



# An Overview of Cardiac Rehabilitation Services in Ireland

November 2024

Prevention Sub-Group of the National Heart Programme  
Office of the National Clinical Advisor and Group Lead for  
Chronic Disease



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## Introduction and Terms of Reference

The [\*Model of Care for Integrated Cardiac Rehabilitation\*](#) was published in October 2023. The Model outlines a new integrated way of delivering cardiac rehabilitation in Ireland. Traditionally these services have been hospital-based in Ireland. With the implementation of the *Integrated Model of Care for the Prevention and Management of Chronic Disease* and the Enhanced Community Care programme, cardiac rehabilitation is now also being delivered by clinical specialist teams in the community-based ambulatory care chronic disease hubs, as well as in the acute hospitals.

To support implementation of the *Model of Care for Integrated Cardiac Rehabilitation*, an in-depth understanding of current hospital and community services (hubs) was identified as a requirement. To this end, the Integrated Care Programme for Chronic Disease (ICPCD) completed a structured overview of hospital and hub-based cardiac rehabilitation sites nationally in May and June 2024.

The aim of the overview was to identify the resources, supports and training needs required in order to advance implementation of the *Model of Care for Integrated Cardiac Rehabilitation* nationally.

## Acknowledgements

We wish to thank all of the cardiac rehabilitation and managerial staff who contributed to this report for their contribution, insights, dedication and support.

The Prevention Sub-Group of the National Heart Programme Clinical Advisory Group (Appendix 1) is charged with the development of an implementation plan for the *Model of Care for Integrated Cardiac Rehabilitation*: we wish to thank the members of the Prevention Sub-Group for their direction and oversight of this report.

## Executive Summary

Cardiac rehabilitation is an evidence-based and cost-effective approach that helps patients to manage their own condition in partnership with their healthcare professionals. Cardiac rehabilitation has consistently been demonstrated to significantly reduce illness, hospital admissions and death amongst patients with established cardiovascular disease<sup>(1-6)</sup> while also increasing their quality of life.<sup>(7, 8)</sup>

The *Model of Care for Integrated Cardiac Rehabilitation* presents best evidence and practice for a high quality, equitable and person-centred cardiac rehabilitation service for those living with cardiovascular disease in Ireland.<sup>(9)</sup> It will ensure that patients living with cardiovascular disease across the country have access to timely high quality cardiac rehabilitation care, no matter where they live. In line with best international evidence and practice, the model advocates for a person-centred approach, with a focus on supporting the patient to manage their condition, set individualised goals and receive their rehabilitation service as close to home as possible. The model also places a focus on encouraging and supporting referral to, and attendance at, cardiac rehabilitation for those who are traditionally under-referred to cardiac rehabilitation, such as women, older persons and marginalised groups.

This document aims to support implementation of the Model of Care by assessing the current gaps in access to, and delivery of cardiac rehabilitation services in line with the Model of Care, and using these as a basis to identify the additional resources required for its full implementation. The information was gathered using a survey of all cardiac rehabilitation services within the Irish public health service. The need for cardiac rehabilitation was estimated using hospital discharge data, following the same methodology applied in a formal health needs assessment published in 2016.<sup>(10)</sup>

Currently, adequate staffing is a challenge for cardiac rehabilitation services across the country. In May/June 2024, there were 134.6 WTE staff nationally delivering publically-funded cardiac rehabilitation, of which 84.8 WTE were based in hospitals and 49.8 WTE in the specialist ambulatory care hubs. This total represents a decline in staff numbers, equating to 62% of the staff employed in cardiac rehabilitation in 2009. Hospital-based cardiac rehabilitation has experienced a depletion of cardiac rehabilitation staff since 2009 and the hubs, which in recent years have received funding to support a cardiac rehabilitation team, are experiencing challenges with regard to recruitment of complete cardiac rehabilitation teams. In line with the decrease in staff numbers, the need for cardiac rehabilitation has remained relatively static: an estimated requirement for 19,220 places in 2014 and requirement for 18,551 places in 2023.

Whilst all professions in the multi-disciplinary cardiac rehabilitation team, including nursing and physiotherapy, have been affected by staff shortages and recruitment issues, this study found that dietetic and psychology resources require particular attention when it comes to recruitment.

There was significant variation in waiting times for cardiac rehabilitation throughout the country. Waiting times for the commencement of phase III (denoted as the date of the initial assessment) varied from 2-96 weeks, with median waiting times of 12 weeks.

Additionally, there was variation in how cardiac rehabilitation is delivered, from referral processes, through to the programme structure, the core components delivered, and audit and evaluation activity. All sites delivering phase I cardiac rehabilitation refer to hospital-based sites for phases II and III, whilst ten (37%) of the 27 phase I sites reported that they refer to both hospital and hub services, thus highlighting a level of integrated working between the acute and community centres. Some sites were only delivering part of a phase III programme and no site was delivering phase III online. Of the core education topics, weight management and psychosocial self-management were the two which were delivered in the fewest sites, 77% and 84% of sites respectively. Seventeen sites (38%) reported that they were not in a position to audit and evaluate their activity, largely due to the aforementioned staffing issues.

In order to address this variation in delivery of cardiac rehabilitation services throughout the country, and to ensure a patient-centred service, which offers a standard set of evidence-based core components, this review recommends the re-instatement of 73.0 WTE hub-based cardiac rehabilitation posts, as well as augmenting hospital-based cardiac rehabilitation by an additional 38.0 WTE posts, based on analogous staffing levels defined for hub teams. Furthermore, it is recommended that 1.0 WTE dietetic resource is allocated to each hub and that the hub psychology resource is increased from 0.2 WTE per hub to 1.0 WTE per hub. Both of these posts should work in an integrated way across the hub and affiliated hospital site to best meet the needs of the catchment population they serve.

The development of an accredited evidence-based cardiac rehabilitation phase III programme is recommended to further address variation and ensure standardisation. This will ensure that no matter where in the country a person lives, they will receive a consistent and evidence-based standard of care. A centrally-managed cardiac rehabilitation programme with recommended procedures, templates and patient resources will further support local cardiac rehabilitation teams to allocate their time to clinical duties and patient care, as they work towards delivering integrated, person-centred cardiac rehabilitation services in their communities.

# Background

## Cardiac Rehabilitation

Cardiac rehabilitation is a complex intervention that consists of "the coordinated sum of activities required to influence favourably the underlying cause of cardiovascular disease, as well as to provide the best possible physical, mental and social conditions, so that the patients may, by their own efforts, preserve or resume optimal functioning in their community and through improved health behaviour, slow or reverse progression of disease".<sup>(11-15)</sup> It is an evidenced-based and cost effective approach that helps patients to manage their own condition in partnership with their healthcare professionals. It has consistently been demonstrated to significantly reduce morbidity, hospitalisations and mortality among patients with established cardiovascular disease<sup>(1-6)</sup> while also increasing their quality of life.<sup>(7, 8)</sup> Participation in a cardiac rehabilitation programme is a Class 1A recommendation for patients hospitalised after an acute coronary event, coronary revascularisation procedure or heart failure.<sup>(6, 16-19)</sup>

Cardiac rehabilitation programmes are typically comprised of four phases (Figure 1).<sup>(11, 12)</sup> **Phase I** occurs during the inpatient period following an acute event and is the optimal time to start patients on their cardiac rehabilitation journey: patients are given support and information about heart disease and addressing their own specific risk factors. It is also the phase when assessment of patient needs and goal-setting should be initiated. **Phase II** is the immediate post-discharge period, the aim of this phase is to further build on the information the patient received during Phase I and to highlight the importance of adopting healthy lifestyle habits. **Phase III** constitutes a comprehensive education and exercise programme, which has traditionally been conducted in-person with patients attending cardiac rehabilitation sites, and is often the most intensive phase of cardiac rehabilitation. Phases II and III take place in the outpatient setting following discharge from hospital. **Phase IV** aims to facilitate long-term habits to support maintenance of cardiovascular disease prevention and management.<sup>(11, 12)</sup>

There is a growing body of evidence to support the provision of increased choice in how patients engage with cardiac rehabilitation services.<sup>(20-22)</sup> Cardiac rehabilitation requires that patients are active participants in the programme, with a particular focus on the development of goals that are jointly agreed between the patient and the cardiac rehabilitation team and support provided to help patients achieve these goals.<sup>(13, 17)</sup> Programmes must take the individual needs of each patient into account and so there is a pressing requirement to offer patients more choice in how, when and where evidence-based cardiac rehabilitation can be accessed.<sup>(13)</sup>

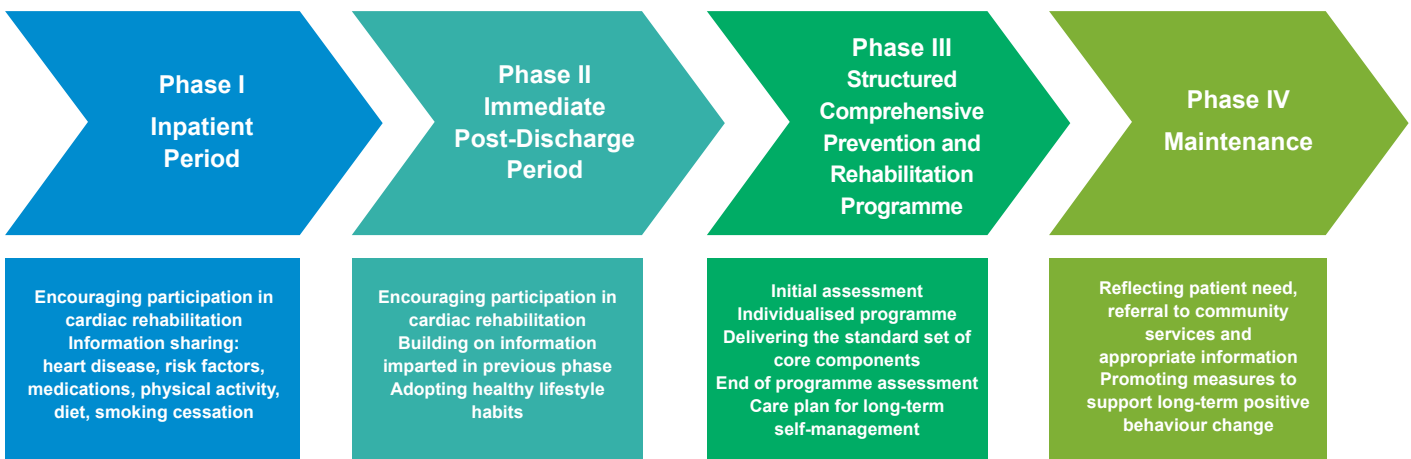


Figure 1: The four phases of cardiac rehabilitation

## Cardiac Rehabilitation in Ireland

The enduring evidence supporting cardiac rehabilitation has long been recognised in Irish policy. In recognition of its value, and the long-acknowledged requirement to expand cardiac rehabilitation services in order to provide a national service that is accessible and equitable, cardiac rehabilitation is a central component of the *Model of Care for the Integrated Prevention and Management of Chronic Disease* and a key aspect of the *Enhanced Community Care Programme (ECC)*.

