercise prescriptions for CVD patients vary widely among physiotherapists and often disagree with European recommendations. Registration ClinicalTrials.gov NCT05449652

Physiotherapists' Adoption and Perceptions of Tele-Rehabilitation for Cardiorespiratory Care in Response to COVID-19 Abstract only*
Item Type: Journal Article
Authors: Schertzer, Katarina;Belitzky, Jenna;Conboy, Cassandra;Joshi, Hitesh;Harvey, Kirsten;Hondal, Gabriela Suarez;Miller, Erin;Mathur, Sunita and Wickerson, Lisa
Publication Date: 2024
Journal: Physiotherapy Canada 76(2), pp. 211–217
[Canada]
Abstract: Purpose: The use of tele-rehabilitation as a mode for physiotherapy services was widely implemented following the onset of the coronavirus disease 2019 (COVID-19) pandemic. This study explored the perceived value and experiences of physiotherapists relating to tele-rehabilitation for cardiorespiratory care. Method: Semi-structured interviews were conducted with physiotherapists who provided tele-rehabilitation to adults with cardiorespiratory conditions between March 11 and December 31, 2020. Interviews were analyzed using conventional content analysis. Results: Seven participants were interviewed; six practising solely in pulmonary rehabilitation and one practising in both pulmonary and cardiac rehabilitation. Three major themes emerged: (1) the pandemic presented unique challenges to implementing tele-rehabilitation while exacerbating previous challenges inherent with virtual care, (2)

tele-rehabilitation use during the pandemic was deemed as equally effective in quality of care and patient adherence when compared to in-person services, and (3) tele-rehabilitation had significant value during the pandemic and has potential as an alternative delivery model post pandemic. Conclusion: Despite the inherent challenges, tele-rehabilitation was endorsed by participants as a suitable and effective alternative to care delivery and holds promise as a post-pandemic delivery model. Further evaluation is needed to support and optimize tele-rehabilitation use in physiotherapy practice.

Home-based cardiac rehabilitation in older adults: expert-recommendations for physiotherapist-led care to improve daily physical functioning and reduce comorbidity-related barriers
Item Type: Journal Article
Authors: Terbraak, M.;Major, M.;Jorstad, H.;Scholte op Reimer, W. and van der Schaaf, M.
Publication Date: 2023
Journal: European Journal of Physiotherapy
[Holland]
Abstract: Background: Cardiac rehabilitation (CR) can reduce mortality and improve physical functioning in older patients, but current programs do not support the needs of older patients with comorbidities or frailty, for example due to transport problems and physical limitations. Home-exercise-based cardiac rehabilitation (HEBCR) programs may better meet these needs, but physiotherapy guidelines for personalising HEBCR for older, frail patients with cardiovascular disease are lacking. Purpose(s): To provide expert recommendations for physiotherapists on how to administer HEBCR to older adults with comorbidities or frailty. Method(s): This Delphi study involved a panel of Dutch experts in physiotherapy, exercise physiology, and cardiology. Three Delphi rounds were conducted between December 2020 and February 2022. In the first round panellists provided expertise on applicability and adaptability of existing CR-guidelines. In the second round panellists ranked the importance of statements about HEBCR for older adults. In the third round panellists re-ranked statements when individual scores were outside the semi-interquartile range. Consensus was defined as a semi-interquartile range of <= 1.0. Result(s): Of 20 invited panellists, 11 (55%) participated. Panellists were clinical experts with a median (interquartile range) work experience of 20 (10.5) years. The panel reached a consensus on 89% of statements, identifying key topics such as implementing the patient perspective, assessing comorbidity and frailty barriers to exercise, and focusing on personal goals and preferences. Conclusion(s): This Delphi study provides recommendations for personalised HEBCR for older, frail patients with cardiovascular disease, which can improve the effectiveness of CR-programs and address the needs of this patient population. Prioritising interventions aimed at enhancing balance, lower extremity strength, and daily activities over interventions targeting exercise capacity may contribute to a more holistic and effective approach, particularly for older adults.Copyright © 2023 Informa UK Limited, trading as Taylor & Francis Group.

Conference abstract: The Benefits Of Utilizing Occupational And Physical Therapists In Cardiopulmonary Rehab Abstract all available
Item Type: Journal Article
Authors: Palle, S. R.
Publication Date: 2022
Journal: Journal of Cardiopulmonary Rehabilitation and Prevention 42(5), pp. E73
[US]
Abstract: Introduction: In 2021 the COVID pandemic put a strain on the healthcare system resulting in burnout and staff shortages. As a result a lot of employers looked for strategies to maximize their resources without sacrificing the quality of patient care. The pandemic was particularly hard on cardiopulmonary

rehabilitation programs, some of which were forced to temporarily shut down. With cardiovascular disease continuing to be the leading cause of death, according to the Centers of Disease Control and Prevention (CDC), it is crucial that we come up with solutions to confront the impacts of the pandemic. Purpose(s): This study aims to demonstrate how the integration of both the Physical Medicine & Rehabilitation (PM&R) and Cardiac Rehabilitation (CR) departments helps meet the demands of patients and assists in the optimization of resources. Design(s): This retrospective study looked to examine the benefits of utilizing both Physical Therapists (PT) and Occupational Therapists (OT) in all 3 phases of the CR program: Phase 1 is the inpatient visit, Phase 2 is the monitored program and Phase 3 is the wellness/secondary prevention program. Method(s): In a retrospective review from Jan 2021 to Dec 2021 data was collected about patient diagnosis, staffing & patient feedback and patient census/wait list. Result(s): Involvement of both PTs and OTs revealed the following: 1.) Improved phase 1 visits and referrals in the treatment of myocardial infarction, with a total of 391 visits. Our program was able retain the platinum performance achievement award from the American College of Cardiology even during the pandemic. 2) Reduced wait times for phase 2 which was reduced from several months to 2 weeks. This was achieved by freeing up nurses to interview and assess new patients while the therapists helped work with those already enrolled in the program. 3.) A sustained phase 3 program achieved by therapists helping triage the surge in patients due to other programs in the system being forced to shut down. Our program accommodated 165 patients in the wellness program in 2021. 4.) With the integration of PM&R and CR, nurses were able to cross refer patients back to PM&R if they had a history of falls or if the patient was post COVID and did not qualify for pulmonary rehab. 5.) Improved team engagement scores which were in the 90th percentile and patient experience scores which were in the 99th percentile. Conclusion(s): This study demonstrates what an important role both PTs & OTs can have in CR when both departments are integrated especially during challenging times. Involving PTs/OTs in CR helps promote a teamwork approach by allowing clinicians to utilize their skills to address patient impairments from a unique perspective to help patients meet their goals.

Conference abstract: Utilising digital health services to enable clinical placement expansion in a cardiac rehabilitation service...Physiotherapy UK Virtual Conference, November 5-6, 2021
Author(s): Phoenix ; Scordis, C.; Leslie, R. Source: Physiotherapy; vol. 114
Publication date: February 2022
[UK]
Purpose: The trust was awarded funding from HEE to increase physiotherapy placement capacity throughout this academic year. Aims of our project included: • Improve student experience and provide them with vital skills for future delivery of healthcare. • Improve educator experience. • Enable students to experience rehabilitation during/post pandemic (patients with long term conditions and those that had suffered an acute event). • Improve patient experience.

Cardiorespiratory physiotherapy as a career choice—perspective of students and physiotherapists in Portugal Abstract only*
Item Type: Journal article
Authors: Marques, A., Oliveira, A., Machado, A., Jácome, C., Cruz, J., Pinho, T., Hall, A., Alvelos, H. and Brooks, D.
Publication Date: 2019
Publication Details: Philadelphia, Pennsylvania: Taylor & Francis Ltd
[Portugal]
Abstract: We investigated Portuguese physiotherapy students' and physiotherapists' (1) perceptions of cardiorespiratory

physiotherapy (CRP); (2) factors that influenced their decision to pursue a career in CRP; and (3) suggestions to develop CRP. Online surveys were disseminated to final year students and physiotherapists. A number of 189 students (mean age 23 SD 6] years; 78% ♀) and 375 physiotherapists (mean age 31 SD 8] years; 78% ♀) participated. Students' opinions about CRP were positively influenced by lecturers (n = 112, 69%), clinical experiences (n = 110, 68%), and scientific evidence (n = 93, 57%). Only 13% of students were "extremely interested" in specializing in CRP. Interest in the area and clinical exposure were the main factors influencing students to pursue a career in CRP. A percentage of 15 of responding physiotherapists were working in CRP. Their decision to pursue a CRP career was most influenced by their interest in the area (n = 37, 67%) and opportunity to work in acute settings (n = 31; 56%). Main suggestions to develop CRP were (1) include placements in CRP; (2) emphasize health promotion within the curriculum; and (3) develop CRP skills in broader contexts and training. Strategies focusing on changing the curriculum, increasing exposure to CRP, providing good mentorship, developing health promotion activities, and creating postgraduate courses may increase the attractiveness for CRP.

Influence of cardiorespiratory clinical placements on the specialty interest of physiotherapy students
Author(s): Sanchez et al.
Source: Healthcare
Publication date: 2019
[Spain]
Clinical placements are an important part of health students' training. Whilst much value is placed on the clinical environment as a place to learn, there is a paucity of direct evidence about its effectiveness. The aim of this study was to compare the competence, importance, and interest in cardiorespiratory physiotherapy of students before and after one month of clinical practice. A pre- and post-placement questionnaire about students' interest in different physiotherapy subspecialties was used. The students with a cardiorespiratory clinical placement showed a significant change in their perception about the importance of the cardiorespiratory specialty (0.348 ± 1.01; $p < 0.001$), while no significant change was observed in the students without cardiorespiratory placement (−0.014 ± 0.825; $p = 0.883$). The presence or absence of clinical placements seems to have a definitive impact on students' choice of a specialty. This implies the need for developing a set of clinical placements in all the subareas of physiotherapy in order to give undergraduate students the opportunity to make a better decision.

Advances in cardiorespiratory physiotherapy and their clinical impact Abstract only*
Item Type: Journal Article
Authors: Denehy, Linda;Granger, Catherine L.;El-Ansary, Doa and Parry, Selina M.
Publication Date: 2018
Journal: Expert Review of Respiratory Medicine 12(3), pp. 203-215
[Australia]
Abstract: INTRODUCTION: Cardiorespiratory physiotherapy is an evidence-based practice that has evolved alongside changes in medical and surgical management, analgesia, the ageing society and increasing comorbidities of our patient populations. Continued research provides the profession with the ability to adapt to meet the changing patient and community needs. Areas covered: This review focuses on surgical, respiratory and critical care settings discussing the most significant changes over the past decade with an increased focus on rehabilitation across the care continuum and a shift away from providing predominately airway clearance in established disease populations but also providing this in emerging groups. Further important changes are identification and emphases on patient self-management

including changing their behaviour to more positively embrace wellness, particularly increasing physical activity levels. This paper outlines these changes and offers speculation on factors that may impact the profession in the future. Expert commentary: The increasing focus on new technologies, physical activity levels, changes to the health systems in different countries and an increasingly comorbid and ageing society will shape the next steps in the evolution of cardiorespiratory physiotherapy. Continued research is vital to keep pace with these changes so that physiotherapists can provide the most effective treatments to improve patient outcomes.

Physiotherapists in Cardiac and Pulmonary Rehabilitation -- Sharing the Rehabilitation Space with Clinical Exercise Physiologists?
Item Type: Journal Article
Authors: Mooney, Sarah and Rhodes, Sarah
Publication Date: 2018
Journal: New Zealand Journal of Physiotherapy 46(2), pp. 49-50 [New Zealand]
Exercise has been central to physiotherapy, providing one of the most effective therapeutic interventions used by physiotherapists to improve the health and function of people with conditions ranging from acute musculoskeletal injury to chronic illness (e.g. cardiopulmonary diseases). As physiotherapists, we aim to maximise the potential of movement, function and quality of life of individuals across the age continuum, regardless of their health condition and complexity, and environment (World Confederation for Physical Therapy, 2015); exercise is therefore core business. More recently in New Zealand (NZ), there has been a growth in the number and services provided by clinical exercise physiologists whose business is also exercise. Described as individuals who provide 'specialised' exercise and lifestyle education to people across the health continuum including people diagnosed with cardiovascular and respiratory disease (Clinical Exercise Physiology New Zealand, a, n.d.), clinical exercise physiologists have begun to share the rehabilitation space in areas such as cardiac and pulmonary rehabilitation.

Important aspects in relation to patients' attendance at exercise-based cardiac rehabilitation - facilitators, barriers and physiotherapist's role: A qualitative study.
Item Type: Journal Article
Authors: Back, M.;Oberg, B. and Krevers, B.
Publication Date: 2017
Journal: BMC Cardiovascular Disorders 17(1), pp. no pagination [Sweden]
Abstract: Background: In order to improve attendance at exercise-based cardiac rehabilitation (CR), a greater insight into patients' perspectives is necessary. The aim of the study was to explore aspects that influence patients' attendance at exercise-based CR after acute coronary artery disease (CAD) and the role of the physiotherapist in patients' attendance at exercise-based CR. Method(s): A total of 16 informants, (5 women; median age 64.5, range 47-79 years), diagnosed with CAD, were included in the study at the Cardiology Department, Linkoping University Hospital, Sweden. Qualitative interviews were conducted and analysed according to inductive content analysis. Result(s): Four main categories were identified: (i) previous experience of exercise, (ii) needs in the acute phase, (iii) important prerequisites for attending exercise-based CR and (iv) future ambitions. The categories demonstrate that there are connections between the past, the present and the future, in terms of attitudes to facilitators, barriers and the use of strategies for managing exercise. An overall theme, defined as existential thoughts, had a major impact on the patients' attitudes to attending exercise-based CR. The interaction and meetings with the physiotherapists in the acute phase were described as important factors for attending exercise-based CR. Moreover,

informants could feel that the physiotherapists supported them in learning the right level of effort during exercise and reducing the fear of exercise. Conclusion(s): This study adds to previous knowledge of barriers and facilitators for exercise-based CR that patients with CAD get existential thoughts both related to exercise during the rehabilitation process and for future attitudes to exercise. This knowledge might necessitate greater attention to the physiotherapist-patient interaction. To be able to tailor exercise-based CR for patients, physiotherapists need to be aware of patients' past experiences of exercise and previous phases of the rehabilitation process as these are important for how patients' perceive their need and ability of exercise.Copyright © 2017 The Author(s).

Ambulatory surveillance of patients referred for cardiac rehabilitation following cardiac hospitalization: a feasibility study.
Abstract only*
Item Type: Journal Article
Authors: Alter, David A.;Habot, Juda;Grace, Sherry L.;Fair, Terry;Kiernan, David;Clark, Wendy and Fell, David
Publication Date: 2012
Journal: Canadian Journal of Cardiology 28(4), pp. 497-501 [Canada]
Abstract: BACKGROUND: Our purpose was to examine the feasibility of implementing an ambulatory surveillance system for monitoring patients referred to cardiac rehabilitation following cardiac hospitalizations. METHODS: This study consists of 1208 consecutive referrals to cardiac rehabilitation between October 2007 and April 2008. Patient attendance at cardiac rehabilitation, waiting times for cardiac rehabilitation, and adverse events while waiting for cardiac rehabilitation were tracked by telephone surveillance by a nurse. RESULTS: Among the 1208 consecutive patients referred, only 44.7% attended cardiac rehabilitation; 36.4% of referred patients were known not to have attended any cardiac rehabilitation, while an additional 18.9% of referred patients were lost to follow-up. Among the 456 referred patients who attended the cardiac rehabilitation program, 19 (4.2%) experienced an adverse event while in the queue (13 of which were for cardiovascular hospitalizations with no deaths), with mean waiting times of 20 days and 24 days among those without and with adverse events, respectively. Among the 440 referred patients who were known not to have attended any cardiac rehabilitation program, 114 (25.9%) had adverse clinical events while in the queue; 46 of these events required cardiac hospitalization and 8 patients died. CONCLUSIONS: Ambulatory surveillance for cardiac rehabilitation referrals is feasible. The high adverse event rates in the queue, particularly among patients who are referred but who do not attend cardiac rehabilitation programs, underscores the importance of ambulatory referral surveillance systems for cardiac rehabilitation following cardiac hospitalizations. Copyright © 2012 Canadian Cardiovascular Society. Published by Elsevier Inc. All rights reserved.

Barriers and Facilitators

Barriers and Facilitators to Delivering Inpatient Cardiac Rehabilitation: A Scoping Review
Item Type: Journal Article
Authors: Wasilewski, Marina;Vijayakumar, Abirami;Szigeti, Zara;Sathakaran, Sahana;Wang, Kuan-Wen;Saporta, Adam and Hitzig, Sander L.
Publication Date: 2023
Journal: Journal of Multidisciplinary Healthcare 16, pp. 2361–2376
Abstract**:** Objective: The purpose of this scoping review was to summarize the literature on barriers and facilitators that influence the provision and uptake of inpatient cardiac rehabilitation (ICR)., Methods: A literature search was conducted using PsycINFO, MEDLINE, EMBASE, CINAHL and AgeLine. Studies were

included if they were published in English after the year 2000 and focused on adults who were receiving some form of ICR (eg, exercise counselling and training, education for heart-healthy living). For studies meeting inclusion criteria, descriptive data on authors, year, study design, and intervention type were extracted., Results: The literature search resulted in a total of 44,331 publications, of which 229 studies met inclusion criteria. ICR programs vary drastically and often focus on promoting physical exercises and patient education. Barriers and facilitators were categorized through patient, provider and system level factors. Individual characteristics and provider knowledge and efficacy were categorized as both barriers and facilitators to ICR delivery and uptake. Team functioning, lack of resources, program coordination, and inconsistencies in evaluation acted as key barriers to ICR delivery and uptake. Key facilitators that influence ICR implementation and engagement include accreditation and professional associations and patient and family-centred practices., Conclusion: ICR programs can be highly effective at improving health outcomes for those living with CVDs. Our review identified several patient, provider, and system-level considerations that act as barriers and facilitators to ICR delivery and uptake. Future research should explore how to encourage health promotion knowledge amongst ICR staff and patients. Copyright © 2023 Wasilewski et al.

Barriers and facilitators to implementation of a home-based cardiac rehabilitation programme for patients with heart failure in the NHS: a mixed-methods study
Item Type: Journal Article
Authors: Daw, P.;Wood, G. E. R.;Harrison, A.;Doherty, P. J.;Veldhuijzen Van Zanten, J. J. C. S.;Dalal, H. M.;Taylor, R. S.;Van Beurden, S. B.;McDonagh, S. T. J. and Greaves, C. J.
Publication Date: 2022
Journal: BMJ Open 12(7), pp. e060221

[UK]
Abstract**:** Objectives This study aimed to identify barriers to, and facilitators of, implementation of the Rehabilitation EnAblement in CHronic Heart Failure (REACH-HF) programme within existing cardiac rehabilitation services, and develop and refine the REACH-HF Service Delivery Guide (an implementation guide cocreated with healthcare professionals). REACH-HF is an effective and cost-effective 12-week home-based cardiac rehabilitation programme for patients with heart failure. Setting/participants In 2019, four early adopter Beacon Sites' were set up to deliver REACH-HF to 200 patients. In 2020, 5 online REACH-HF training events were attended by 85 healthcare professionals from 45 National Health Service (NHS) teams across the UK and Ireland. Design Our mixed-methods study used in-depth semi-structured interviews and an online survey. Interviews were conducted with staff trained specifically for the Beacon Site project, identified by opportunity and snowball sampling. The online survey was later offered to subsequent NHS staff who took part in the online REACH-HF training. Normalisation Process Theory was used as a theoretical framework to guide data collection/analysis. Results Seventeen healthcare professionals working at the Beacon Sites were interviewed and 17 survey responses were received (20% response rate). The identified barriers and enablers included, among many, a lack of resources/commissioning, having interest in heart failure and working closely with the clinical heart failure team. Different implementation contexts (urban/rural), timing (during the COVID-19 pandemic) and factors outside the healthcare team/system (quality of the REACH-HF training) were observed to negatively or positively impact the implementation process. Conclusions The findings are highly relevant to healthcare professionals involved in planning, delivering and commissioning of cardiac rehabilitation for patients with heart failure. The study's main output, a refined version of the REACH-HF Service Delivery Guide, can guide the implementation

process (eg, designing new care pathways) and provide practical solutions to overcoming common implementation barriers (eg, through early identification of implementation champions).

A survey of the perceptions of barriers to and facilitators of cardiac rehabilitation in healthcare providers and policy stakeholders
Item Type: Journal Article
Authors: Kim, C.;Kwak, H. -B;Sung, J.;Han, J. -Y;Lee, J. W.;Lee, J. H.;Kim, W. -S;Bang, H. J.;Baek, S.;Joa, K. L.;Kim, A. R.;Lee, S. Y.;Kim, J.;Kim, C. R.;Kwon, O. P.;Sohn, M. K.;Moon, C. -W;Lee, J. -I and Jee, S.
Publication Date: 2022
Journal: BMC Health Services Research 22(1), pp. 999 [South Korea]
Abstract: Background: Cardiac rehabilitation (CR) is a prognostic management strategy to help patients with CVD achieve a good quality of life and lower the rates of recurrence, readmission, and premature death from disease. Globally, cardiac rehabilitation is poorly established in hospitals and communities. Hence, this study aimed to investigate the discrepancies in the perceptions of the need for CR programs and relevant health policies between directors of hospitals and health policy personnel in South Korea to shed light on the status and to establish practically superior and effective strategies to promote CR in South Korea. Method(s): We sent a questionnaire to 592 public health policy managers and directors of selected hospitals, 132 of whom returned a completed questionnaire (response rate: 22.3%). The participants were categorized into five types of organizations depending on their practice of PCI (Percutaneous Coronary Intervention), establishment of cardiac rehabilitation, director of hospital, and government's policy makers. Differences in the opinions between directors of hospitals that perform/do not perform PCI, directors of hospitals with/without cardiac rehabilitation, and between hospital directors and health policy makers were analyzed. Result(s): Responses about targeting diseases for cardiac rehabilitation, patients' roles in cardiac rehabilitation, hospitals' roles in cardiac rehabilitation, and governmental health policies' roles in cardiac rehabilitation were more positive among hospitals that perform PCI than those that do not. Responses to questions about the effectiveness of cardiac rehabilitation and hospitals' roles in cardiac rehabilitation tended to be more positive in hospitals with cardiac rehabilitation than in those without. Hospital directors responded more positively to questions about targeting diseases for cardiac rehabilitation and governmental health policies' roles in cardiac rehabilitation than policy makers, and both hospitals and public organizations provided negative responses to the question about patients' roles in cardiac rehabilitation. Responses to questions about targeting diseases for cardiac rehabilitation, patients' roles in cardiac rehabilitation, and governmental health policies' roles in cardiac rehabilitation were more positive in hospitals that perform PCI than those that do not and public organizations. Conclusion(s): Hospitals must ensure timely referral, provide education, and promote the need for cardiac rehabilitation. In addition, governmental socioeconomic support is needed in a variety of aspects.

Career Pathways and Progression

Cardiac Rehabilitation Knowledge and Attitudes of Cardiology Fellows. Abstract only*
Item Type: Journal Article
Authors: Kellar, Garrett;Hickey, Gavin W.;Goss, Fredric;Fertman, Carl and Forman, Daniel E.
Publication Date: 01 01 ,2021
Journal: Journal of Cardiopulmonary Rehabilitation & Prevention 41(1), pp. 30-34

[US]
Abstract: PURPOSE: Cardiac rehabilitation (CR) is underutilized with only 8-31% of eligible patients participating. Lack of referral and lack of physician endorsement are well-known barriers to participation. Physicians who lack insights regarding CR are less likely to refer patients and recommend it. Cardiology fellows are early career physicians who spend a significant amount of time treating patients eligible for CR. At one institution's cardiology fellowship program, we sought to assess fellow attitudes and knowledge base regarding CR and to determine their facilitators and barriers to CR endorsement and referral. METHODS: University of Pittsburgh Department of Medicine Cardiology fellows were surveyed and interviewed to assess CR knowledge, attitudes, and perceived facilitators and barriers to CR endorsement and referral. RESULTS: The cardiology fellows at this institution had strong belief in the benefits and cost-effectiveness of CR. Despite their support of CR, they had low CR knowledge scores. Perceived impediments to CR included complicated logistics of CR operations, limited communication between CR staff and fellows, limited time with patients, presumed patient barriers, perceived self-barriers, and poor understanding of referral processes (particularly as they varied in each hospital in which they rotated). Perceived supports to CR included greater awareness of evidence-based outcomes, awareness of patient-centered outcomes, pre-arranged order sets, and reminders for referral. CONCLUSION: This study revealed perceptions of cardiology fellows at one institution regarding CR that have not been considered previously. Key barriers to endorsement and referral to CR were exposed as well as opportunities to overcome them. Fellowship training affords an important opportunity to improve CR education, and to potentially improve participation of eligible patients for this important aspect of care.

Educational Preparation, Roles, and Competencies to Guide Career Development for Cardiac Rehabilitation Nurses. Abstract only*
Item Type: Journal Article
Authors: Lin, S. H.;Neubeck, L. and Gallagher, R.
Publication Date: 2017
Journal: The Journal of Cardiovascular Nursing 32(3), pp. 244-259
[US]
Abstract: BACKGROUND: Cardiac rehabilitation is one of the most widely recommended strategies to reduce the burden of cardiovascular disease. The multicomponent nature of cardiac rehabilitation programs requires a multidisciplinary team of healthcare professionals including nurses who are equipped with extensive knowledge and skills. However, there is a lack of a comprehensive, explicit career pathway that contains academic and clinical development to prepare nurses to become cardiac rehabilitation specialists. OBJECTIVE: The aim of this study is to identify the 3 essential components for cardiac rehabilitation professionals: (1) educational preparation, (2) role/responsibility, and (3) competency to inform the framework of career development for cardiac rehabilitation nurses. METHODS: Through scoping review, 4 stages from the methodological framework of scoping review by Arksey and O'Malley (Int J Soc Methodol. 2005;8:19-32) were used. RESULTS: Some attempts have been made in developing frameworks of career development for cardiac rehabilitation professionals with these 3 components through guidelines/standards and core curriculum development worldwide, among which the United States is the only country with a well-established system including guidelines for cardiac rehabilitation/secondary prevention programs, a position statement in terms of competencies, and certification examination for cardiac rehabilitation professionals. Nevertheless, further development and integration of these efforts, specifically for cardiac rehabilitation nurses, are required.

CONCLUSIONS: It is vital to raise the awareness of the significant contribution that appropriately educated and trained nurses make in reducing the global burden of cardiovascular disease through cardiac rehabilitation. Therefore, action on establishing a system of comprehensive, clearly defined career development pathway for cardiac rehabilitation nurses worldwide is of immediate priority.

Clinical Exercise Physiologists

A multi-method exploration of a cardiac rehabilitation service delivered by registered Clinical Exercise Physiologists in the UK: key learnings for current and new services
Item Type: Journal Article
Authors: Crozier, Anthony;Graves, Lee E.;George, Keith P.;Richardson, David;Naylor, Louise;Green, Daniel J.;Rosenberg, Michael and Jones, Helen
Publication Date: 2024
Journal: BMC Sports Science, Medicine & Rehabilitation 16(1), pp. 127
[UK]
Abstract: BACKGROUND: Cardiac rehabilitation has been identified as having the most homogenous clinical exercise service structure in the United Kingdom (UK), but inconsistencies are evident in staff roles and qualifications within and across services. The recognition of Clinical Exercise Physiologists (CEPs) as a registered health professional in 2021 in the UK, provides a potential solution to standardise the cardiac rehabilitation workforce. This case study examined, in a purposefully selected cardiac exercise service that employed registered CEPs, (i) how staff knowledge, skills and competencies contribute to the provision of the service, (ii) how these components assist in creating effective service teams, and (iii) the existing challenges from staff and patient perspectives., METHODS: A multi-method qualitative approach (inc., semi-structured interviews, observations, field notes and researcher reflections) was employed with the researcher immersed for 12-weeks within the service. The Consolidated Framework for Implementation Research was used as an overarching guide for data collection. Data derived from registered CEPs (n = 5), clinical nurse specialists (n = 2), dietitians (n = 1), service managers/leads (n = 2) and patients (n = 7) were thematically analysed., RESULTS: Registered CEPs delivered innovative exercise prescription based on their training, continued professional development (CPD), academic qualifications and involvement in research studies as part of the service. Exposure to a wide multidisciplinary team (MDT) allowed skill and competency transfer in areas such as clinical assessments. Developing an effective behaviour change strategy was challenging with delivery of lifestyle information more effective during less formal conversations compared to timetabled education sessions., CONCLUSIONS: Registered CEPs have the specialist knowledge and skills to undertake and implement the latest evidence-based exercise prescription in a cardiac rehabilitation setting. An MDT service structure enables a more effective team upskilling through shared peer experiences, observations and collaborative working between healthcare professionals. Copyright © 2024. The Author(s).