The vision for delivery of cardiac rehabilitation in Ireland is that hospital and hub-based cardiac rehabilitation staff will work together to provide a singular, integrated service that reflects local structures and patient need in their catchment area. One Integrated Care Consultant Cardiologist will provide clinical governance to both the hospital and community based components of the cardiac rehabilitation service in each area. Each cardiac rehabilitation site will develop and implement an agreed pathway for accepting and managing referrals for all patients referred to cardiac rehabilitation within their catchment area; and it is envisaged that the hospital and community based cardiac rehabilitation staff will work together to deliver an integrated, person-centred cardiac rehabilitation service, regardless of the setting.



## The Model of Care for Integrated Cardiac Rehabilitation

*The Model of Care for Integrated Cardiac Rehabilitation*<sup>(9)</sup> presents best evidence and practice for a high quality, equitable and person-centred cardiac rehabilitation service for those living with cardiovascular disease in Ireland.

The development of this national Model of Care is a major step forward in that it will ensure that patients living with cardiovascular disease across the country have access to timely high quality cardiac rehabilitation care, no matter where they live. Timely access is regarded as commencement of the phase III programme within two weeks, and no more than four weeks, of a patient's discharge from hospital following their acute event.<sup>(9, 13)</sup> In line with best international evidence and practice, the model advocates for a person-centred approach, with a focus on helping the patient to manage their condition, set individualised goals and receive their rehabilitation as close to home as possible. The model also places a focus on encouraging and supporting referral to, and attendance at, cardiac rehabilitation for those who are traditionally under-referred to cardiac rehabilitation, such as women, older patients, and marginalised groups.

The principles underpinning the Model of Care are:

1. Cardiac rehabilitation programmes should be delivered by multidisciplinary teams and should offer a standard set of evidence-based core components, as set out in the Model of Care.
2. Cardiac rehabilitation should offer a patient-centred service, with an emphasis placed on optimising patient uptake and completion of cardiac rehabilitation courses. To that end, flexibility in how, when and where patients engage with cardiac rehabilitation services is advised.
3. Cardiac rehabilitation should be accessible in a timely and equitable manner to all eligible patients.
4. Cardiac rehabilitation should be monitored and outcomes evaluated so that quality of care is maintained and improved and that the service is accountable to patients.

The Model of Care describes the seven key steps in the patient pathway for integrated cardiac rehabilitation in Ireland (Figure 2).

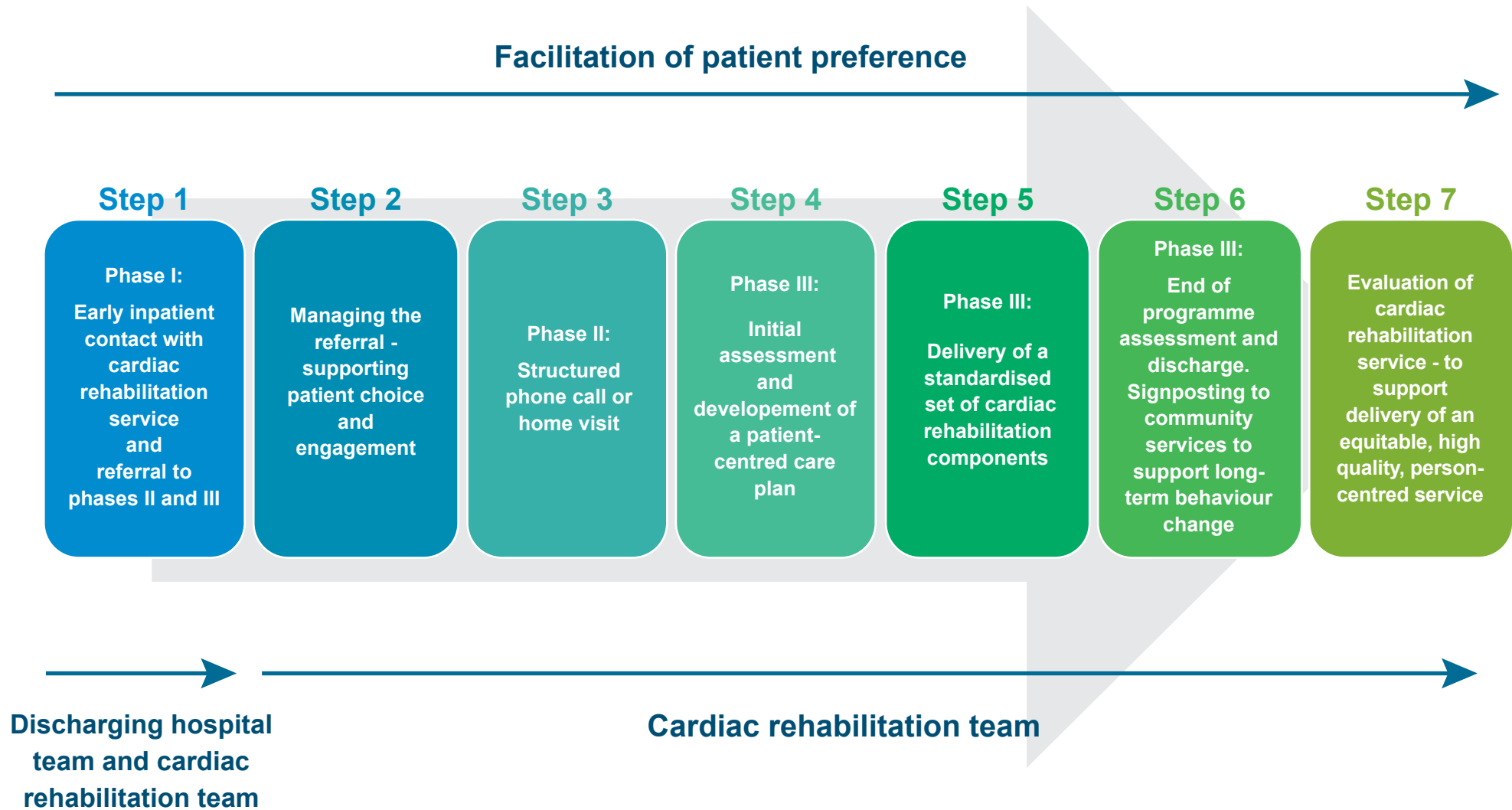


Figure 2: The seven key steps in the patient pathway for integrated cardiac rehabilitation

## Methodology

### National Survey of Cardiac Rehabilitation Services

A survey of cardiac rehabilitation sites was drafted. The survey contained 41 questions on the following topics: phases I, II and III, including components of each, referral processes, waiting times, documentation, staffing, training, service evaluation, discharge, plus barriers and enablers to the implementation of integrated cardiac rehabilitation (Appendix 2). The survey was reviewed by subject matter experts in cardiac rehabilitation.

The National Clinical Advisor and Group Lead (NCAGL) for Chronic Disease wrote to the senior management teams, in hospitals and hubs, with responsibility for cardiac rehabilitation sites, providing information on the survey and requesting their participation in same.

Subsequently, members of the ICPCD project team linked in with the cardiac rehabilitation coordinator or appropriate staff member in every site between April and June 2024 with request to undertake the survey. All sites were offered the opportunity to complete the survey with a member of the project team. This was done either in-person or through a virtual meeting platform. The survey was made available via email for sites that indicated a preference for this method.

In cases where no cardiac rehabilitation service was in place, the most appropriate staff member with knowledge of the service area was contacted and requested to provide responses. In these instances, only a minority of questions were relevant and could be answered.

Descriptive analyses were undertaken by the project team using Microsoft Excel.

### Estimating the Need for Cardiac Rehabilitation in Ireland

The need for cardiac rehabilitation in Ireland was estimated using the same methodology described by Petty-Saphon in the formal health needs assessment published in 2016.<sup>(10)</sup> Need was estimated for the year 2023 and for three priority patient groups for cardiac rehabilitation only, i.e. those with acute coronary syndrome (ACS), a post-coronary revascularisation procedure (PCI or CABG) or a hospitalisation for heart failure.<sup>(9)</sup> It should be noted that other patient groups are eligible for cardiac rehabilitation, and the Model of Care recommends that where capacity allows, these groups should also be offered a cardiac rehabilitation course. In the current estimation, and in order to facilitate comparison with the formal needs assessment of 2016,<sup>(10)</sup> only the priority patient groups were included.

Patient episodes for the International Classification of Diseases Tenth Edition (ICD-10) codes listed in Table 1 were extracted using the Hospital In-patient Enquiry (HIPE) database. HIPE records national data on discharges from acute hospitals in Ireland and each record represents a patient episode. HIPE does not capture admissions to private hospitals, which also refer patients to publically-funded cardiac rehabilitation centres: Data regarding patient episodes, with an included ICD-10 code listed as principal diagnosis or procedure, were sought for all discharges in patients aged over 18 years, emergency and elective, inpatient and day case admissions between the 1st January 2023 and the 31st December 2023.

Table 1: International Classification of Diseases Tenth Edition (ICD-10) codes included for assessment of need for cardiac rehabilitation

Group	Principal diagnosis/ procedure	ICD-10 code
Acute coronary syndrome	STEMI, NSTEMI, Unstable angina	I20.0, I21, I22, I24
Revascularisation	PCI, CABG	670-679
Heart failure		I50

Duplicates existed in the initial data as patients may have had an ACS event followed by a revascularisation procedure and therefore be represented twice. The methodology to minimise double counting, described by Petty-Saphon<sup>(10)</sup>, was followed.

## Results

### Need for cardiac rehabilitation services

In 2023, there were 18,551 discharges for ACS, a post-coronary revascularisation procedure (PCI or CABG) and heart failure combined. Figure 3 illustrates that there were 8,414 hospital discharges for ACS, 2,918 for a revascularisation procedure only (i.e. without ACS) and 7,219 discharges for heart failure only (i.e. without revascularisation).

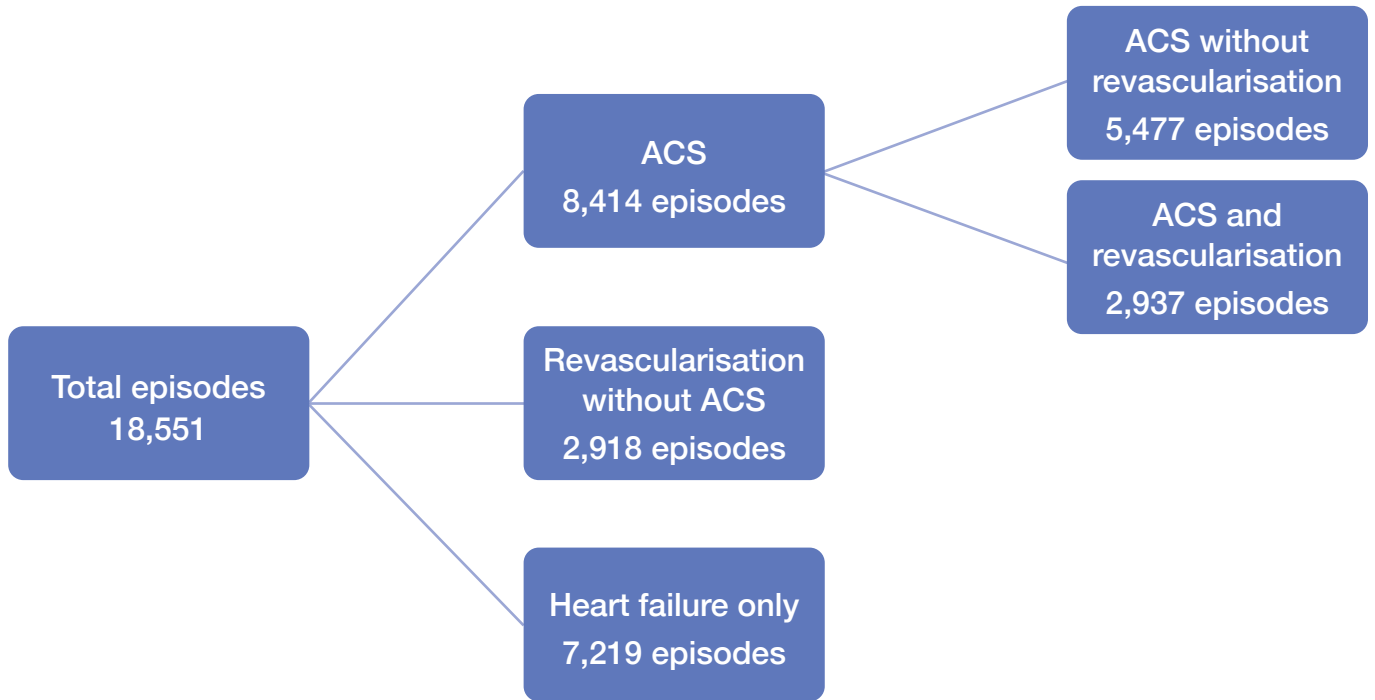
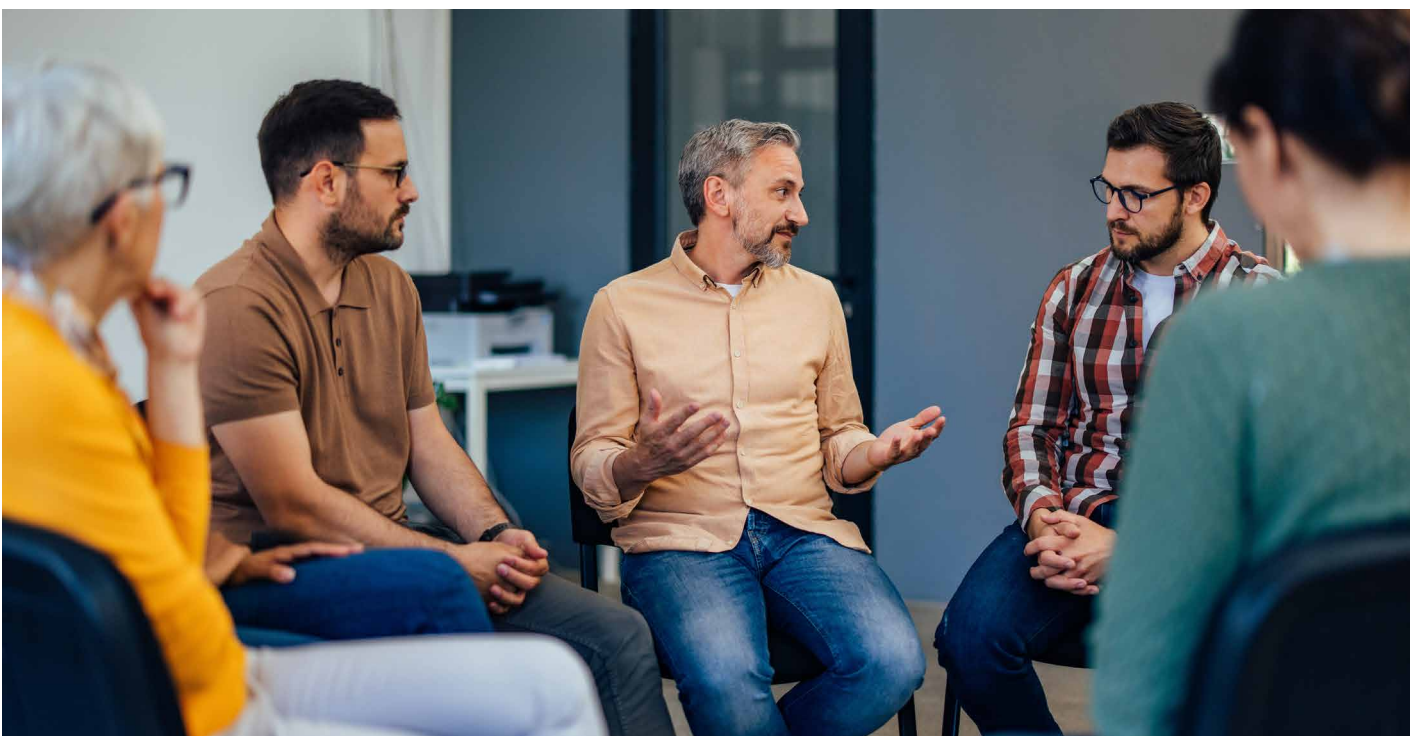


Figure 3: Patient episodes for ACS and heart failure in 2023



## Overview of national delivery (May/June 2024)

A total of 63 sites participated in the national review of cardiac rehabilitation services, 33 (52%) of which were hospital services and 30 (48%) were hub services. Figure 4 identifies the location of these services.

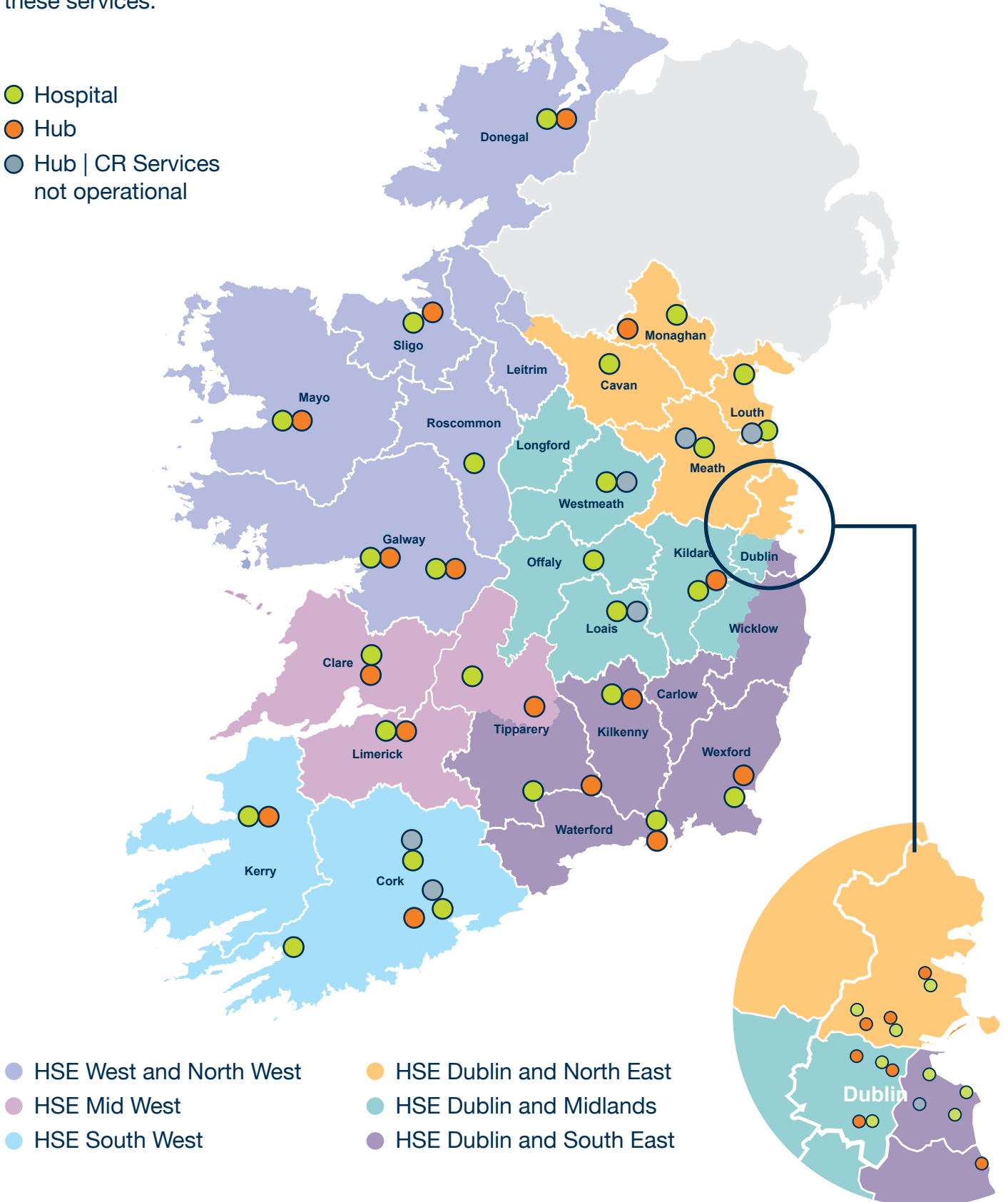


Figure 4: Hospital and hub cardiac rehabilitation sites by health region

This is the totality of publicly funded cardiac rehabilitation services in the Republic of Ireland. Without exception, a representative from all sites participated in the review. Some hub sites were not operational at the time of review, due to the cardiac rehabilitation services being in various stages of development. In these cases, the most appropriate staff member with knowledge of the cardiac rehabilitation service responded: the majority of these were Operational Leads.