Clinical exercise provision in the UK: Comparison of staff job titles, roles and qualifications across five specialised exercise services Abstract only*
Item Type: Journal Article
Authors: Crozier, A.;Watson, P. M.;Graves, L. E. F.;George, K.;Naylor, L.;Green, D. J.;Rosenberg, M. and Jones, H.
Publication Date: 2022
Journal: BMJ Open Sport and Exercise Medicine 8(1), pp. e001152
[UK]
Abstract: Objectives In the UK, the National Health Service long-

term plan advocates exercise as a key component of clinical services, but there is no clearly defined workforce to deliver the plan. We aimed to provide an overview of current UK clinical exercise services, focusing on exercise staff job titles, roles and qualifications across cardiovascular, respiratory, stroke, falls and cancer services. Methods Clinical exercise services were identified electronically between May 2020 and September 2020 using publicly available information from clinical commissioning groups, national health boards and published audit data. Data relating to staff job titles, roles, qualifications and exercise delivery were collected via electronic records and telephone/email contact with service providers. Results Data were obtained for 731 of 890 eligible clinical services (216 cardiac, 162 respiratory, 129 stroke, 117 falls, 107 cancer). Cardiac rehabilitation services provided both clinical (phase III) and community (phase IV) exercise interventions delivered by physiotherapists, exercise physiologists (exercise specific BSc/MSc) and exercise instructors (vocationally qualified with or without BSc/MSc). Respiratory, stroke and falls services provided a clinical exercise intervention only, mostly delivered by physiotherapists and occupational therapists. Cancer services provided a community exercise service only, delivered by vocationally qualified exercise instructors. Job titles of a exercise physiologists' (n=115) bore little alignment to their qualifications, with a large heterogeneity across services. Conclusion In the UK, clinical exercise services job titles, roles and qualifications were inconsistent. Regulation of exercise job titles and roles is required to remove the current disparities in this area.

Education and Training

Provision of dietary education in UK-based cardiac rehabilitation: a cross-sectional survey conducted in conjunction with the British Association for Cardiovascular Prevention and Rehabilitation
Item Type: Journal Article
Authors: James, Emily;Butler, Tom;Nichols, Simon;Goodall, Stuart and O'Doherty, Alasdair F.
Publication Date: 2024
Journal: British Journal of Nutrition 131(5), pp. 880–893
[UK]
Abstract: Dietary education is a core component of cardiac rehabilitation (CR). It is unknown how or what dietary education is delivered across the UK. We aimed to characterise practitioners who deliver dietary education in UK CR and determine the format and content of the education sessions. A fifty-four-item survey was approved by the British Association for Cardiovascular Prevention and Rehabilitation (BACPR) committee and circulated between July and October 2021 via two emails to the BACPR mailing list and on social media. Practitioners providing dietary education within CR programmes were eligible to respond. Survey questions encompassed: practitioner job title and qualifications, resources, and the format, content and individual tailoring of diet education. Forty-nine different centres responded. Nurses (65·1 %) and dietitians (55·3 %) frequently provided dietary education. Practitioners had no nutrition-related qualifications in 46·9 % of services. Most services used credible resources to support their education, and 24·5 % used BACPR core competencies. CR programmes were mostly community based (40·8 %), lasting 8 weeks (range: 2–25) and included two (range: 1–7) diet sessions. Dietary history was assessed at the start (79·6 %) and followed up (83·7 %) by most centres; barriers to completing assessment were insufficient time, staffing or other priorities. Services mainly focused on the Mediterranean diet while topics such as malnutrition and protein

intake were lower priority topics. Service improvement should focus on increasing qualifications of practitioners, standardisation of dietary assessment and improvement in protein and malnutrition screening and assessment.

A Systematic Review of Interventions With an Educational Component Aimed at Increasing Enrollment and Participation in Cardiac Rehabilitation Abstract only*
Item Type: Journal Article
Authors: Vanzella, Lais Manata;Konidis, Renee;Pakosh, Maureen;Aultman, Crystal and Ghisi, Gabriela Lima de Melo
Publication Date: 2024
Journal: Journal of Cardiopulmonary Rehabilitation and Prevention 44(2), pp. 83–90
Abstract: OBJECTIVE: The aim of this study was to systematically review the impact and characteristics of interventions with an educational component designed to improve enrollment and participation in cardiac rehabilitation (CR) among patients with cardiovascular disease., REVIEW METHODS: Five electronic databases were searched from data inception to February 2023. Randomized controlled trials and controlled, cohort, and case-control studies were considered for inclusion. Title, abstract, and full text of records were screened by two independent reviewers. The quality of included studies was rated using the Mixed Methods Assessment Tool. Results were analyzed in accordance with the Synthesis Without Meta-analysis reporting guideline., RESULTS: From 7601 initial records, 13 studies were included, six of which were randomized controlled trials ("high" quality = 53%). Two studies evaluated interventions with an educational component for health care providers (multidisciplinary team) and 11 evaluated interventions for patient participants (n = 2678). These interventions were delivered in a hybrid (n = 6; 46%), in-person (n = 4; 30%), or virtual (n = 3; 23%) environment, mainly by nurses (n = 4; 30%) via discussion and orientation. Only three studies described the inclusion of printed or electronic materials (eg, pamphlets) to support the education. Eleven of 12 studies reported that patients who participated in interventions with an educational component or were cared for by health care providers who were educated about CR benefits (inhospital and/or after discharge) were more likely to enroll and participate in CR., CONCLUSION: Interventions with an educational component for patients or health care providers play an important role in increasing CR enrollment and participation and should be pursued. Studies investigating the effects of such interventions in people from ethnic minority groups and living in low-and-middle-income countries, as well as the development of standard educational materials are recommended.

Learning from Covid-19

Telehealth is here to stay but not without challenges: a consultation of cardiac rehabilitation clinicians during COVID-19 in Victoria, Australia
Item Type: Journal Article
Authors: Cartledge, Susie;Rawstorn, Jonathan C.;Tran, Mark;Ryan, Pauline;Howden, Erin J. and Jackson, Alun
Publication Date: 2022
Journal: European Journal of Cardiovascular Nursing 21(6), pp. 548–558
[Australia]
Abstract: AIMS: Delivery of cardiac rehabilitation (CR) was challenged during the pandemic caused by the Coronavirus disease (COVID-19), due to government stay-at-home directives which restricted in-person programmes. The Australian state of Victoria experienced the longest and most severe COVID-19 restrictions and was in lockdown for ~6 months of 2020. We aimed to explore (i) clinicians' experiences and perceptions and (ii) identify barriers and enablers, for delivering CR during the

COVID-19 pandemic., METHODS AND RESULTS: Victorian members of the Australian Cardiovascular Health and Rehabilitation Association (ACRA) were invited to attend an exploratory qualitative online consultation in November 2020. An inductive thematic analysis was undertaken, before deductively applying the Non-adoption, Abandonment, Scale-up, Spread, and Sustainability (NASSS) framework to identify barriers and enablers for technology adoption in CR. Thirty members participated in a 106-min consultation. Seventeen members who provided demographics represented multiple disciplines (nursing n = 13, exercise physiology n = 3, and physiotherapy n = 1) and geographical settings (metropolitan n = 10, regional n = 4, and rural n = 3). Four main themes were inductively identified: consequences of change; use of technology; capacity; and the way forward. The deductive NASSS analysis demonstrated the main challenges of continuing remotely delivered CR lie with adopters (staff, patients, and carers) and with organizations., CONCLUSION: The COVID-19 pandemic expedited significant changes to CR delivery models. While clinicians are eager to retain technology-enabled delivery in addition to resuming in-person CR, it is now timely to review remote models of care, tools used and plan how they will be integrated with traditional in-person programmes. Copyright Published on behalf of the European Society of Cardiology. All rights reserved. © The Author(s) 2021. For permissions, please email: journals.permissions@oup.com.

Delivering healthcare at a distance to cardiac patients during the Covid-19 pandemic: experience from clinical practice
Author(s): Klompstra and Jaarsam
Source: European Journal of Cardiovascular Nursing 19(6)
Publication date: June 2020
[The Netherlands]
The COVID-19 pandemic has accelerated how healthcare providers are working to deliver healthcare at distance. Many cardiac patients are now relying on phone and videoconference to receive medical care from home. The situation is pushing healthcare towards the future, leading to a leap forward for cardiac telemedicine. In this HeartBeat we highlight initiatives to deliver care at distance.
The first program is the TeleCheck-AF (an initiative from Maastricht University Medical Centre+, The Netherlands), an on-demand and on-prescription mHealth program that includes a smartphone app (FibriCheck) for patients with atrial fibrillation (AF) (see Figure 1). Using the index finger and the phone's camera, this app can detect the pulse, then use an algorithm to identify if the patient has AF and whether the heart rate is fast or slow. These vital data can be used by the physician to guide the teleconsultation and to monitor treatment at distance.

Multidisciplinary teams

The multidisciplinary team approach in cardiovascular care
Author(s): Hendriks and Jaarsma
Source: European Journal of Cardiovascular Nursing 20(2) pp. 91-92
Publication date: 2021
The general population is aging and the prevalence of multimorbid cardiovascular conditions is rising. This has resulted in complex treatment approaches, not only focusing on the management of a particular condition but requiring a comprehensive approach, including treatment of the primary condition, underlying (cardiovascular) comorbidity and risk factors, and lifestyle modification. Novel models of care delivery have emerged in which multidisciplinary teams including nurses, allied professionals, medical professionals as well as patients work closely together in collaborative practice models, aiming to improve patient outcomes. Since the majority of care for chronic illnesses is performed by patients (and families) themselves,

they should be engaged as member of the multidisciplinary team.

New models of care

Million Hearts Cardiac Rehabilitation Think Tank: Accelerating New Care Models.
Item Type: Journal Article
Authors: Beatty, Alexis L.;Brown, Todd M.;Corbett, Mollie;Diersing, Dean;Keteyian, Steven J.;Mola, Ana;Stolp, Haley;Wall, Hilary K. and Sperling, Laurence S.
Publication Date: 2021
Journal: Circulation.Cardiovascular Quality & Outcomes 14(10), pp. e008215
[US]
Abstract: This article describes the October 2020 proceedings of the Million Hearts Cardiac Rehabilitation Think Tank: Accelerating New Care Models, convened with representatives from professional organizations, cardiac rehabilitation (CR) programs, academic institutions, federal agencies, payers, and patient representative groups. As CR delivery evolves, terminology is evolving to reflect not where activities occur (eg, center, home) but how CR is delivered: in-person synchronous, synchronous with real-time audiovisual communication (virtual), or asynchronous (remote). Patients and CR staff may interact through >=1 delivery modes. Though new models may change how CR is delivered and who can access CR, new models should not change what is delivered-a multidisciplinary program addressing CR core components. During the coronavirus disease 2019 (COVID-19) public health emergency, Medicare issued waivers to allow virtual CR; it is unclear whether these waivers will become permanent policy post-public health emergency. Given CR underuse and disparities in delivery, new models must equitably address patient and health system contributors to disparities. Strategies for implementing new CR care models address safety, exercise prescription, monitoring, and education. The available evidence supports the efficacy and safety of new CR care models. Still, additional research should study diverse populations, impact on patient-centered outcomes, effect on long-term outcomes and health care utilization, and implementation in diverse settings. CR is evolving to include in-person synchronous, virtual, and remote modes of delivery; there is significant enthusiasm for implementing new care models and learning how new care models can broaden access to CR, improve patient outcomes, and address health inequities.

From cardiac rehabilitation to ambulatory preventive care: The Swiss way
Item Type: Journal Article
Authors: Saner, H.
Publication Date: 2016
Journal: Swiss Sports & Exercise Medicine 64(2), pp. 26-30
[Switzerland]
Abstract: Over the last years, cardiac rehabilitation services have expanded their indication to include not just patients after myocardial infarction or surgery, but also a variety of non-acute cardiovascular disease (CVD) states like stable coronary artery disease, peripheral artery disease, neurovascular disease as well as asymptomatic patients with no history of CVD but with a constellation of cardiovascular risk factors, especially metabolic syndrome and diabetes mellitus. In 2015, 110 ambulatory cardiovascular prevention and rehabilitation programs existed in Switzerland: 57 for cardiac, 17 for peripheral artery disease and 36 for diabetes rehabilitation. Rehabilitative and preventive care is provided by a team of professionals including preventive cardiologists, exercise experts (physiotherapists and sports scientists), nurses, dieticians, psychologists, occupational therapists and social services experts. It seems reasonable to combine professional efforts by integrating prevention and rehabilitation for all high risk patients. The creation of

cardiovascular prevention centers, which bring together professionals and patients in dedicated hospital or community settings is a promising first step. In 2015, 7 centers have been recognized as specialized cardiovascular prevention centers in Switzerland. Furthermore, community-based and patient-centered activities and programs have a great potential to contribute to improved preventive care and to support long-term adherence. A closer cooperation between professional preventive, teams in prevention centers and the primary care physicians has a great potential to contribute to close this gap and to provide seamless primary and secondary preventive care for patients in need and the society.

Nurses

Heart health champions: how to develop student nurses as role models for cardiovascular health Abstract only*
Item Type: Journal Article
Authors: Creighton, L.;Caughers, G. and Fitzsimons, D.
Publication Date: 2024
Journal: European Journal of Cardiovascular Nursing 23, pp. i108
[Ireland]
Abstract: Background: Nurses as health promotors are optimally placed to identify cardiovascular disease risk factors and discuss behaviour change strategies for modifiable risk factors, but most undergraduate curriculums lack detailed content regarding these topics. Unfortunately evidence indicates that student nurses often demonstrate risky behaviours such as smoking, physical inactivity, excessive alcohol consumption and poor nutritional choices. As nursing is a pressurised career with long shifts and often challenging emotional encounters, it can be easy to overlook personal health behaviours. Purpose(s): Given that nursing students are our potential health promotors of the future, we aimed to enhance cardiovascular knowledge and behaviour change awareness in their undergraduate education by implementing a co-designed digital educational resource - ASMOSUS. It sought to embed knowledge and risk assessment of cardiovascular disease risk factors, while motivating and sustaining behaviour change within undergraduates, facilitating them to make healthier lifestyle choices themselves and act as role models for patients. We developed roles of 'Heart Health Champions' within university and clinical placements, which is novel for both clinical practice and Higher Education Institutes. Method(s): Any nursing student who had received the ASMOSUS digital educational resource in the first semester of their undergraduate program and had an interest in further knowledge acquisition and health promotion amongst their peers were invited to become a Heart Health Champion. Alongside the recruitment of Heart Health Champions the cohort received cardiovascular risk factor specific educational sessions on physical exercise, smoking and vaping cessation, nutrition and alcohol consumption. Result(s): We recruited 9 Heart Health Champions from the cohort representing all fields of undergraduate nursing. These students have undertaken 30 hours of required participation, leading to a university recognised qualification- FutureReady on graduation. This included attending cardiac risk and prevention training with cardiac rehabilitation nurses. They have taken the initiative to plan activities such as a sponsored walk, a 'dancercise' class and support for their peers in harnessing healthy lifestyle behaviours through role modelling and motivational interviewing techniques. Results demonstrate that these sessions and student led activities are well attended and positively evaluated, which shows that including cardiovascular prevention techniques in undergraduates is feasible and acceptable. Conclusion(s): Heart Health Champions are a valuable asset and can promote modifiable risk factor change amongst their peers and may help to maintain a healthy lifestyle. Further Heart Health Champions will be recruited over the next undergraduate nursing cohorts

with a planned study to explore their effectiveness.

Nurse-led cardiac rehabilitation care coordination program: Improving functional outcomes for patients through automatic referral and effective care coordination Abstract only*
Item Type: Journal Article
Authors: Boggess, K.;Hayes, E.;Duffy, M.;Indranoi, C.;Sorey, A. B.;Blaine, T. and McKeon, L.
Publication Date: 2024
Journal: Journal of Cardiopulmonary Rehabilitation and Prevention 44(3), pp. 168–173
[US]
Abstract: Purpose: The aim of this investigation was to evaluate the impact of automated cardiac rehabilitation (CR) referral and nurse care coordination on patient and program outcomes. Specifically, the aim was to identify whether differences exist in physical and psychological function at CR Phase 2 enrollment and completion and CR Phase 2 participation and completion for hospitalized patients who receive in-person CR nurse visits versus phone consultation. Using a retrospective pre-/post-intervention descriptive design, a purposive sampling technique was used to select groups with matching clinical attributes. Dates were selected to mitigate the impact of COVID-19 on CR program enrollment and completion. Method(s): Data were abstracted from the patient electronic medical record, telemetry documentation, and CR referral tracking tool. Patient descriptors included age, sex, cardiac diagnosis/procedure (post-coronary artery bypass graft surgery, myocardial infarction, percutaneous coronary intervention, heart failure, and aortic valve repair and replacement) and cardiac risk stratification category. Patient functional outcomes included the 6-min walk test and metabolic equivalents of task levels for functional capacity; psychological function was measured by the Patient Health Questionnaire assessment. Program outcomes included discharge to CR Phase 2 enrollment, CR sessions, and completion. Result(s): Each group had 52 patients. Age was 64 +/- 12 yr, 68% were male. Perhaps indications for CR included coronary artery bypass graft surgery (44%), myocardial infarction (19%), percutaneous coronary intervention (20%), heart failure (10%), aortic valve repair and replacement (8%). Cardiac risk was low in 30%, intermediate in 65%, and high in 5%. The post-intervention group compared with the pre-intervention group had a shorter discharge to CR Phase 2 enrollment (35 +/- 18 d vs 41 +/- 28 d, P=.078) and significantly fewer sessions required for CR completion. Conclusion(s): Automated CR referral and nurse care coordination visits for hospitalized patients decreased the transition period between CR Phase 1 and 2. Patients were physically and psychologically prepared for earlier CR Phase 2 enrollment and successfully completed the program in fewer days than the pre-intervention group.

The Nurses' Role in the Cardiac Rehabilitation Team: Data From the Perfect-CR Study
Item Type: Journal Article
Authors: Lidin, Matthias;Michelsen, Halldora Ogmundsdottir;Hag, Emma;Stomby, Andreas;Schlyter, Mona;Back, Maria;Hagstrom, Emil and Leosdottir, Margret
Publication Date: 2024
Journal: The Journal of Cardiovascular Nursing
[Sweden]
Abstract: BACKGROUND: Nurses constitute a central profession in the cardiac rehabilitation (CR) team delivering comprehensive CR to individuals with cardiovascular disease. We aimed to identify specific components reflecting the nurses' role in the CR team associated with attainment of risk factor targets post myocardial infarction., METHODS: Center-level data (n = 78) was used from the Perfect-CR study, in which structure and processes applied at CR centers in Sweden (including details on the nurses' role) were surveyed. Patient-level data (n = 6755)

was retrieved from the SWEDEHEART registry. Associations between structure/processes and target achievement for systolic blood pressure (BP) (<140 mm Hg) and low-density lipoprotein cholesterol (LDL-C, <1.8 mmol/L) at 1 year post myocardial infarction were assessed using logistic regression., RESULTS: Structure and processes reflecting nurses' autonomy and role in the CR team associated with patients achieving systolic BP and/or LDL-C targets included the following: nurses having treatment algorithms to adjust BP medication (odds ratio 95% confidence interval]: systolic BP, 1.22 1.05-1.42]; LDL-C, 1.17 1.03-1.34]) and lipid-lowering medication (systolic BP, 1.14 1.00-1.29]; LDL-C, 1.17 1.05-1.30]), patients having the same nurse throughout follow-up (systolic BP, 1.07 1.03-1.11]; LDL-C, 1.10 1.06-1.14]), number of follow-up hours with a nurse (systolic BP, 1.13 1.07-1.19]), having regular case rounds to discuss patient cases during follow-up (LDL-C, 1.22 1.09-1.35]), and nurses having training in counseling methods (systolic BP, 1.06 1.03-1.10])., CONCLUSION: Components reflecting CR nurses' autonomy and role in the team are of importance for patients attaining risk factor targets post myocardial infarction. The results could provide guidance for optimizing nurses' competence and responsibilities within the CR team to improve patient care. Copyright © 2024 The Authors. Published by Wolters Kluwer Health, Inc.

Effectiveness of nurse-led heart failure clinic: A systematic review
Item Type: Journal Article
Authors: Wu, X.;Li, Z.;Tian, Q.;Ji, S. and Zhang, C.
Publication Date: 2024
Journal: International Journal of Nursing Sciences 11(3), pp. 315–329
Abstract: Objectives: Heart failure is a stage of various cardiovascular diseases and constitutes a growing major public health problem worldwide. Nurse-led heart failure clinics play an important role in managing heart failure. All nurse-led heart failure clinic services are clinic-based. We conducted a systematic review to describe the contents and impact of nurse-led heart failure clinics. Method(s): A review of nurse-led heart failure clinic research was undertaken in PubMed, Embase, Web of Science, and Cochrane Library. The search was initially conducted on October 23, 2022 and updated on November 21, 2023. Articles were appraised using the Joanna Briggs Institute Appraisal criteria by two independent reviewers. This review was registered on PROSPERO (CRD42022352209). Result(s): Twelve articles were included in this systematic review. The nurse-led heart failure clinic contents were: medication uptitration, educational counselling, evidence-based transitional care, psychosocial support, physical examination and mental well-being assessment, therapy monitoring and adjustment, follow-up, and phone consultations. Most studies reported largely positive clinical outcomes in nurse-led heart failure clinics. Four studies examined the quality of life and reported conflicting results; four studies examined medication titration efficacy, and the results were generally positive. Only two studies examined cost-effectiveness. Conclusion(s): Nurse-led heart failure clinics have shown a largely positive impact on patient outcomes, quality of life, and medication titration efficacy. More randomised controlled trials and other studies are needed to obtain more robust conclusions. Copyright © 2024 The Authors

Effect of Cardiac Rehabilitation Nursing on Patients with Myocardial Infarction
Item Type: Journal Article
Authors: Zhou, Yi;Wu, Xiaolan;Qin, Chengting;Tong, Youni;Tian, Shuang and Huang, Xiaoli
Publication Date: 2024
Journal: Alternative Therapies in Health and Medicine [US]
Abstract: Background: Acute myocardial infarction is the

myocardial necrosis caused by acute and persistent ischemia and hypoxia of coronary arteries. It can be complicated with arrhythmia, shock or heart failure, and often can endanger life. The disease is most common in Europe and the United States, where about 1.5 million heart attacks occur each year. China has shown a clear upward trend in recent years, with at least 500 000 new cases and at least 2 million new cases every year. Cardiac rehabilitation nursing is a kind of comprehensive nursing that aims to restore the body function of patients with myocardial infarction., Objective: To explore the therapeutic effect of cardiac rehabilitation nursing in patients with myocardial infarction., Design: This was a case-control retrospective study., Setting: This study was conducted in the Department of Heart Center, Shanghai Sixth People's Hospital., Participants: 86 patients with acute myocardial infarction admitted to the Heart Center of Shanghai Sixth People's Hospital from January 2019 to August 2022 were selected and randomly divided into observation and control groups, with 43 cases in each group. Patients aged from 40-79 years old and were confirmed to have acute myocardial infarction by examination and histopathological analysis., Interventions: The observation group was given cardiac rehabilitation nursing, including psychological nursing, rehabilitation training, cardiac rehabilitation training, diet and defecation care and health education, and the control group was assigned routine nursing., Primary Outcome measures: (1) anxiety and depression were assessed by Zung's self-rating anxiety scale and self-rating depression scale (2) cardiac function was assessed by left ventricular ejection fraction and left ventricular end-diastolic volume (3) 6-minute walk distance (4) incidence of complications (5) length of hospital stay (6) levels of inflammatory factors and N-terminal pro-brain natriuretic peptide concentration (7) incidence of arrhythmia., Results: After the intervention, there was still no significance in either group's left ventricular end-diastolic volume level (72.24+/-8.47) vs (71.98+/-8.35)] (P = .473). However, the anxiety and depression scores (42.10+/-5.17) and (44.01+/-4.53) vs (44.01+/-4.53) and (51.37+/-4.85)], complication rate (6.9% vs 16.2%), length of hospital stay (18.66+/-7.03) vs (26.11+/-8.14)], inflammatory factor levels (1.95+/-0.51) and (319.47+/-33.72) vs (2.71+/-0.45) and (451.07+/-39.54)], serum N-terminal pro-brain natriuretic peptide level (2525.8+/-1236.5) vs (3064.4+/-859.0)], and incidence of arrhythmia (3 cases, 2 cases, 1 case and 1 case vs 5 cases, 6 cases, 8 cases and 7 vases) in the observation group were lower compared to the control group (P = .000, P = .002, P=0.023, P = .045, P = .032, P = .011, and P = .027). The left ventricular ejection fraction level and 6-minute walk distance of the observation group (60.39+/-5.38) and (347.31+/-21.01) vs (54.97+/-6.24) and (320.24+/-21.71)] were better relative to the control group (P = .037 and P = .000)., Conclusion: For patients with myocardial infarction, the implementation of cardiac rehabilitation nursing can effectively alleviate the anxiety and depression of patients, decrease the incidence of complications as well as inflammatory factors levels, and further shorten the hospital stay of patients, with high safety. Our study provides a clinical reference for patients with myocardial infarction w who need nursing care.

Intensive nurse-led follow-up in primary care to improve self-management and compliance behaviour after myocardial infarction
Item Type: Journal Article
Authors: Lizcano-Alvarez, Angel;Carretero-Julian, Laura;Talavera-Saez, Ana;Cristobal-Zarate, Beatriz;Cid-Exposito, Maria and Alameda-Cuesta, Almudena
Publication Date: 2023
Journal: Nursing Open 10(8), pp. 5211–5224
[Spain]
Abstract: AIMS AND OBJECTIVES: To assess the effects of intensive follow-up by primary care nurses on cardiovascular disease self-management and compliance behaviours after

myocardial infarction., BACKGROUND: Although cardiovascular disease prevention and cardiac rehabilitation take place in hospital settings, a nurse-led approach is necessary in primary care during the first few months after a myocardial infarction. Therefore, it is important to assess self-management of cardiovascular disease and levels of compliance with the prescribed diet, physical activity, and medication., DESIGN: The study used a multicentre, quasi-experimental, pre-post design without a control group., METHODS: Patients with acute coronary syndrome from 40 healthcare facilities were included in the study. A total of 212 patients participated in a programme including 11 interventions during the first 12-18 months after myocardial infarction. The following Nursing Outcomes Classification (NOC) outcomes were assessed at baseline and at the end of the intervention: Self-management: Cardiac Disease (1617) and Compliance Behaviour: Prescribed Diet (1622), Compliance Behaviour: Prescribed Activity (1632), and Compliance Behaviour: Prescribed Medication (1623). Marjory Gordon's functional health patterns and a self-care notebook were used in each intervention. Pre-post intervention means were compared using Student's t-tests for related samples. The results of the study are reported in compliance with the TREND Statement., RESULTS: A total of 132 patients completed the intervention. The indicators for each NOC outcome and the variations in scores before and after the intensive follow-up showed a statistically significant improvement (p-value = 0.000). Compliance Behaviour: Prescribed Diet (pre = 3.7; post = 4.1); Compliance Behaviour: Prescribed Activity (pre = 3.9; post = 4.3); Compliance Behaviour: Prescribed Medication (pre = 3.9; post = 4.7)., CONCLUSION: Intensive, immediate follow-up after myocardial infarction improves compliance behaviours and self-management of heart disease. A combined self-care and family care approach should be encouraged to empower post-myocardial infarction patients. To facilitate patients' self-efficacy, the use of health education tools such as a cardiovascular self-care notebook can also be helpful., RELEVANCE TO CLINICAL PRACTICE: This study highlights the benefits of intensive, protocolised, comprehensive patient follow-up in primary care during the first few months after an acute myocardial infarction (AMI). Primary care nurses train patients in cardiovascular self-care., PATIENT OR PUBLIC CONTRIBUTION: Patients were not involved in either the design or the carrying out of the study. However, at the end of the study, they participated in an evaluation process about the utility of the research study and their satisfaction with it. This process was carried out using an ad hoc survey consisting of 10 questions assessing the nursing care and follow-up inputs that were received. Copyright © 2023 The Authors. Nursing Open published by John Wiley & Sons Ltd.

The nurse-coordinated cardiac care bridge transitional care programme: a randomised clinical trial.
Item Type: Journal Article
Authors: Jepma, Patricia;Verweij, Lotte;Buurman, Bianca M.;Terbraak, Michel S.;Daliri, Sara;Latour, Corine H. M.;Ter Riet, Gerben;Karapinar-Carkit, Fatma;Dekker, Jill;Klunder, Jose L.;Liem, Su-San;Moons, Arno H. M.;Peters, Ron J. G. and Scholte Op Reimer, Wilma J M.
Publication Date: 11 10 ,2021
Journal: Age & Ageing 50(6), pp. 2105-2115
[The Netherlands]
Abstract: BACKGROUND: after hospitalisation for cardiac disease, older patients are at high risk of readmission and death. OBJECTIVE: the cardiac care bridge (CCB) transitional care programme evaluated the impact of combining case management, disease management and home-based cardiac rehabilitation (CR) on hospital readmission and mortality. DESIGN: single-blind, randomised clinical trial. SETTING: the trial was conducted in six hospitals in the Netherlands between June 2017 and March 2020. Community-based nurses and physical therapists continued care post-discharge. SUBJECTS:

cardiac patients >= 70 years were eligible if they were at high risk of functional loss or if they had had an unplanned hospital admission in the previous 6 months. METHODS: the intervention group received a comprehensive geriatric assessment-based integrated care plan, a face-to-face handover with the community nurse before discharge and follow-up home visits. The community nurse collaborated with a pharmacist and participants received home-based CR from a physical therapist. The primary composite outcome was first all-cause unplanned readmission or mortality at 6 months. RESULTS: in total, 306 participants were included. Mean age was 82.4 (standard deviation 6.3), 58% had heart failure and 92% were acutely hospitalised. 67% of the intervention key-elements were delivered. The composite outcome incidence was 54.2% (83/153) in the intervention group and 47.7% (73/153) in the control group (risk differences 6.5% [95% confidence intervals, CI -4.7 to 18%], risk ratios 1.14 [95% CI 0.91-1.42], P = 0.253). The study was discontinued prematurely due to implementation activities in usual care. CONCLUSION: in high-risk older cardiac patients, the CCB programme did not reduce hospital readmission or mortality within 6 months. TRIAL REGISTRATION: Netherlands Trial Register 6,316, https://www.trialregister.nl/trial/6169.