Most sites (84%) answered the survey via online, telephone or in-person interview with a member of the project team. In a minority of cases (16%), sites chose to collate their responses and share same with the project team via e-mail, without interview.

Overall, most respondents were cardiac rehabilitation co-ordinators (n=28, 44%), followed by Clinical Nurse Specialists (CNS) (n=9, 14%) and Operational Leads (n=9, 14%) (Table 2). There was an amount of non-response for many questions: this was largely due to hub sites not being fully operational (n=14, 22%).

Table 2: Staff who completed the survey of cardiac rehabilitation services on behalf of their service

Staff member	n	%
Cardiac Rehabilitation Coordinator	28	44%
Clinical Nurse Specialist (CNS)	9	14%
Operational Lead	9	14%
Clinical Nurse Manager (CNM)	3	5%
Staff Nurse	3	5%
Project Manager	1	2%
Senior Physiotherapist	1	2%
≥2 of the above	9	14%

Respondents were asked which phases their service provides. Twenty-seven sites were delivering phase I, all of which were hospital sites. Forty-one sites were delivering phase II, of which 31 were hospitals and 10 were hubs, and 46 sites were delivering phase III, of which 32 were hospitals and 14 were hubs (Table 3). It was noted from respondent comments that there was wide variation in the interpretation of phases II and III cardiac rehabilitation. For example, some sites include the initial assessment as a component of phase II, whereas most sites included it in phase III. Therefore, some caution is required in this report in the interpretation of responses regarding definitions or components of phases II and III.

Table 3: Number of sites delivering each phase of cardiac rehabilitation

Phase	Number of sites
Phase I	27 (hospitals)
Phase II	41 (31 hospitals and 10 hubs)
Phase III	46 (32 hospitals and 14 hubs)

### Staffing

Currently, a total of 134.6 whole time equivalent (WTE) staff are employed in cardiac rehabilitation across public services in Ireland. This is comprised of 84.8 WTE (63%) in hospital services and 49.8 WTE (37%) in hub services (Figure 5). Staffing data for the hubs was corroborated against staff records maintained by the ECC programme. Figure 5 shows that the health region with the highest total WTE is HSE Dublin and North East with 29.5 WTE.

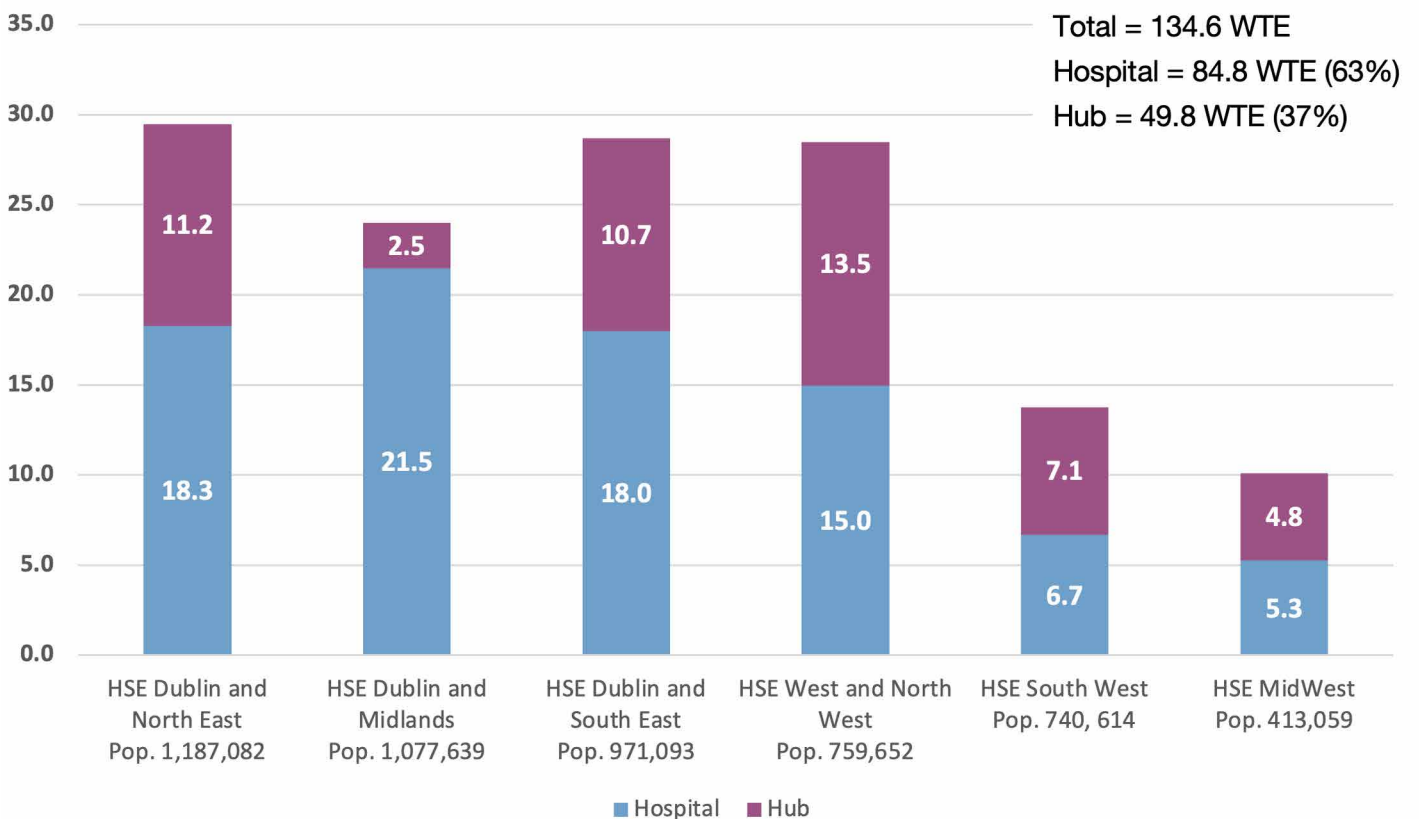


Figure 5: National total wholetime equivalent (WTE) staff employed in cardiac rehabilitation services by health region, ordered from highest to lowest population, June 2024, includes nursing, physiotherapy, psychology, administration, dietetics, medical social work, occupational therapy and pharmacy staff, n=134.6



Figure 6 displays the change in cardiac rehabilitation staffing over the past 15 years. In 2009, 215.6 WTE were employed in hospitals nationally in cardiac rehabilitation. Staffing had reduced to 80.4 WTE by 2015, a reduction of 135.2 WTE. Since 2015 staffing levels have increased, primarily through the funding of cardiac rehabilitation in the chronic disease hubs, through the ECC programme. However, staffing in hospitals has only increased by 4.4 WTE (5.5%) nationally in the same time.

Overall, national staffing falls below the levels seen in 2009: in 2024, the total national WTE is 62% of what it was in 2009, representing a loss of 81.0 WTE.

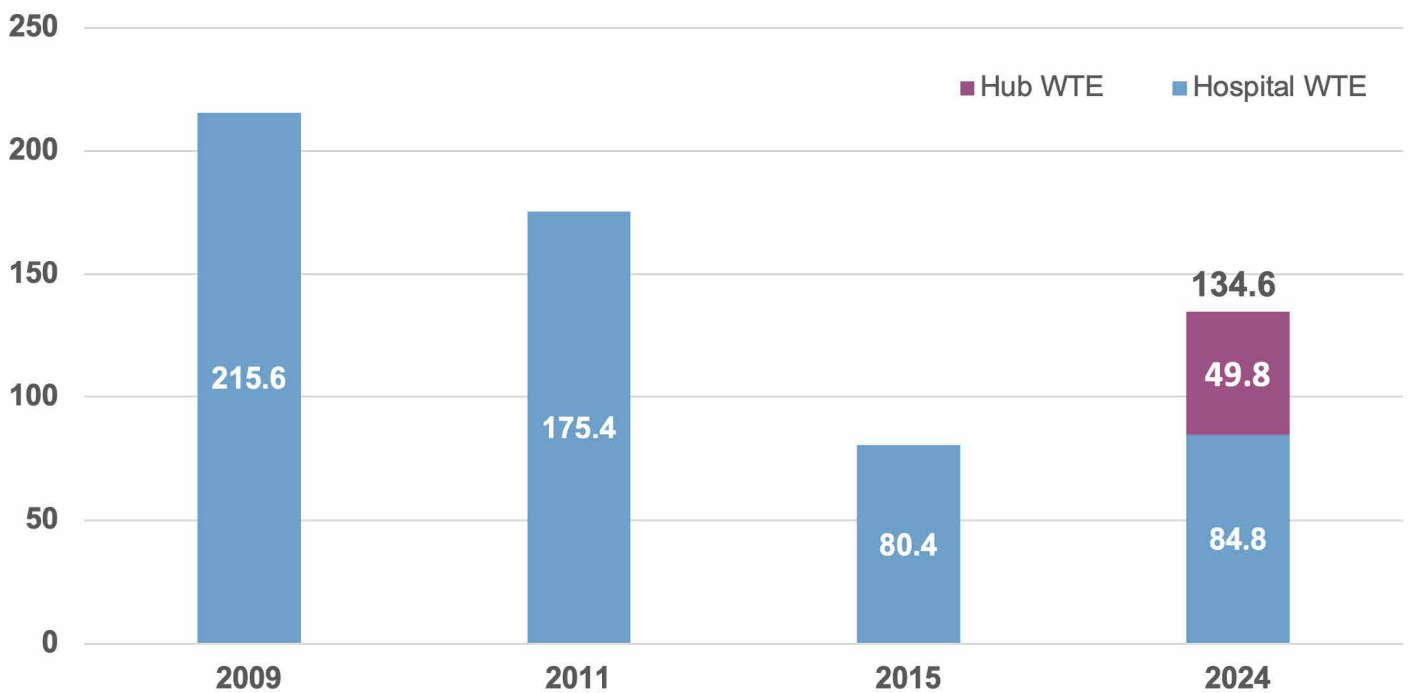


Figure 6: Total national WTE employed in cardiac rehabilitation services, 2009-2024. Data from 2009-2015 from Petty-Saphon<sup>(10)</sup>

As part of the ECC programme, each of 26 hubs was resourced with 3.7 WTE dedicated cardiac rehabilitation staff and a further four enhanced hubs were resourced with 6.2 WTE, delivering a total of 123.0 national WTE for hub-based cardiac rehabilitation. With 49.8 WTE in post at the time of the survey, there is a deficit of 73.2 WTE hub-based posts.