Effects of a nurse-led eHealth cardiac rehabilitation programme on health outcomes of patients with coronary heart disease: A randomised controlled trial. Abstract only*
Item Type: Journal Article
Authors: Su, Jing Jing and Yu, Doris Sau-Fung
Publication Date: Oct ,2021
Journal: International Journal of Nursing Studies 122, pp. 104040

[Hong Kong]
Abstract: BACKGROUND: The uptake of and adherence to cardiac rehabilitation remain suboptimal despite its apparent health benefits in modifying risk factors and slowing disease progression. eHealth refers to the use of information and communication technologies for health-related purposes. It is a promising approach for improving participation in cardiac rehabilitation by enabling instant contact, hypermedia information delivery, technology-monitored functionalities and individualised progress monitoring. AIMS: To evaluate the effects of a nurse-led eHealth cardiac rehabilitation (NeCR) system on health behaviours, cardiac self-efficacy, anxiety and depression, health-related quality of life, risk parameters and unplanned use of care services for people with coronary heart disease. DESIGN: A single-blinded randomised controlled trial design was used. METHODS: The study randomly assigned 146 patients hospitalised for coronary heart disease to receive either the NeCR intervention or the usual care. Underpinned by social cognitive theory, the intervention commenced before hospital discharge with an in-person session by the nurse to identify individualised self-care needs, set goals and develop an action plan to enhance behavioural risk factor modification and orientate the patient to the use of the information and communication technology platform for cardiac rehabilitation. After discharge, the e-platform helped patients gain knowledge of disease management and monitor goal attainment for health behavioural changes. The nurse provided feedback on the patients' goal attainment and lifestyle modifications on a weekly basis in a small group format through the WeChat platform, thus also mobilising peer influence. Data for lifestyle behaviours, physiological risk parameters and clinical outcomes were collected at baseline and at 6 and 12 weeks post-intervention. RESULTS: At 6 weeks post-intervention, participants in the intervention group showed significant improvement in the number of steps/day (beta = 2628.48, p = .022), the number of

minutes/week sitting (beta = -640.30, p = .006) and their health-promoting lifestyle profile (beta = 25.17, p Copyright © 2021. Published by Elsevier Ltd.

A snapshot of cardiac rehabilitation nursing resource in New Zealand in 2018 Abstract all available
Item Type: Conference Proceeding
Authors: Marshall, W., Gasparini, C., Reed, S., Johansen, Y. and Benatar, J.
Publication Date: 2018
Publication Details: Heart Lung and Circulation. Conference: Cardiac Society of Australia and New Zealand Annual Scientific Meeting 2018. Christchurch New Zealand. 27(Supplement 1) (pp S38-S39); Elsevier Ltd, pp. S38
[New Zealand]
Abstract: Aim: To describe the current state of cardiac rehabilitation (CR) nurse staffing resource at DHBs across New Zealand. Method(s):Aquestionnaire was developed and sent to all CR providers at DHBs within New Zealand. The questionnaire assesses the number of patients eligible for CR, programs offered and staffing resource. Result(s): 18 (95%) of DHBs responded to the survey, 1 non responder froma smallDHBwhere aCRnurse provider could not be found. The mean number of patients eligible for CR is 725+/-426 patients per year at each DHB. One nurse manages an average of 569+/-263 patients per year (range 227 to 1250 patients/nurse). 4 DHBs only have cardiac specialty nurses and there are no CR nurse practitioners in New Zealand. 70% of responders felt that more nurse FTE was needed for CR at their DHB. Only 1 DHB does not offer Phase 1 CR education. All other DHBs offer phase 1 CR with 55% undertaken by CR nurses alone, 28% a mixture of ward staff and CR nurses and 12%by wards staff only. 72% offered community based phase 2 programs and 55% offered home visits. Conclusion(s): There is a large disparity in CR nurse resource across DHBs and most nurses feel under resourced. This disparity in resource impacts the service offered to patients dependent on geography.

Effectiveness of nurse-led cardiac rehabilitation programs following coronary artery bypass graft surgery: A systematic review. Abstract only*
Item Type: Journal Article
Authors: Mares, M. A.;McNally, S. and Fernandez, R. S.
Publication Date: 2018
Journal: JBI Database of Systematic Reviews and Implementation Reports 16(12), pp. 2304-2329
Abstract: Review objective: The objective of this review was to investigate the effectiveness of nurse-led cardiac rehabilitation programs following coronary artery bypass graft surgery on patients' health-related quality of life and hospital readmission. Introduction: Coronary heart disease is a major cause of death and disability worldwide, putting a great strain on healthcare resources. For the past two decades, population-wide primary prevention and individual healthcare approaches have resulted in a dramatic decline in overall cardiac mortality. Over the intervening years, surgical techniques in cardiology have also improved substantially. As a result, long-term outcomes in patients treated with coronary artery bypass graft surgery have established the treatment's effectiveness and survival benefit. Furthermore, participating in cardiac rehabilitation following coronary artery bypass graft surgery has also demonstrated a significant decrease in all-cause cardiac mortality in these patients. Inclusion criteria: This review included studies with participants aged 18 years and over, post coronary artery bypass graft surgery that evaluated nurse-led cardiac rehabilitation (CR) programs compared with usual care or other forms of CR. The outcomes of interest were the health-related quality of life and hospital readmissions following coronary artery bypass graft surgery and measured using validated scales. Randomized controlled trials reported in English between 2000 to June 2017

were considered for inclusion. Method(s): The search strategy aimed to find both published and unpublished studies using a three-step search strategy. An initial search of MEDLINE, CINAHL and Scopus was undertaken, followed by a search for unpublished studies including Dissertation Abstracts International, ProQuest Dissertations and Theses, Google Scholar, MedNar and ClinicalTrials.gov. Papers selected for retrieval were assessed by two independent reviewers for methodological validity prior to inclusion in the review using the standardized critical appraisal tools from the Joanna Briggs Institute System for the Unified Management, Assessment and Review of Information (JBI SUMARI). Quantitative data was extracted from papers included in the review using the standardized data extraction tool from JBI-SUMARI. No meta-analysis was undertaken due to heterogeneity of the outcome measures. All results were subject to double data entry. Effect sizes expressed as risk ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence intervals were calculated for analysis. Result(s): Three trials involving 329 patients were included in the final review. The trials that investigated the effect of home based cardiac rehabilitation programs compared to usual care at six weeks, three months and six months follow-up demonstrated no statistically significant difference in health-related quality of life at any of the follow-up periods. However, one study demonstrated significantly higher scores related to health-related quality of life among those who received nurse-led home based cardiac rehabilitation (154.93+/-4.6) compared to those who received usual care (134.20+/-8.2) at two months follow-up. No trials were identified that compared the effectiveness of nurse-led cardiac rehabilitation programs following coronary artery bypass graft surgery on readmissions to hospital. Conclusion(s): There is not enough evidence to support or discourage nurse-led cardiac rehabilitation programs on health-related quality of life in patients following coronary artery bypass graft surgery. However, the sparse data available suggests improvements in health-related quality of life at two months follow-up among those who received a nurse-led program. Further large-scale multicenter trials with standardized methodology are needed to determine the effect of nurse-led cardiac rehabilitation programs on health-related quality of life and rates of readmission to hospital following coronary artery bypass graft surgery. Copyright © 2018 THE JOANNA BRIGGS INSTITUTE.

Pharmacists

Pharmacist-led medication management services: A qualitative exploration of transition-of-care cardiovascular disease patient experiences
Item Type: Journal Article
Authors: Bennetts, J.;White, J.;Croft, H.;Cooper, J.;McIvor, D.;Eadie, N.;Appay, M.;L Sverdlov, A. and Ngo, D.
Publication Date: 2024
Journal: BMJ Open 14(5), pp. e082228
[Australia]
Abstract: Objective Hospitalisation due to medication-related problems is a major health concern, particularly for those with pre-existing, or those at high risk of developing cardiovascular disease (CVD). Postdischarge medication reviews (PDMRs) may form a core component of reducing hospital readmissions due to medication-related problems. This study aimed to explore postdischarge CVD patients' perspectives of, and experiences with, pharmacist-led medication management services. A secondary aim explored attitudes towards the availability of PDMRs. Design An interpretative qualitative study involving 16 semistructured interviews. Data were analysed using an inductive thematic approach. Setting Patients with CVD discharged to a community setting from the John Hunter Hospital, an 820-bed tertiary referral hospital based in New South Wales, Australia. Participants Patients with pre-existing or

newly diagnosed CVD who were recently discharged from the hospital. Results A total of 16 interviews were conducted to reach thematic saturation. Nine participants (56%) were male. The mean age of participants was 57.5 (+/-13.2) years. Three emergent themes were identified: (1) poor medication understanding impacts transition from the hospital to home; (2) factors influencing medication concordance following discharge and (3) perceived benefits of routine PDMRs. Conclusions There is a clear need to further improve the quality use of medicines and health literacy of transition-of-care patients with CVD. Our findings indicate that the engagement of transition-of-care patients with CVD with pharmacist-led medication management services is minimal. Pharmacists are suitable to provide essential and tailored medication review services to patients with CVD as part of a multidisciplinary healthcare team. The implementation of routine, pharmacist-led PDMRs may be a feasible means of providing patients with access to health education following their transition from hospital back to community, improving their health literacy and reducing rehospitalisations due to medication-related issues.

A systematic review investigating the role and impact of pharmacist interventions in cardiac rehabilitation
Item Type: Journal Article
Authors: Ahmed, A.;Guo, P. and Jalal, Z.
Publication Date: 2023
Journal: International Journal of Clinical Pharmacy 45(2), pp. 320–329
Abstract: Background: Cardiovascular disease (CVD) is a predominant cause of mortality. Pharmacists play an important role in secondary prevention of CVD, however, their role in cardiac rehabilitation is under-reported and services are under-utilised. Aim(s): To explore the role of pharmacists in cardiac rehabilitation, the impact of their interventions on patient outcomes, and prospects of future role development. Method(s): Databases searched were PubMed, Embase, Medline, Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and PsycINFO from January 2006 to October 2021. Randomised and non-randomised controlled trials were selected if they assessed the role of pharmacists in cardiac rehabilitation. Cochrane risk of bias tool, Joanna Briggs Institute (JBI) Critical Appraisal Tool for Quasi-Experimental Studies and the National Heart, Lung and Blood Institute (NIH) quality assessment tool, were used to assess quality and a narrative synthesis was conducted. Result(s): The search yielded 786 studies, only five met the inclusion criteria. The pharmacist-led interventions included patient education, medication review and reconciliation, and medication adherence encouragement. Four out of the five studies showed that pharmacist-led interventions in cardiac rehabilitation significantly improved patient clinical and non-clinical outcomes. One study showed a statistically significant reduction in low density lipoprotein-cholesterol (LDL-C) levels to optimal target of < 70 mg/dL (80% vs 60%, p = 0.0084). Two studies reported better medication adherence, and two studies showed greater improvement in all domains of health-related quality of life observed in the intervention group. Conclusion(s): Pharmacist-led interventions in cardiac rehabilitation could lower CVD risk factors and hence recurrence. Although these findings support pharmacists' involvement in cardiac rehabilitation, larger intervention studies are needed to evaluate the feasibility of pharmacist-led interventions and their impact on hospital admissions and mortality risk.

Virtual Pharmacy; A Novel Adjunct to Cardiac Rehabilitation
Abstract only*
Item Type: Journal Article
Authors: Appay, M.;Croft, H. and Mcivor, D.

Publication Date: 2022
Journal: Heart Lung and Circulation 31, pp. S302–S303
[Australia]
Abstract: Background: National guidelines for secondary prevention of acute coronary syndrome (ACS) and management of heart failure (HF) recommend involvement of a pharmacist 1,2], to optimise medication safety, improve adherence, and increase health literacy. Furthermore, patients enrolled in secondary prevention programs are at higher risk of medication related problems (MRP) due to polypharmacy and recent hospital admission. Objective(s): To evaluate if a Virtual Pharmacist service (VP) as an adjunct to cardiac rehabilitation (CR) is effective in identifying and reducing MRPs, through medication reconciliation and clinical interventions directed towards quality use of medicines (QUM). Method(s): Patients with ACS or HF referred to a CR program over 3 months were contacted by VP within 2 to 4 weeks of discharge. The virtual pharmacist consultation involved pharmacist led medication reconciliation, identification of medication related problems (MRP), provision of medicine information and any clinical interventions directed towards QUM. Result(s): 30 patients were referred to VP with 23 patients receiving at least 1 contact. 11 MRP were identified the most common being sub-optimal treatment (n=6), escalation of care for symptom management (n=2), medication administration (n=1). The most common outcome of MRP was discussion with GP regarding medication management and recommended changes in therapy. 15 patients, who had been reviewed by a pharmacist on discharge from hospital, requested medication information and/or disease management advice. Conclusion(s): Preliminary findings indicate that early intervention from a virtual pharmacist assists with early recognition of MRP and improves quality use of medicines consistent with guideline directed therapy. Further analysis is needed regarding adherence.Copyright © 2022

Pharmacist Intervention in Cardiac Rehabilitation: A RANDOMIZED CONTROLLED TRIAL Abstract only*
Item Type: Journal Article
Authors: Alsabbagh, M. W.;Lemstra, M.;Eurich, D.;Wilson, T. W.;Robertson, P. and Blackburn, D. F.
Publication Date: 2012
Journal: Journal of Cardiopulmonary Rehabilitation & Prevention 32(6), pp. 394-399
[Canada]
Abstract: PURPOSE: : We aimed to determine to what extent a telephone-based pharmacist intervention would (a) be utilized by individuals not attending a traditional cardiac rehabilitation (CR) program and (b) facilitate adherence to cardiovascular medications. METHODS: : We conducted a randomized, controlled open-label trial among patients eligible for CR in Saskatoon, Canada. Patients were invited to participate in telephone-based CR, regardless of participation in the formal program. Subjects in the intervention group were assessed by the CR pharmacist and received education and counseling on medication adherence. The primary endpoint was adherence to cardiovascular medication assessed by electronic filling records over a minimum of 6 months. Mean adherence was expected to reach 70% during the followup period. RESULTS: : Patient recruitment was halted early because of low enrollment. Of the 95 patients randomized, 90% had also registered in the traditional CR program. During the followup period, 129 telephone interactions were performed (median, 2 calls), with every subject taking part in at least 1 interaction. Over the study period, the mean adherence to all recently initiated cardiovascular medications combined was 88.8% in the intervention group and 89.9% in the usual care group (P = .73). CONCLUSIONS: : Participation in traditional CR programs does not appear to be influenced by the availability of telephone-based education and support. Furthermore, the high rate of adherence among the control group may suggest that CR

programs are attracting 'healthy adherers' who volunteer for such programs, while missing those with the greatest need for health care system resources.

Pharmacist's role in an interdisciplinary cardiac rehabilitation team. Abstract only*
Item Type: Journal Article
Authors: Packard, K.;Herink, M. and Kuhlman, P.
Publication Date: 2012
Journal: Journal of Allied Health 41(3), pp. 113-117
[US]
Abstract: The purpose of this study was to determine the impact of pharmacist and pharmacy student involvement with an interdisciplinary cardiac rehabilitation program in the outpatient setting. The study included 192 patients who were seen following discharge from an acute care hospital between June 2008 and September 2010. The pharmacy team educated patients on their medications, conducted medication reconciliation, and made patient and provider interventions when appropriate. The pharmacist met with the cardiac rehabilitation team before these sessions to identify areas of focus and concern. The team met again after the sessions to reconcile medication lists and identify areas for follow-up. Of the 192 patients seen, an intervention was initiated in 157 (81.8%), for a total of 467 interventions (mean 2.43 interventions/patient). Medication reconciliation interventions not requiring a physician response comprised 79.9% of total interventions, most commonly involving an over-the-counter medication not initially reported (18%). Seventy-six patient interventions and 18 provider interventions were also made; of these, 92% of the patient interventions were accepted, and 72% of the provider interventions were accepted. The most common patient intervention was changing the administration time of a medication (36.8%), and the most common provider intervention was avoidance of a significant drug interaction (33.3%). Pharmacists can play a vital role as part of an interdisciplinary cardiac rehabilitation team to ensure proper adherence to cardiac medications and patient safety through patient education and interventions. © 2012 Association of Schools of Allied Health Professions, Wash., DC.

Primary care

Management of chronic breathlessness in primary care: what do GPs, non-GP specialists, and allied health professionals think?
Item Type: Journal Article
Authors: Sunjaya, A.;Martin, A.;Arnott, C. and Jenkins, C.
Publication Date: 2023
Journal: Australian Journal of Primary Health 29(4), pp. 375–384
[Australia]
Abstract: Background: To explore the perspectives of GPs, non-GP specialists, and allied health professionals on the role of primary care in diagnosing and managing chronic breathlessness, the barriers faced, and the resources needed to optimise care of patients with chronic breathlessness. Method(s): This was a qualitative study involving focus group discussions that included 35 GPs, non-GP specialists, and allied health professionals. Topics explored included: (1) views on the role of primary care in diagnosing and managing chronic breathlessness; (2) barriers to optimal assessment in primary care; and (3) facilitators to further optimise the care of patients with chronic breathlessness. Result(s): All participants considered that primary care has a central role to play in the assessment and management of chronic breathlessness, but greater access to referral services, suitable funding structures, and upskilling on the use of diagnostic tests such as spirometry and electrocardiography are required for this to be realised. Both GPs and non-GP specialists described great potential for developing better linkages, including new ways of referral and online consultations, greater ease of referral to allied health services, even if conducted virtually, for patients with functional

causes of breathlessness. Participants identified a need to develop integrated breathlessness clinics for patients referred by GPs, which would ensure patients receive optimal care in the shortest possible time frame. Conclusion(s): GPs are crucial to achieving optimal care for breathless patients, especially given the multifactorial and multimorbid nature of breathlessness; however, there are significant gaps in services and resources at present that limit their ability to perform this role.

Quality

Assessing the quality of cardiac rehabilitation programs by measuring adherence to the Australian quality indicators
Item Type: Journal Article
Authors: Astley, C. M.;Beleigoli, A.;Tavella, R.;Hendriks, J.;Gallagher, C.;Tirimacco, R.;Wilson, G.;Barry, T. and Clark, R. A.
Publication Date: 2022
Journal: BMC Health Services Research 22(1), pp. 267 [Australia]
Abstract: BACKGROUND: Every year, over 65,000 Australians experience an acute coronary syndrome (ACS) and around one-third occur in people with prior coronary heart disease. Cardiac rehabilitation (CR) aims to prevent a repeat ACS by supporting patients' return to an active and fulfilling lifestyle. CR programs are efficacious, but audits of clinical practice show variability of program delivery, which may compromise patient outcomes. Core components, quality indicators and accreditation of programs have been introduced internationally to increase program standardisation. With Australian quality indicators (QIs) for cardiac rehabilitation recently introduced, we aimed to conduct a survey in one state of Australia to assess the extent to which programs adhere to the measurement of QIs comparing country, metropolitan, telephone and face to face programs., METHODS: A cross- sectional survey design with face validity testing was used to formulate questions to evaluate cardiac rehabilitation program and personnel characteristics and QI adherence. Between October 2020- December 2021, 23 cardiac rehabilitation programs across country and metropolitan areas were invited to participate. Quality improvement was defined as adherence to the Australian Quality Indicators, and we developed an objective score to calculate program performance categorised by quartiles. Significance of CR completion and time to enrolment between program type (telephone versus face to face) and location (country versus metropolitan were compared using Pearson's Chi-square and Mann-Whitney U tests., RESULTS: Among the 23 CR programs, 15 were country and 8 metropolitan-based and 22 were face to face and 1 telephone-based. Median wait time from discharge was 27.0 days, (interquartile range 19.3-46.0) across all programs and country completions of enrolled were 76.9% versus metropolitan 56.5%, $p < 0.001$ and telephone versus face to face 92.9% versus 59.6% $p < 0.001$. Pre-program QI adherence was higher than post program for depression, medication adherence, health-related quality of life and comprehensive re-assessment. Seventy four percent of programs were ranked at a medium level of performance (mean score: 11.4/16, SD +/- 0.79)., CONCLUSIONS: A survey of 23 cardiac rehabilitation programs, showed variability in adherence to measurement of the Australian Cardiovascular and Rehabilitation Association and Australian Heart Foundation Cardiac Rehabilitation Quality Indicators., TRIAL REGISTRATION: Australia New Zealand Clinical Trials Registry (ANZCTR), ACTRN12621000222842 , registered 03/03/2021.

Rural and Remote

Co-designing a cardiac rehabilitation program with knowledge users for patients with cardiovascular disease from a remote area
Item Type: Journal Article
Authors: Bernier, J.;Breton, M. and Poitras, M. -E
Publication Date: 2024
Journal: BMC Health Services Research 24(1), pp. 869 [Canada]
Abstract: Background: Cardiovascular disease is the leading cause of death worldwide. Cardiac rehabilitation (CR) programs are recognized as effective in reducing the burden of cardiovascular disease. However, CR programs are offered inequitably across regions and are available in less than 15% of remote areas worldwide. The main goal of this study was to design a CR program adapted to the contexts of remote areas to improve the service offered to patients. Method(s): We used an iterative user-centered design approach to understand the user context and services offered in cardiac rehabilitation in remote areas. We conducted two co-design processes with knowledge users in two remote regions. Two advisory committees were created in each of these regions, comprising managers (n = 6), healthcare professionals (n = 12) and patients (n = 2). We utilized the BACPR guidelines and the Hautes Autorites de sante operational model to support data collection in coding sessions to develop the CR program. We conducted four cycles of co-design with each of the committees to develop the cardiac rehabilitation program. Qualitative data were analyzed iteratively after each cycle. Result(s): The co-design process resulted in developing a prototype cardiac rehabilitation program similar in both regions. It is based on a contextualized six-phase pathway of care designed for remote regions. For each phase 0 to 6 of the care pathway, knowledge users were asked to describe how to offer these phases in remote areas. Participants made structural changes to phases 0, 2, 3 and 4 in order to overcome staffing shortages in remote areas. These changes make it possible to decentralize cardiac rehabilitation expertise away from specialized centers, to ensure equity of service across the territory. Therapeutic patient education was integrated into phase 4 to meet patients' needs. Participants suggested that three follow-up offerings could come from nursing services to increase access to the cardiac rehabilitation program (primary care, home care, special chronic disease programs) in patients' home communities. Conclusion(s): The co-design process enables us to meet the needs of remote regions in program development. This final program can be the subject of future implementation research. Copyright © The Author(s) 2024.

Stroke Rehabilitation

Inclusion of stroke patients in expanded cardiac rehabilitation services: a cross-national qualitative study with cardiac and stroke rehabilitation professionals Abstract only*
Item Type: Journal Article
Authors: Jeffares, I.;Merriman, N. A.;Doyle, F.;Horgan, F. and Hickey, A.
Publication Date: 2022
Journal: Disability and Rehabilitation 44(14), pp. 3610–3622 [Switzerland]
Abstract: PURPOSE: This qualitative study explored healthcare professionals' views in relation to the potential expansion of cardiac rehabilitation services to include stroke patients, thereby becoming a cardiovascular rehabilitation model. DESIGN AND METHODS: 23 semi-structured interviews were completed with hospital and community-based stroke and cardiac rehabilitation professionals in Switzerland (n=7) and Ireland (n=19). The sample comprised physiotherapists, occupational therapists, speech and language therapists, stroke physicians, cardiologists, psychologists, dieticians and nurses. Interviews were audio-

recorded and the transcripts were analysed in NVivo using inductive Thematic Analysis. RESULT(S): Barriers and facilitators to cardiovascular rehabilitation were captured under four broad themes; (i) Cardiac rehabilitation as "low-hanging fruit," (ii) Cognitive impairment ("the elephant in the room"), (iii) Adapted cardiac rehabilitation for mild stroke, and (iv) Resistance to change. CONCLUSION(S): Hybrid cardiac rehabilitation programmes could be tailored to deliver stroke-specific education, exercises and multidisciplinary expertise. Post-stroke cognitive impairment was identified as a key barrier to participation in cardiac rehabilitation. A cognitive rehabilitation intervention could potentially be delivered as part of cardiac rehabilitation, to address the cognitive needs of stroke and cardiac patients.Implications for rehabilitationThe cardiac rehabilitation model has the potential to be expanded to include mild stroke patients given the commonality of secondary prevention needs.Up to half of stroke survivors are affected by post-stroke cognitive impairment, consequently mild stroke patients may not be such an "easy fit" for cardiac rehabilitation.A cardiovascular programme which includes common rehabilitation modules, in addition to stroke- and cardiac-specific content is recommended.A cognitive rehabilitation module could potentially be added as part of the cardiac rehabilitation programme to address the cognitive needs of stroke and cardiac patients.

Inclusion of stroke patients in expanded cardiac rehabilitation services: a cross-national qualitative study with cardiac and stroke rehabilitation professionals. Abstract only*
Item Type: Journal Article
Authors: Jeffares, Isabelle;Merriman, Niamh A.;Doyle, Frank;Horgan, Frances and Hickey, Anne
Publication Date: 2022
Journal: Disability & Rehabilitation 44(14), pp. 3610-3622 [Ireland]
Abstract: PURPOSE: This qualitative study explored healthcare professionals' views in relation to the potential expansion of cardiac rehabilitation services to include stroke patients, thereby becoming a cardiovascular rehabilitation model. DESIGN AND METHODS: 23 semi-structured interviews were completed with hospital and community-based stroke and cardiac rehabilitation professionals in Switzerland (n = 7) and Ireland (n = 19). The sample comprised physiotherapists, occupational therapists, speech and language therapists, stroke physicians, cardiologists, psychologists, dieticians and nurses. Interviews were audio-recorded and the transcripts were analysed in NVivo using inductive Thematic Analysis. RESULTS: Barriers and facilitators to cardiovascular rehabilitation were captured under four broad themes; (i) Cardiac rehabilitation as "low-hanging fruit," (ii) Cognitive impairment ("the elephant in the room"), (iii) Adapted cardiac rehabilitation for mild stroke, and (iv) Resistance to change. CONCLUSIONS: Hybrid cardiac rehabilitation programmes could be tailored to deliver stroke-specific education, exercises and multidisciplinary expertise. Post-stroke cognitive impairment was identified as a key barrier to participation in cardiac rehabilitation. A cognitive rehabilitation intervention could potentially be delivered as part of cardiac rehabilitation, to address the cognitive needs of stroke and cardiac patients.Implications for rehabilitationThe cardiac rehabilitation model has the potential to be expanded to include mild stroke patients given the commonality of secondary prevention needs.Up to half of stroke survivors are affected by post-stroke cognitive impairment, consequently mild stroke patients may not be such an "easy fit" for cardiac rehabilitation.A cardiovascular programme which includes common rehabilitation modules, in addition to stroke- and cardiac-specific content is recommended.A cognitive rehabilitation module could potentially be added as part of the cardiac rehabilitation programme to address the cognitive needs of stroke and cardiac patients.

Feasibility of integrating survivors of stroke into cardiac rehabilitation: A mixed methods pilot study.
Item Type: Journal Article
Authors: Regan, Elizabeth W.;Handlery, Reed;Stewart, Jill C.;Pearson, Joseph L.;Wilcox, Sara and Fritz, Stacy
Publication Date: 2021
Journal: PLoS ONE [Electronic Resource] 16(3), pp. e0247178 [US]
Abstract: BACKGROUND: Survivors of stroke are often deconditioned and have limited opportunities for exercise post-rehabilitation. Cardiac Rehabilitation (CR), a structured exercise program offered post-cardiac event in the United States (U.S.), may provide an opportunity for continued exercise. The purpose of this study was to examine the feasibility of integrating survivors of stroke into an existing, hospital-based CR program through an assessment of (1) recruitment, uptake and retention, (2) adherence and fidelity, (3) acceptability and (4) safety. METHODS: A mixed methods design combined a single group, pre-post design, pilot feasibility study with an imbedded qualitative inquiry. Survivors of stroke were recruited into a standard 12-week, 36 visit CR program. RESULTS: Fifty-three survivors were referred, 29 started and 24 completed the program. Program uptake rate was 55% and completion rate was 83%. Eleven completers and one non-completer participated in the qualitative interviews. Program completers attended an average of 25.25 (SD 5.82) sessions with an average of 38.93 (SD 5.64) exercise minutes per session while reaching targeted rate of perceived exertion levels. Qualitative themes included perceived benefits of an individualized program in a group setting, positive interactions with qualified staff, opportunities for socialization, and regular monitoring and staff attentiveness promoting feelings of safety. CONCLUSIONS: Survivors of stroke were able to meet Medicare standard dosage (frequency and session duration) and rate of perceived intensity goals, and perceived the program as needed regardless of their mobility limitations or previous exercise experience. Primary challenges included managing referrals and uptake. Results support feasibility and benefit for survivors to integrate into U.S. CR programs.