By profession, the largest group employed in cardiac rehabilitation nationally are nurses (84.9 WTE, 63%), followed by physiotherapists (27.6 WTE, 20%) and administration officers (12.2 WTE, 9%) (Figure 7). The fewest staff employed are medical social workers, pharmacists, occupational therapists and dietitians with 0.8 WTE (0.6%), 1.0 WTE (0.7%), 1.4 WTE (1%) and 2.0 WTE (1.5%) respectively.

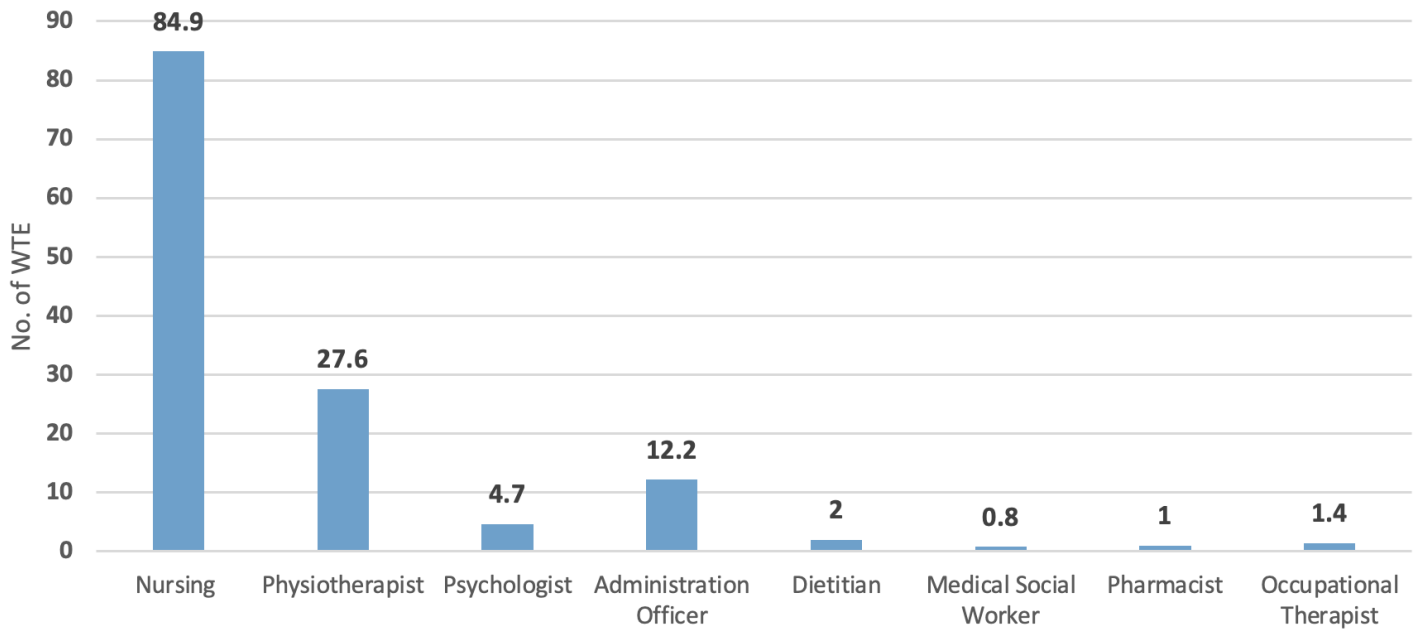


Figure 7: Total national WTE employed in cardiac rehabilitation services by profession, June 2024. n=134.6 WTE. All staff grades in a profession are grouped together.

The following graphs show the current staff employed in cardiac rehabilitation in each of the six health regions by profession and service location.

## HSE Dublin and North East

In June 2024, there was a total of 29.5 WTE employed across the HSE Dublin and North East region, the majority of which were nursing posts (Figure 8)

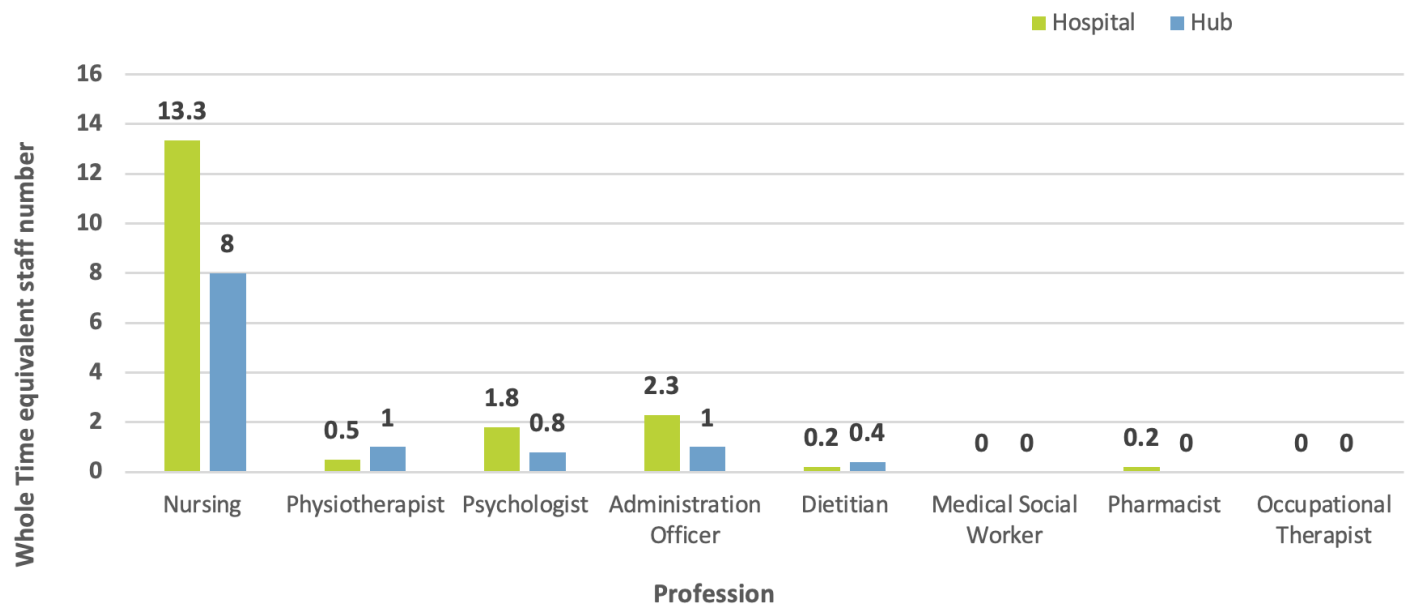


Figure 8: HSE Dublin and North East - Cardiac Rehabilitation WTE staff numbers in post by profession and service location (n=29.5 WTE) June 2024

## HSE Dublin and Midlands

In June 2024, there was a total of 24.0 WTE employed across the HSE Dublin and Midlands region. The largest group was nursing at 10.5 WTE, followed by physiotherapy at 7.5 WTE (Figure 9).

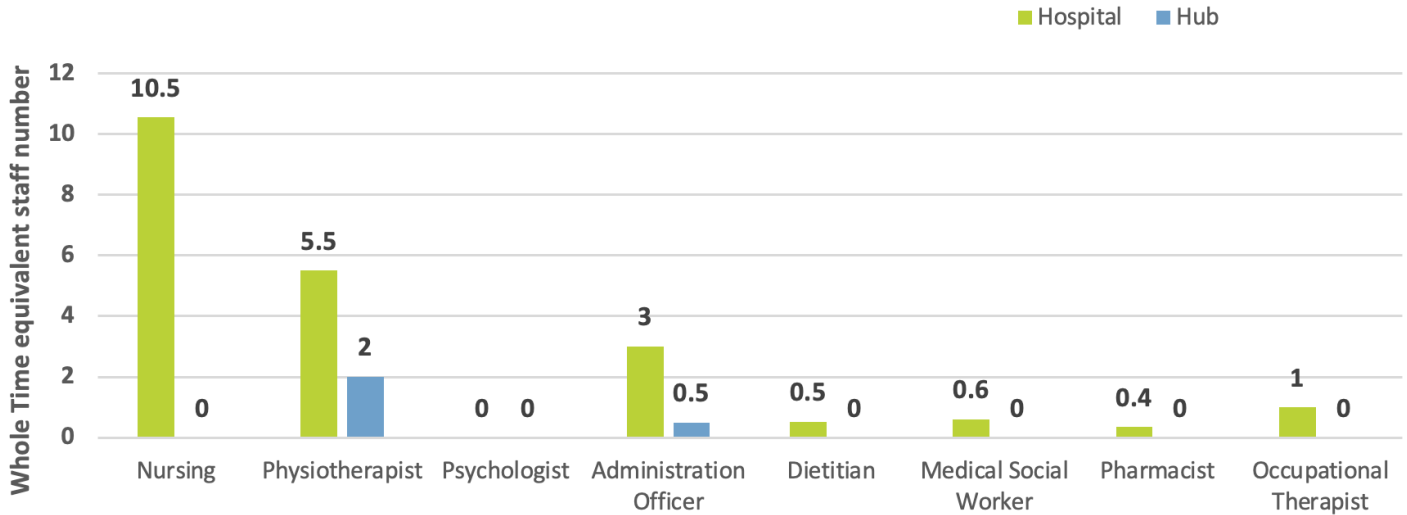


Figure 9: HSE Dublin & Midlands Cardiac Rehabilitation WTE staff in post by profession and service location (n=24.0 WTE) June 2024

## HSE Dublin and South East

In June 2024, there was a total of 28.7 WTE employed across the HSE Dublin and South East region. The largest group was nursing at 19.9 WTE, followed by physiotherapy at 6.1 WTE (Figure 10).