Cardiac rehabilitation and stroke teams attitudes to people with stroke taking part in cardiac rehabilitation: focus group study
Abstract only*
Item Type: Journal Article
Authors: Clague-Baker, N.;Robinson, T.;Drewry, S.;Hagenberg, A. and Singh, S.
Publication Date: 2018
Journal: Clinical Rehabilitation 32(10), pp. 1416 [UK]
Abstract: Background: The Cardiovascular Disease Outcomes Strategy (department of health (DoH), 2013) recommends the use of existing cardiac rehabilitation (CR) programmes for people after transient ischaemic attack (TIA) and mild disability stroke. However, there is no research exploring the attitudes of CR or stroke staff who might feasibly be delivering this service. Method: Using a qualitative interpretive approach with five researchers, seven focus groups with CR and stroke teams were conducted prior to stroke patients taking part in CR and four focus groups after CR. Group discussions were audiotaped and transcribed verbatim. Themes were identified to explain attitudes. Results/Findings: Main themes were as follows: Confidence - CR team lack of confidence to deliver the service and the stroke team having lack of confidence in the CR team, change in confidence in CR team post CR. Lack of Knowledge - CR team -stroke knowledge, Stroke team - CR knowledge, cardiovascular (CV) training, and healthy lifestyles, Stroke and Exercise - barriers - stroke team more aware of personal barriers, both teams aware of environmental barriers, social barriers, and cultural barriers, both teams - identified most patients motivated early after stroke. CR adaptations needed -

education programme to include stroke information and class structure. Discussion: Importance of communication, education, and support between stroke and CR teams to provide effective CR for people with stroke. Conclusion: Stroke and CR teams feel that small numbers of people with mild stroke can be included in existing CR programmes where CR staff have increased stroke knowledge and confidence and the programme is adapted and supported by specialist stroke staff.

Systematic Reviews

A systematic review of provider-and system-level factors influencing the delivery of cardiac rehabilitation for heart failure
Author(s): Daw et al.
Source: BMC Health Services Research 21(1267)
Publication date: 2021
Background: There is a longstanding research-to-practice gap in the delivery of cardiac rehabilitation for patients with heart failure. Despite adequate evidence confirming that comprehensive cardiac rehabilitation can improve quality of life and decrease morbidity and mortality in heart failure patients, only a fraction of eligible patients receives it. Many studies and reviews have identified patient-level barriers that might contribute to this disparity, yet little is known about provider- and system-level influences. Methods: A systematic review using narrative synthesis. The aims of the systematic review were to a) determine provider- and system-level barriers and enablers that affect the delivery of cardiac rehabilitation for heart failure and b) juxtapose identified barriers with possible solutions reported in the literature. A comprehensive search strategy was applied to the MEDLINE, Embase, PsycINFO, CINAHL Plus, EThoS and ProQuest databases. Articles were included if they were empirical, peer-reviewed, conducted in any setting, using any study design and describing factors influencing the delivery of cardiac rehabilitation for heart failure patients. Data were synthesised using inductive thematic analysis and a triangulation protocol to identify convergence/contradiction between different data sources. Results: Seven eligible studies were identified. Thematic analysis identified nine overarching categories of barriers and enablers which were classified into 24 and 26 themes respectively. The most prevalent categories were 'the organisation of healthcare system', 'the organisation of cardiac rehabilitation programmes', 'healthcare professional' factors and 'guidelines'. The most frequent themes included 'lack of resources: time, staff, facilities and equipment' and 'professional's knowledge, awareness and attitude'. Conclusions: Our systematic review identified a wide range of provider- and system-level barriers impacting the delivery of cardiac rehabilitation for heart failure, along with a range of potential solutions. This information may be useful for healthcare professionals to deliver, plan or commission cardiac rehabilitation services, as well as future research.

Technology

Feasibility of early digital health rehabilitation after cardiac surgery in the elderly: a qualitative study
Item Type: Journal Article
Authors: Toft, B. S.;Rodkjaer, L. O.;Sorensen, L.;Saugbjerg, M. R.;Bekker, H. L. and Modrau, I. S.
Publication Date: 2024
Journal: BMC Health Services Research 24(1), pp. 113
Abstract: BACKGROUND: Increasing numbers of elderly patients experience prolonged decreased functional capacity and impaired quality of life after seemingly successful cardiac surgery. After discharge from hospital, these patients experience a substantial gap in care until centre-based cardiac rehabilitation commences. They may benefit from immediate coaching by means of mobile health technology to overcome psychological and physiological barriers to physical activity. The aim of this

study was to explore the usability, acceptability, and relevance of a mobile health application designed to support remote exercise-based cardiac rehabilitation of elderly patients early after cardiac surgery from the perspective of patients, their relatives, and physiotherapists. METHOD(S): We adapted a home-based mobile health application for use by elderly patients early after cardiac surgery. Semi-structured dyadic interviews were conducted with a purposive sample of patients (n=9), their spouses (n=5), and physiotherapists (n=2) following two weeks of the intervention. The transcribed interviews were analysed thematically. RESULT(S): Three themes were identified: 1) creating an individual fit by tailoring the intervention; 2) prioritizing communication and collaboration; and 3) interacting with the mobile health application. Overall, the findings indicate that the mobile health intervention has the potential to promote engagement, responsibility, and motivation among elderly patients to exercise early after surgery. However, the intervention can also be a burden on patients and their relatives when roles and responsibilities are unclear. CONCLUSION(S): The mobile health intervention showed potential to bridge the intervention gap after cardiac surgery, as well as in fostering engagement, responsibility, and motivation for physical activity among elderly individuals. Nevertheless, our findings emphasize the necessity of tailoring the intervention to accommodate individual vulnerabilities and capabilities. The intervention may be improved by addressing a number of organizational and communicational issues. Adaptions should be made according to the barriers and facilitators identified in this study prior to testing the effectiveness of the intervention on a larger scale. Future research should focus on the implementation of a hybrid design that supplements or complements face-to-face and centre-based cardiac rehabilitation. TRIAL REGISTRATION: Danish Data Protection Agency, Central Denmark Region (1-16-02-193-22, 11 August 2022).

Healthcare professionals' perceptions of using a digital patient educational programme as part of cardiac rehabilitation in patients with coronary artery disease - a qualitative study

Item Type: Journal Article

Authors: Danielsbacka, Jenny;Feldthusen, Caroline and Back, Maria

Publication Date: 2023

Journal: BMC Health Services Research 23(1), pp. 1017 [Sweden]

Abstract: BACKGROUND: Participation in cardiac rehabilitation in patients with coronary artery disease (CAD) remains underutilised. Digital educational programmes, as part of cardiac rehabilitation, are emerging as a means of increasing accessibility, but healthcare professionals' perceptions of implementing and using these programmes are not known. The aim of the study was therefore to explore healthcare professionals ' perceptions and experiences of implementing and using a digital patient educational programme (DPE) as part of cardiac rehabilitation after acute CAD., METHODS: Individual semi-structured interviews were performed with 12 nurses and physiotherapists, ten women with a median age of 49.5 (min 37-max 59) years, with experience of using the DPE as part of a phase II cardiac rehabilitation programme in Region Vastra Gotaland, Sweden. The interviews were transcribed verbatim and analysed with inductive content analysis according to Graneheim and Lundman., RESULTS: An overall theme was identified throughout the unit of analysis: "Digital patient education - a complement yet not a replacement". Within this theme, three main categories were identified: "Finding ways that make implementation work", "Accessibility to information for confident and involved patients" and "Reaching one another in a digital world". Each main category contains a number of sub-categories., CONCLUSIONS: This study adds new knowledge on healthcare professionals' perceptions of a digital patient educational programme as a valuable and accessible alternative

to centre-based education programmes as part of cardiac rehabilitation for patients with CAD. The participants highlighted the factors necessary for a successful implementation, such as support through the process and sufficient time from the employer to learn the system and to create new routines in daily practice. Future research is needed to further understand the impact of digital education systems in the secondary prevention of CAD. Ultimately, hybrid models, where the choice of delivery depends on the preferences of the individual patient, would be the optimal model of care for the future. Copyright © 2023. BioMed Central Ltd., part of Springer Nature.

Digital Technologies in Cardiac Rehabilitation: A Science Advisory From the American Heart Association
Item Type: Journal Article
Authors: Golbus, J. R.;Lopez-Jimenez, F.;Barac, A.;Cornwell, W. K.;Dunn, P.;Forman, D. E.;Martin, S. S.;Schorr, E. N. and Supervia, M.
Publication Date: 2023
Journal: Circulation 148(1), pp. 95–107
[US]
Abstract: Cardiac rehabilitation has strong evidence of benefit across many cardiovascular conditions but is underused. Even for those patients who participate in cardiac rehabilitation, there is the potential to better support them in improving behaviors known to promote optimal cardiovascular health and in sustaining those behaviors over time. Digital technology has the potential to address many of the challenges of traditional center-based cardiac rehabilitation and to augment care delivery. This American Heart Association science advisory was assembled to guide the development and implementation of digital cardiac rehabilitation interventions that can be translated effectively into clinical care, improve health outcomes, and promote health equity. This advisory thus describes the individual digital components that can be delivered in isolation or as part of a larger cardiac rehabilitation telehealth program and highlights challenges and future directions for digital technology generally and when used in cardiac rehabilitation specifically. It is also intended to provide guidance to researchers reporting digital interventions and clinicians implementing these interventions in practice and to advance a framework for equity-centered digital health in cardiac rehabilitation.Copyright © 2023 Lippincott Williams and Wilkins. All rights reserved.

Effectiveness of virtual reality in cardiac rehabilitation: A systematic review and meta-analysis of randomized controlled trials Abstract only*
Item Type: Journal Article
Authors: Chen, Yanya;Cao, Li;Xu, Yinuo;Zhu, Mengdie;Guan, Bingsheng and Ming, Wai-Kit
Publication Date: 2022
Journal: International Journal of Nursing Studies 133, pp. 104323
Abstract: BACKGROUND: Cardiovascular disease has risen sharply and causes more premature deaths than cancer, while it represents a major economic burden for healthcare systems and impacts patients' quality of life negatively. Virtual reality has captured the attention of researchers in the field of cardiac rehabilitation. However, the efficacy of virtual reality among individuals undergoing cardiac rehabilitation remains inconclusive., OBJECTIVE: To appraise research evidence on the effects of virtual reality for individuals undergoing cardiac rehabilitation., DESIGN: Systematic review and meta-analysis., METHODS: A systematic search of publications was conducted using Pubmed, Embase, Web of science, Cumulative Index to Nursing and Allied Health Literature database (CINAHL), Cochrane Central Register of Controlled trials and Physiotherapy Evidence Database (PEDro) from inception to 15 May 2022, without language restriction. The Cochrane Risk of Bias Tool was used to examine the methodological quality of the included

randomized controlled studies. When feasible, a meta-analysis was performed to calculate the pooled effects using Review Manager (Version 5.4). Otherwise, narrative summaries were performed. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) methodology was used to assess the certainty of the evidence., RESULTS: A total of ten studies were included. Virtual reality probably increases exercise capacity for individuals undergoing cardiac rehabilitation (the pooled mean difference 49.55, 95% confidence interval 30.59~68.52, P<0.00001, moderate-certainty evidence) and might result in a reduction in emotional tension (mean difference-6.43, 95% confidence interval -9.02~-3.84, P<0.00001, low-certainty evidence) and intrapsychic stress (mean difference-4.25, 95% confidence interval -6.83 to -1.67, P=0.001, low-certainty evidence). It also seemed to have a positive effect on quality of life, although meta-analysis could not be conducted to pool the results. Virtual reality might reduce depression (standardised mean difference-0.48, 95% confidence interval -0.84~-0.12, P=0.009,very low- certainty evidence), but the evidence was uncertain, with similar results of anxiety, general level of stress, external stress, total cholesterol, and low-density lipoprotein. The evidence was uncertain about the effect of virtual reality on high-density lipoprotein (mean difference-1.79, 95% confidence interval -8.96~5.38, P=0.62, very low-certainty evidence), with similar results of triglycerides and BMI., CONCLUSIONS: Individuals undergoing cardiac rehabilitation may benefit from virtual reality since it can improve exercise capacity and psychological outcomes. More large, and well-designed studies with tailored virtual reality intervention are warranted to confirm the effects of virtual reality on individuals undergoing cardiac rehabilitation., TWEETABLE ABSTRACT: Virtual reality may benefit individuals undergoing cardiac rehabilitation since it can improve exercise capacity and psychological outcomes.

Virtual and in-person cardiac rehabilitation
Author(s): Dalal et al.
Source: BMJ 373:n1270
Publication date: June 2021
[UK]
What you need to know

- Most eligible patients with coronary heart disease and heart failure do not participate in cardiac rehabilitation. Covid-19 has exacerbated this, with a substantial drop in the number of patients participating
- Home and telehealth based interventions are increasingly being used as alternatives to traditional centre based rehabilitation programmes
- Outcomes for patients participating in home based rehabilitation compare favourably with centre based programmes in terms of hospitalisations, quality of life, and cost
- Telehealth based interventions are promising, but some patients may find these interventions challenging
- Novel ways of delivering rehabilitation have been employed during the covid-19 pandemic, including hybrid models that are likely to be offered as alternatives to centre based rehabilitation in future, enabling greater patient choice and greater uptake of cardiac rehabilitation

Mobile Technologies to Promote Physical Activity during Cardiac Rehabilitation: A Scoping Review
Item Type: Journal Article
Authors: Meinhart, Florian;Stutz, Thomas;Sareban, Mahdi;Kulnik, Stefan Tino and Niebauer, Josef
Publication Date: Dec 24 ,2020
Journal: Sensors 21(1)
Abstract: Promoting regular physical activity (PA) and improving exercise capacity are the primary goals of cardiac rehabilitation

(CR). Mobile technologies (mTechs) like smartphones, smartwatches, and fitness trackers might help patients in reaching these goals. This review aimed to scope current scientific literature on mTechs in CR to assess the impact on patients' exercise capacity and to identify gaps and future directions for research. PubMed, CENTRAL, and CDSR were systematically searched for randomized controlled trials (RCTs). These RCTs had to utilize mTechs to objectively monitor and promote PA of patients during or following CR, aim at improvements in exercise capacity, and be published between December 2014 and December 2019. A total of 964 publications were identified, and 13 studies met all inclusion criteria. Home-based CR with mTechs vs. outpatient CR without mTechs and outpatient CR with mTechs vs. outpatient CR without mTechs did not lead to statistically significant differences in exercise capacity. In contrast, outpatient CR followed by home-based CR with mTechs led to significant improvement in exercise capacity as compared to outpatient CR without further formal CR. Supplying patients with mTechs may improve exercise capacity. To ensure that usage of and compliance with mTechs is optimal, a concentrated effort of CR staff has to be achieved. The COVID-19 pandemic has led to an unprecedented lack of patient support while away from institutional CR. Even though mTechs lend themselves as suitable assistants, evidence is lacking that they can fill this gap.