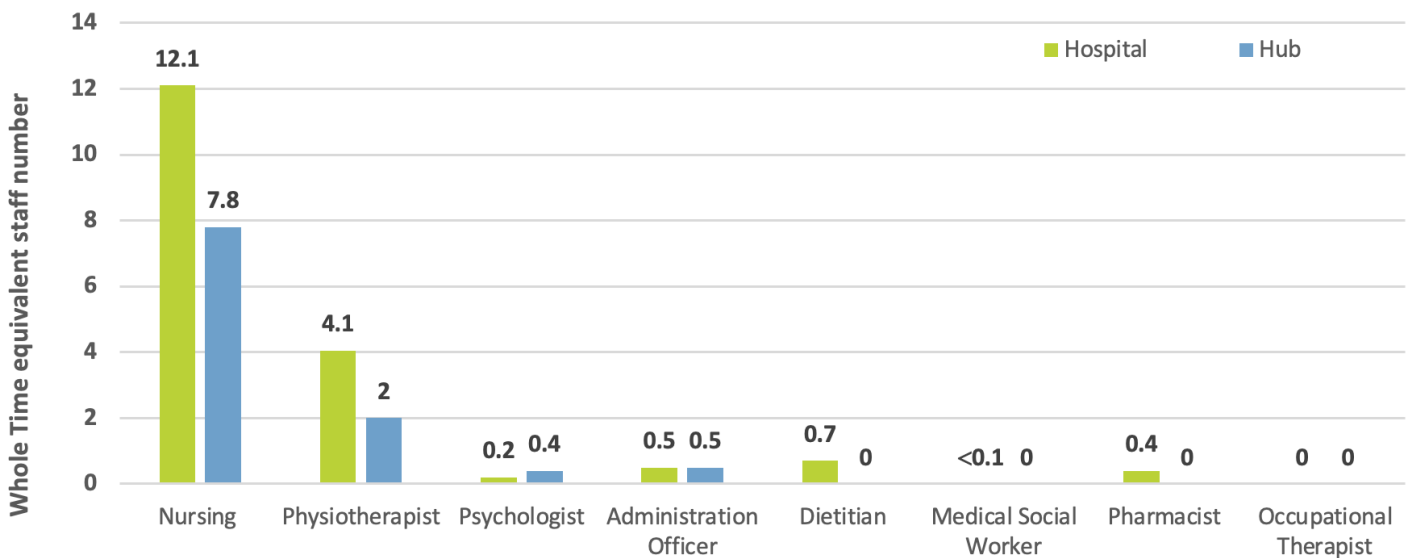


Figure 10: HSE Dublin & South East Cardiac Rehabilitation WTE staff numbers in post by profession and service location (n=28.7 WTE) June 2024

## HSE West and North West

The below figure shows that 28.5 WTE are in post across the hospitals and hubs in HSE West and North West. The largest group is nursing at 18 WTE, followed by physiotherapy at 6.6 WTE.

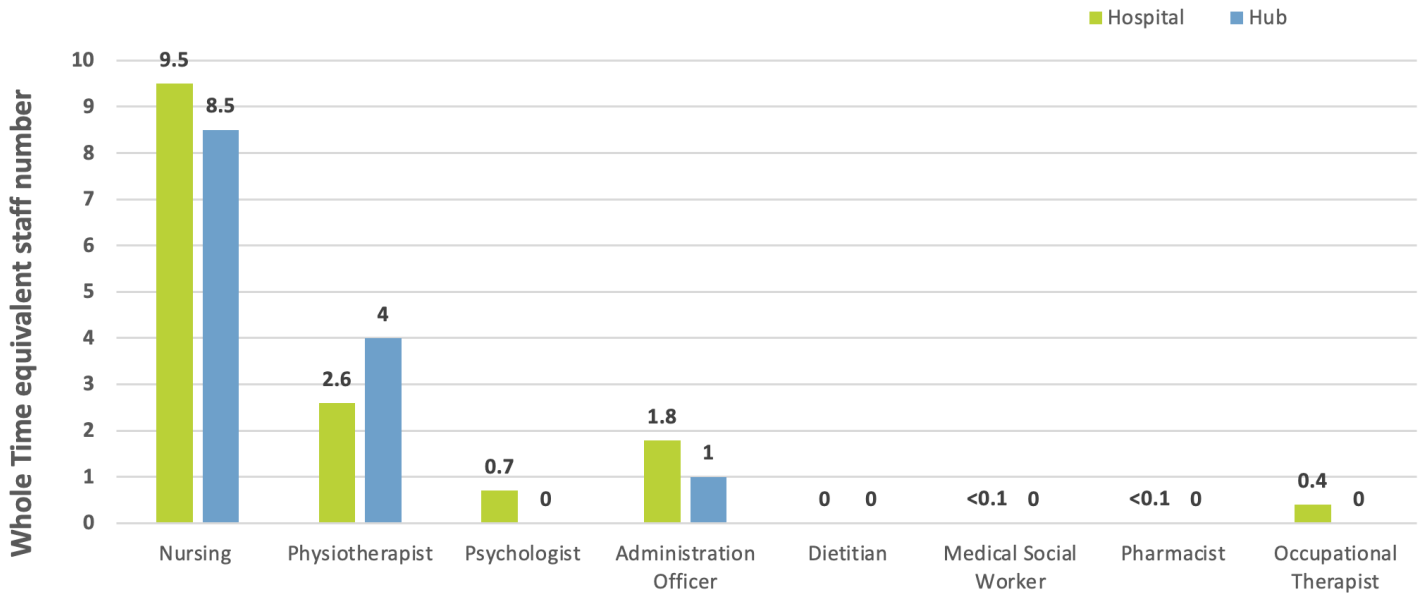


Figure 11: HSE West and North West Cardiac Rehabilitation WTE staff in post by profession and service location (n=28.5 WTE) June 2024

## HSE South West

In June 2024, there was a total of 13.8 WTE employed across the HSE South West region. The largest group was nursing at 7.6 WTE, followed by physiotherapy at 4.7 WTE (Figure 12).

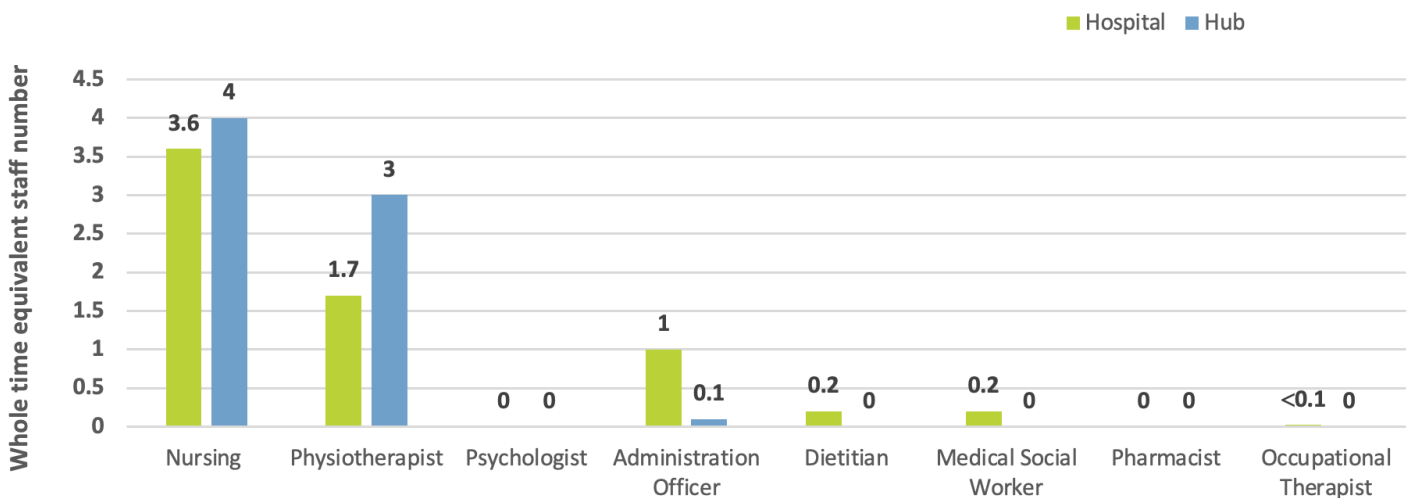


Figure 12: HSE South West Cardiac Rehabilitation WTE staff in post by profession and service location (n=13.8 WTE) June 2024

## HSE Mid-West

In June 2024, there was a total of 10.1 WTE employed across the HSE Mid-West region. The largest group was nursing at 7.5 WTE, followed by physiotherapy at 1.3 WTE (Figure 13).