Introduction of a novel service model to improve uptake and adherence with cardiac rehabilitation within Buckinghamshire Healthcare NHS Trust

Author(s): McCartan et al.
Source: BMC Cardiovascular Disorders 17(184)
Publication date: 2017
[UK]
Background: Buckinghamshire Healthcare NHS Trust (BHT) carried out a cardiac rehabilitation (CR) service redesign aimed at optimising patient recruitment and retention and decreasing readmissions. Methods: A single centre observational study and local service evaluation were carried out to describe the impact of the novel technology-enabled CR model. Data were collected for adult patients referred for CR at BHT, retrospectively for patients referred during the 12-month pre-implementation period (Cohort 1) and prospectively for patients referred during the 12-month post-implementation period (Cohort 2). The observational study included 350 patients in each cohort, seasonally matched; the service evaluation included all eligible patients. No data imputation was performed. Results: In the observational study, a higher proportion of referred patients entered CR in Cohort 2 (84.3%) than Cohort 1 (76.0%, P = 0.006). Fewer patients in Cohort 2 had ≥1 cardiac-related emergency readmission within 6 months of discharge (4.3%) than Cohort 1 (8.9%, P = 0.015); readmissions within 30 days and 12 months were not significantly different. Median time to CR entry from discharge was significantly shorter in Cohort 2 (35.0 days) than Cohort 1 (46.0 days, P < 0.001). The CR completion rate was significantly higher in Cohort 2 (75.6%) than Cohort 1 (47.4%, P < 0.001); median CR duration for completing patients was significantly longer in Cohort 2 (80.0 days) than Cohort 1 (49.0 days, P < 0.001). Overall, similar results were observed in the service evaluation. Conclusions: Introduction of the novel technology-enabled CR model was associated with short-term improvements in emergency readmissions and sustained increases in CR entry, duration and completion.

Workforce

Rehabilitation workforce challenges to implement person-centred care
Author(s): Fernandes et al.
Source: IJERPH 19(6)
Publication date: 2022
[Portugal]
There is an increasing emphasis on developing person-centered care in rehabilitation settings. However, this care practice has not been fully implemented due to several factors. This study explores rehabilitation workforce perspectives on the barriers and facilitators to implementing person-centered care (PCC). This was a quantitative descriptive study, which was developed based on interviews with 12 healthcare professionals from a private institution in the region of Lisbon and Tagus Valley in Portugal. The recruitment was made in October 2020. Braun, Clarke, Hayfield, and Terry's content analysis was applied to the transcripts, and these were transcribed verbatim. The consolidated criteria for reporting qualitative research (COREQ) checklist were applied to this study. Participants described barriers such as an unsupportive organization and leadership, staff constraints, heavy workload, and resistance to change. Unique to this study, a patient's clinical characteristics were identified as barriers to person-centered care. As facilitators, they described leadership, staff satisfaction, a positive physical environment, training and education, and shared decision-making. It is essential to understand the perceptions of the rehabilitation workforce, as they play an integral role in providing PCC. This study serves as a guide to facilitate person-centered care, as it provides an understanding of key barriers and facilitators for its implementation in rehabilitation settings.

Is there a staffing problem in cardiac rehab? Scroll down to
Abstract ID:S123
Item Type: Conference Proceeding
Authors: Martens, D.W. and Harris, J.E.
Publication Date: 2021
Publication Details: Journal of Cardiopulmonary Rehabilitation and Prevention. Conference: 36th American Association of Cardiovascular and Pulmonary Rehabilitation Annual Meeting, AACVPR 2021. Virtual. 41(5) (pp E22-E23); Lippincott Williams and Wilkins, pp. E22
[US]
Abstract: Introduction: As a seasoned cardiac rehabilitation professional, I have observed complaints about lack of cardiac rehabilitation staffing, which adversely affects managers and staff performance. Medicare's somewhat vague staff requirement is to assure adequate patient care. Purpose(s): The Plan-Do-Study-Act (PDSA) methodology is used to improve patient care systems and process quality. I conducted a survey to assess my staffing concerns and observations. I have also worked on a staffing method, which can compare the actual full-time employee FTE used versus the formula's staff FTE calculation need. Design(s): Questions about staff enthusiasm, staffing sufficiency, and ability to perform quality ITPs, educate patients, and progress exercise were asked. Questions assessed staffing concerns pre and post-Covid. To promote honest answers identifying information was omitted from the survey. Method(s): During the summer of 2020 a staffing survey was sent to the TriState Society of Cardiovascular and Pulmonary Rehab (TSSCVPR). TSSCVPR consists of PA, NJ and DE and is an affiliate chapter of AACVPR. There were 20 managers and 21 staff that responded to this survey. Result(s): Decline in staff enthusiasm in Cardiac Rehab to the level of somewhat to strongly agree. Pre-Covid: 40% of Managers and 33.3% of Staff. During Covid 65% of Managers and 61.9% of Staff. Ability to perform quality ITPs to the level of strongly agree. Pre-Covid:

30% of Managers and 28.6% of Staff. Covid: 25% of Managers and 14.3% of Staff. Insufficient staffing to educate patients that somewhat to strongly agree. Pre-Covid: 55% of Managers and 42.9% of Staff. Covid: 55% of Managers and 52.3% of Staff. Insufficient staffing to progress the exercise prescription to the level of somewhat to strongly agree. Pre-Covid: Managers 10% and Staff 28.6%. Covid: Managers 25% and Staff 38.1% Understaffed by 2-3 FTEs: Pre-Covid: Managers 0% and Staff 0%, Covid: Managers: 15% and Staff 35% Understaffed by 1-1.5 FTEs: Pre-Covid: Managers 40% and Staff 61.9%, Covid: Managers: 45% and Staff 35% Summary of Understaffed by 1-3 FTEs: Pre-Covid: Managers 40% and Staff 61.9%, Covid: Managers: 60% and Staff 70% Conclusion(s): Survey indicates significant quality concerns in many cardiac rehabilitation programs. Covid had a negative impact on staffing in all categories. The survey indicates that managers are not getting the support they need to properly staff their programs and Covid created a higher level of concern. There is a need to continue with the PDSA methodology to improve cardiac rehab staffing and share findings with AACVPR members.

The current and potential capacity for cardiac rehabilitation utilization in the United States Abstract only*
Item Type: Journal Article
Authors: Pack, Quinn R.;Squires, Ray W.;Lopez-Jimenez, Francisco;Lichtman, Steven W.;Rodriguez-Escudero, Juan P.;Zysek, Victoria N. and Thomas, Randal J.
Publication Date: 2014
Journal: Journal of Cardiopulmonary Rehabilitation & Prevention 34(5), pp. 318-326
[US]
Abstract: PURPOSE: Prior studies suggest that program capacity restraints may be an important reason for outpatient cardiac rehabilitation (CR) underutilization. We sought to measure current CR capacity and growth potential. METHODS: We surveyed all CR program directors listed in the American Association of Cardiovascular and Pulmonary Rehabilitation (AACVPR) database in November 2012. Respondents reported current enrollment levels, program capacity, expansion potential, and obstacles to growth. RESULTS: Of the 812 program directors in the AACVPR database, 290 (36%) completed the full survey. Respondents represented somewhat larger programs than nonrespondents but were otherwise representative of all registered AACVPR programs. Current enrollment, estimated capacity, and estimated expansion capacity were reported at a median (interquartile range) of 140 (75, 232), 192 (100, 300), and 240 (141, 380) patients annually, respectively. Using these data, we estimated that, in the year 2012, national CR utilization was 28% (min, max: 20, 38) of eligible patients. Even with modest expansion of all existing programs operating at capacity, a maximum of 47% (min, max: 32, 67) of qualifying patients in the United States could be serviced by existing CR programs. Obstacles to increasing patient participation were primarily controllable system-related problems such as facility restraints and staffing needs. CONCLUSIONS: Even with substantial expansion of all existing CR programs, there is currently insufficient capacity to meet national service needs. This limit probably contributes to CR underutilization and has important policy implications. Solutions to this problem will likely include the creation of new CR programs, improved CR reimbursement strategies, and new models of CR delivery.

Competency Frameworks

Multiprofessional heart failure self-development framework
Author(s): Forsyth et al.
Source: openheart 11(1)
Publication date: 2024
Objective: Heart failure remains a key public health priority across the globe. The median age of people with heart failure admitted to hospital in the UK is 81 years old. Many such patients transcend the standard interventions that are well characterised and evidenced in guidelines, into holistic aspects surrounding frailty, rehabilitation and social care. Previous published competency frameworks in heart failure have focused on the value of doctors, nurses and pharmacists. We aimed to provide an expert consensus on the minimum heart failure-specific competencies necessary for multiple different healthcare professionals, including physiotherapists, occupational therapists, dietitians and cardiac physiologists. Methods: The document has been developed focussing on four main parts, (1) establishing a project working group of expert professionals, (2) a literature review of previously existing published curricula and competency frameworks, (3) consensus building, which included developing a structure to the framework with ongoing review of the contents to adapt and be inclusive for each specialty and (4) write up and dissemination to widen the impact of the project. Results: The final competency framework displays competencies across seven sections; knowledge (including subheadings on heart failure syndrome, diagnosis and clinical management); general skills; heart failure-specific skills; clinical autonomy; multidisciplinary team working; teaching and education; and research and development. Conclusion: People with heart failure can be complex and have needs that require input from a broad range of specialties. This publication focuses on the vital impact of wider multidisciplinary groups and should help define the generic core heart failure-specific competencies needed to support future pipelines of professionals, who regularly interact with and deliver care for patients with heart failure.

Cardiovascular disease prevention and rehabilitation 2023 (4th edition)
Source: British Association for Cardiovascular Prevention and Rehabilitation
Publication date: 2023
This is the updated (fourth) edition of the BACPR Standards and Core Components which are underpinned by the best available current evidence and examples of best practice. While the Standards and Core Components do not seek to replicate the work of organisations such as the National Institute for Health and Care Excellence (NICE), the Scottish Intercollegiate Guidelines Network (SIGN), and the European Society of Cardiology (ESC), they are underpinned by the evidence-based clinical guidelines from these organisations as well as other international guidelines and best available evidence to provide a pragmatic overview of the recommendations for how cardiovascular disease prevention and rehabilitation programmes (CPRPs) should be delivered in the UK and the standards they should expect to achieve. This updated and revised fourth edition has once again been designed to build upon the success of the earlier versions of the standards and core components.

A competency framework for Pulmonary Rehabilitation
Source: London Respiratory Clinical Network
Publication date: august 2023
This competency framework has been developed by the London Clinical Respiratory Network to develop and grow a skilled and sustainable pulmonary rehabilitation workforce for the London region. It is a generic resource that can be adopted by other regions in England. The framework supports the delivery of the NHS Long Term Plan’s ambition to significantly increase access

to pulmonary rehabilitation to all eligible patients. 1 This will drive improvements in the quality of pulmonary rehabilitation provision across the region, ensuring the best outcomes for those who complete a course.

An international core capability framework for physiotherapists delivering telephone-based care
Author(s): Davies et al.
Source: Journal of Physiotherapy 68(2) pp. 136-141
Publication date: April 2022
Question: What are the core capabilities that physiotherapists need in order to deliver quality telephone-based care? Design: Three-round modified e-Delphi survey. Participants: An international Delphi panel comprising experts in the field, including consumers, physiotherapy researchers, physiotherapy clinicians and representatives of physiotherapy organisations. Methods: A modified e-Delphi survey was conducted. A draft framework was adapted from a previously developed core capability framework for physiotherapists delivering care via videoconferencing. The panel considered the draft framework of 39 individual capabilities across six domains. Over three rounds, panellists rated their agreement (via Likert or 0-to-10 numerical rating scales) on whether each capability was essential (core) for physiotherapists to deliver telephone-based care. Capabilities achieving consensus, defined as 75% of the panel rating the item at least 7 out of 10 in Round 3, were retained. Results: Seventy-one panellists from 17 countries participated in Round 1, with retention of 89% in Round 2 and 82% in Round 3. The final framework comprised 44 capabilities across six domains: compliance (n = 7 capabilities); patient privacy and confidentiality (n = 4); patient safety (n = 7); telehealth delivery (n = 9); assessment and diagnosis (n = 7); and care planning and management (n = 10). Conclusion: This framework outlines the core capabilities that physiotherapists need to provide telephone-based care. It can help inform content of physiotherapy curricula and professional development initiatives in telehealth delivery and provide guidance for physiotherapists providing care over the telephone.

Heart Failure Specialist Nurse Competency Framework
Source: British Society for Heart Failure
Publication date: 2021
The competency framework serves to guide Heart Failure Specialist Nurses' (HFSNs) to develop the knowledge and clinical consultation skills required to work safely, competently and effectively manage adults with heart failure. The HFSN is the named professional co-ordinating the patient's care plan in partnership with the patient and is involved in collaborative care planning across all relevant health and social care sectors where appropriate.

Core competencies for the Physical Activity and Exercise component for Cardiovascular Disease Prevention and Rehabilitation
Source: British Association for Cardiovascular Prevention and Rehabilitation
Thirteen Core Competences are outlined, identifying specific knowledge and skills for each competency, with a framework to assess the health professional's ability to demonstrate their competence in physical activity and exercise prescription.
The working party that developed these competences included:

- Association of Chartered Physiotherapists with a special interest in Cardiac Rehabilitation (ACPICR)
- BACPR Exercise Instructor Network (EIN)
- British Association of Exercise Sciences (BASES)

Core competencies for the Health behaviour Change and Education Component of Cardiovascular Rehabilitation Services
Source: British Association for Cardiovascular Prevention and Rehabilitation

This document provides guidance on the key competences required to ensure the use of best practice standards and guidelines for healthy eating and body composition. In total, 7 core competences are outlined, identifying specific knowledge and skills for each core competency and a framework to assess the health professional's ability to demonstrate their competence. This document also serves as a tool to monitor the need for continuing professional development for the exercise professional and supporting staff to achieve specific competences.

*Help accessing articles or papers

Where a report/ journal article or resource is freely available the link has been provided. If an NHS OpenAthens account is required this has been indicated. It has also been highlighted if only the abstract is available. If you do not have an OpenAthens account you can self-register here.

If you need help accessing an article, or have any other questions, contact the Knowledge Management team for support england.knowledgemanagement@nhs.net