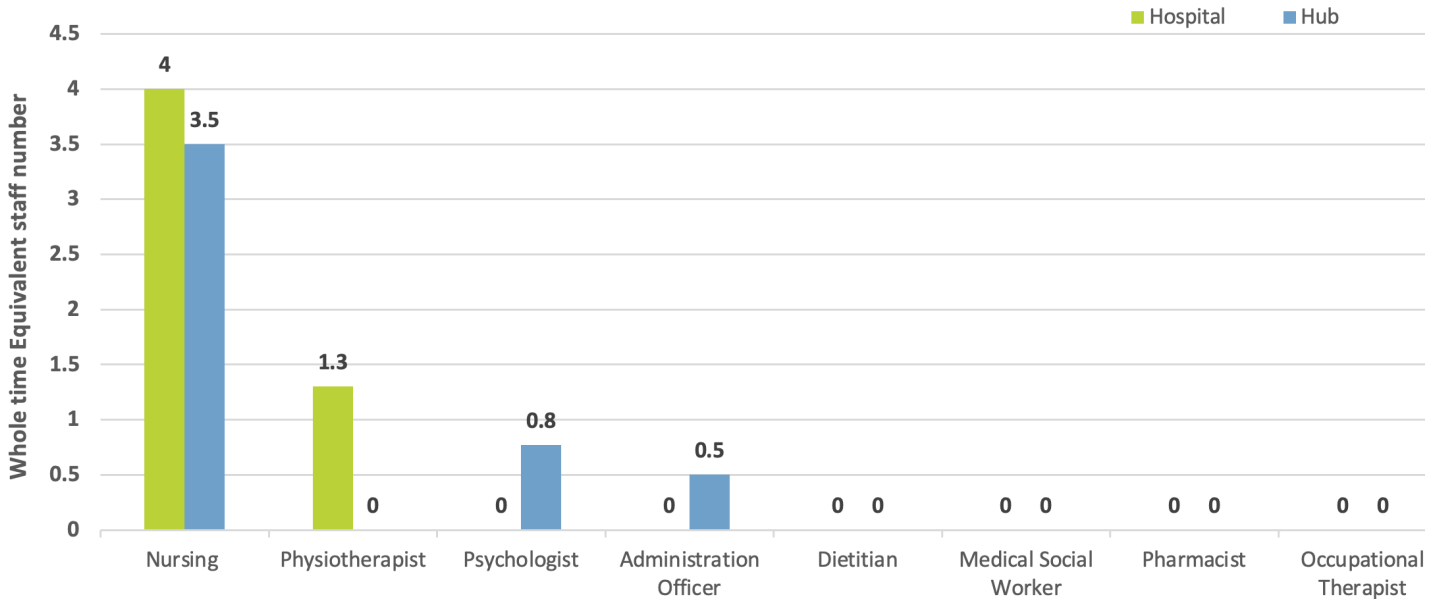


Figure 13: HSE Mid-West Cardiac Rehabilitation WTE staff in post by profession and service location (n=10.1 WTE) June 2024



## Phase I

### The person responsible for referring patients from phase I to phases II and III

A total of 32 sites provided detail on those responsible for referring patients from phase I to phases II and III. The most common referrers were nursing staff in 29 sites (90%), followed by consultants in 24 sites (75%), NCHDs in 19 sites (59%), and HSCPs, in 11 sites (34%) (Figure 14). Sites could submit more than one referrer option.

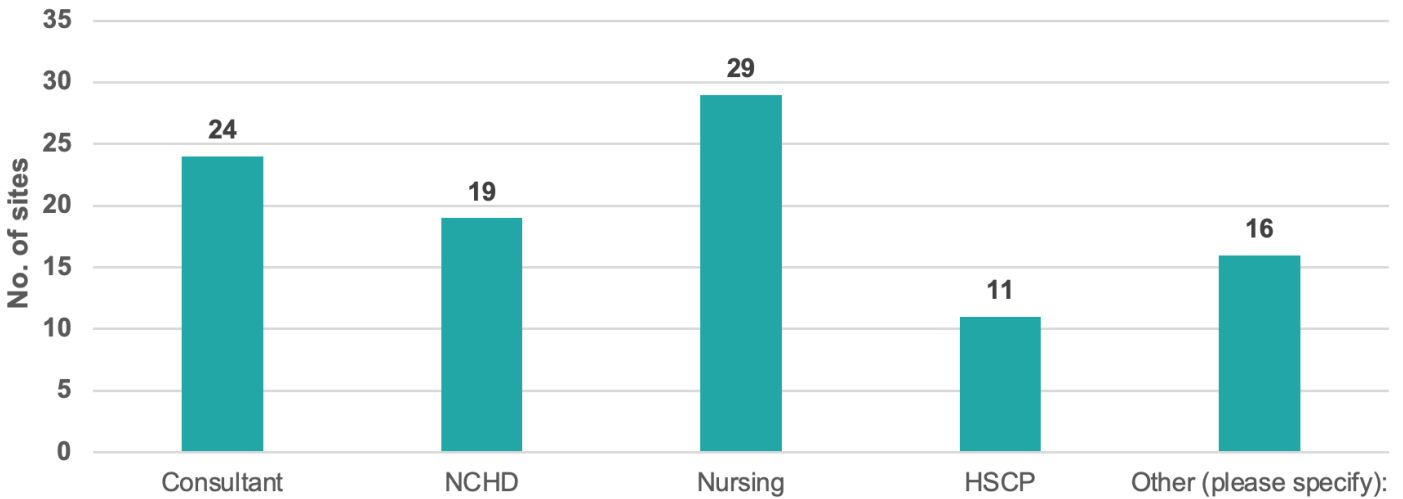


Figure 14: Staff usually responsible for referring patients from phase I to phases II and III, June 2024

Sixteen respondents cited "other" referrers and could list multiple sources. The most common "other" referrers were GPs and cardiac rehabilitation coordinators or consultants at other hospitals/ cardiac rehabilitation sites, followed by self-referrals.

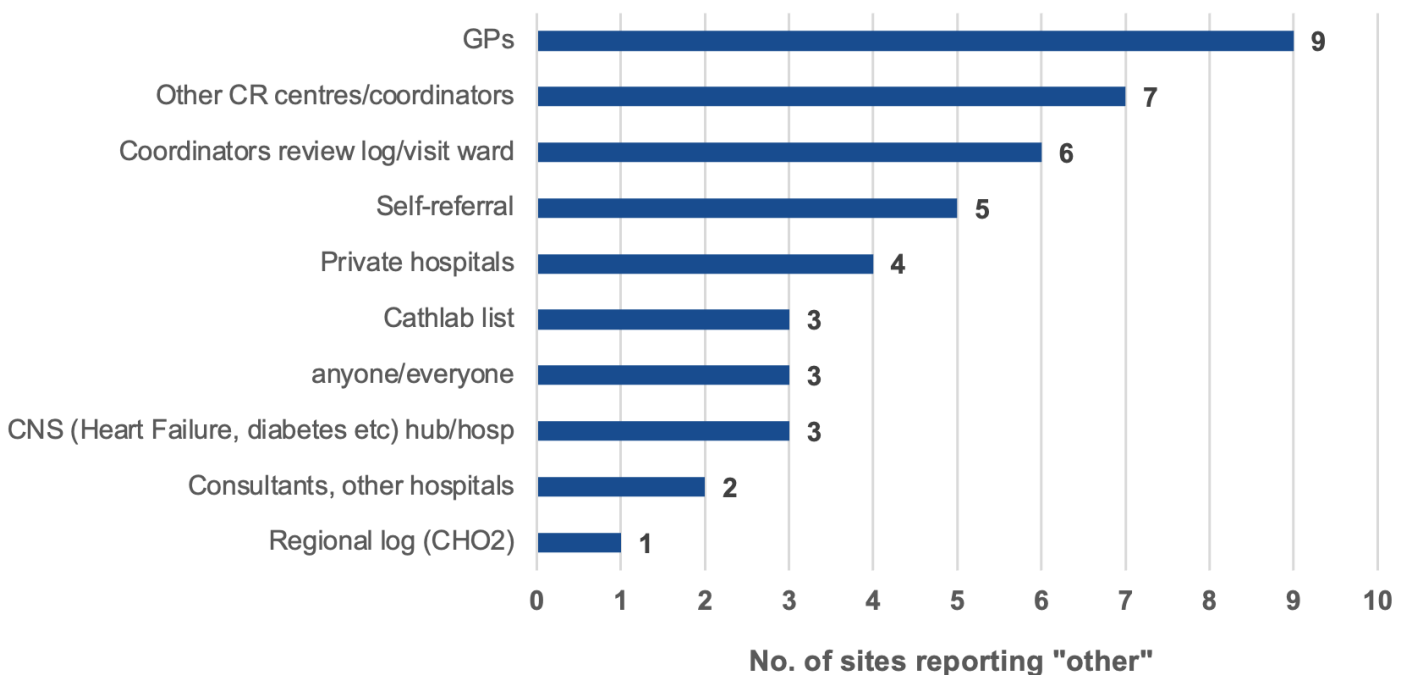


Figure 15: Classification of "other" referrers reported

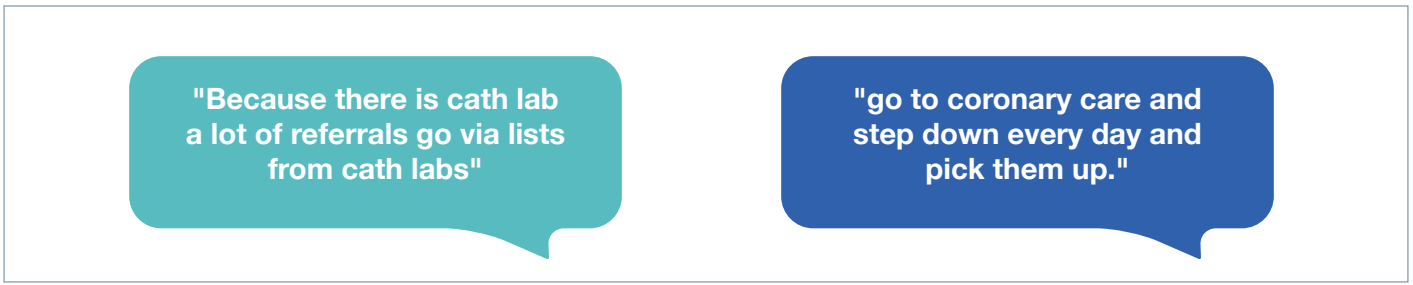


Figure 16: Comments from sites on the referral process in operation

### Use of standard templates for referral to phase II and III

Nineteen sites (16 hospitals and 3 hubs) reported using a standard referral form while two hospital sites used a CVD Discharge Bundle.

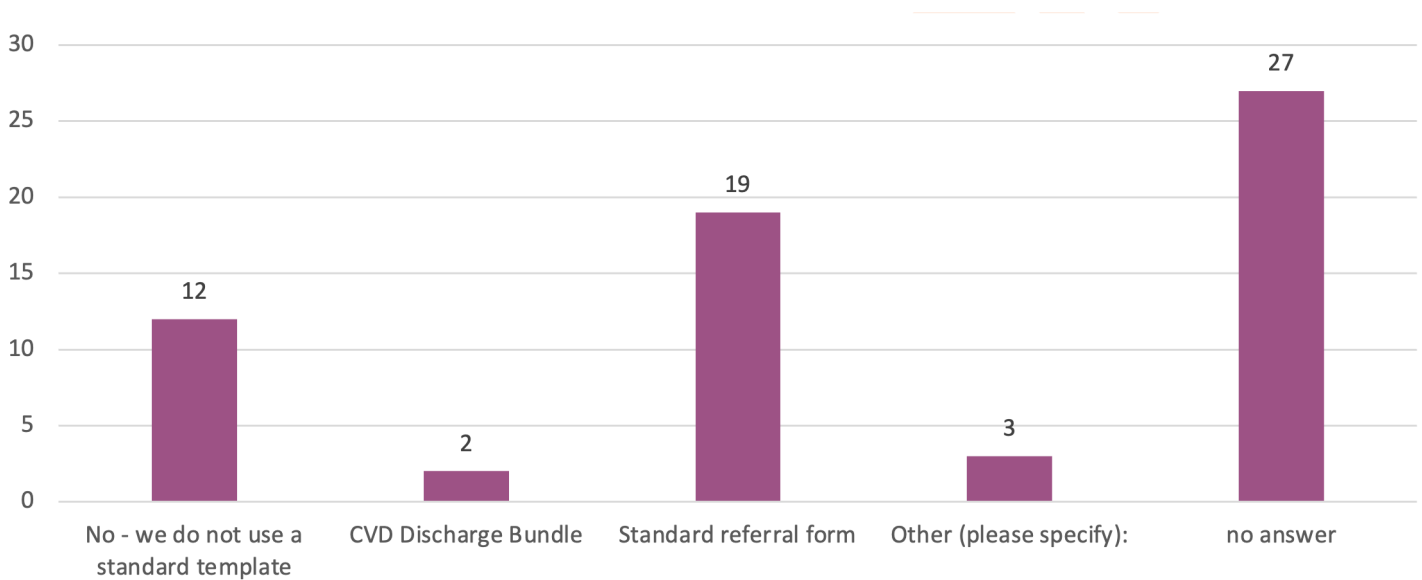


Figure 17: Use of standard templates for referral to phase II and III

Many of the respondents had comments on the referral process. Nine referenced having an IT system to send and receive referrals or gather more information on patients referred. For example, Cardiovascular Information System (CVIS) software was reported as a significant benefit to service provision, holding all documentation for patients across the four cardiac rehabilitation phases and can see inputs from units across the region.

Referrals lacking information was also raised as an issue (n=5), likely resulting in additional administration for cardiac rehabilitation staff and potentially resulting in delays to patients receiving care. It also appears to be a common practice to send a copy of the discharge summary rather than a standard referral form.

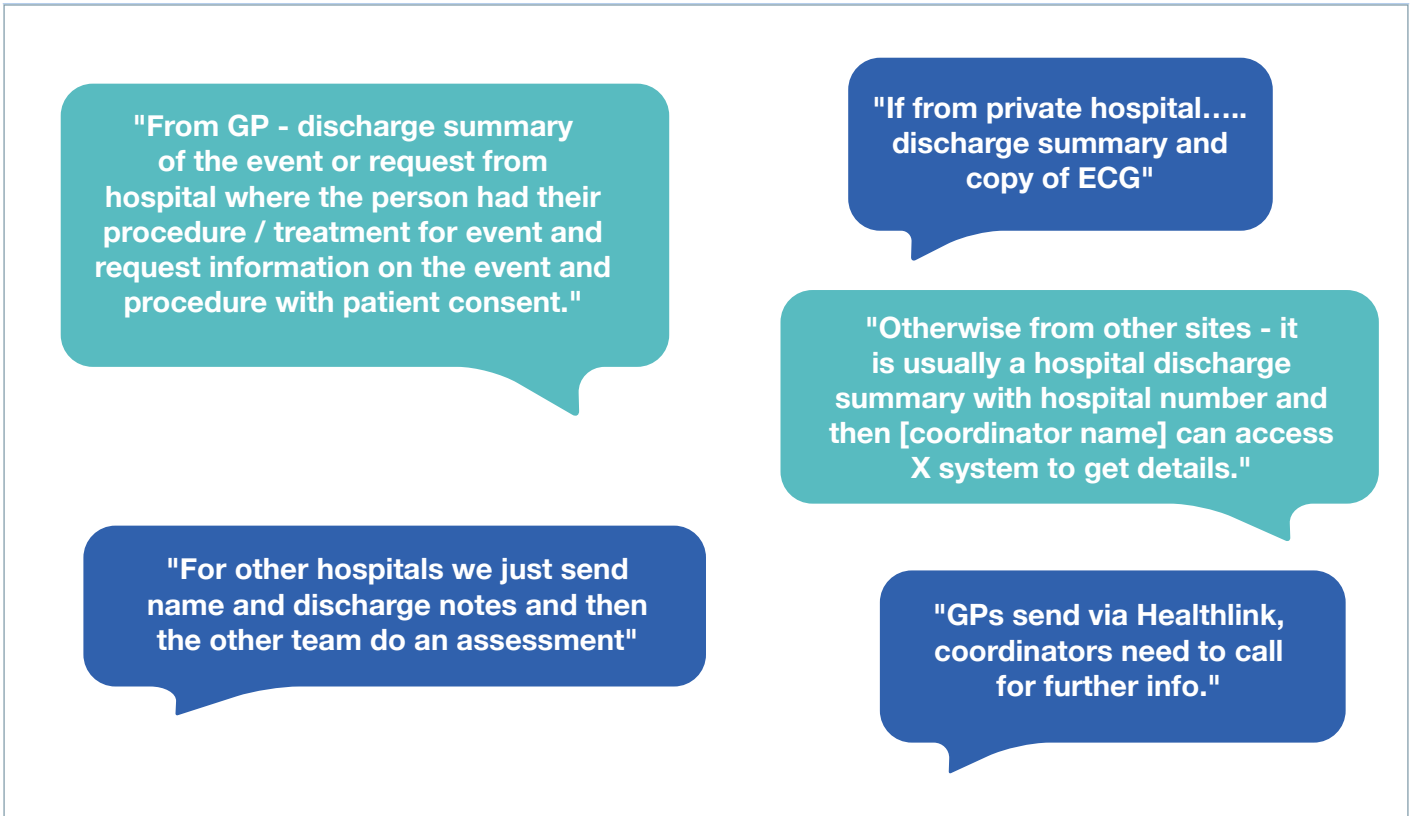


Figure 18. Comments from sites on the referral templates used

### Referral method

Sites reported multiple methods of referral to cardiac rehabilitation. The most frequent methods were via letter and email. Four sites utilised Healthlink and two sites, Healthmail, for referrals. Other referral methods included local IT systems, regional referral logs and cardiac rehabilitation staff completing ward rounds/visits to identify eligible patients.

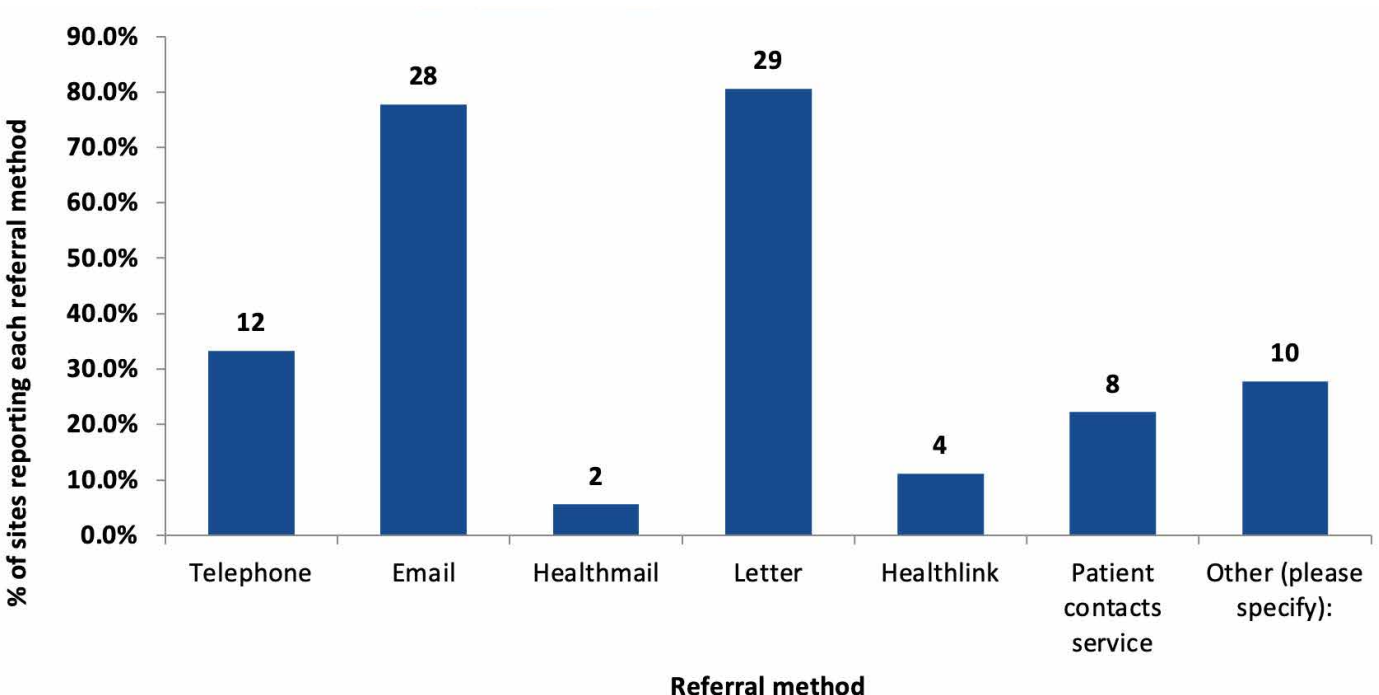


Figure 19: Method of referral for phases II and III cardiac rehabilitation, June 2024



## Sites patients are referred to for Phases II and III cardiac rehabilitation

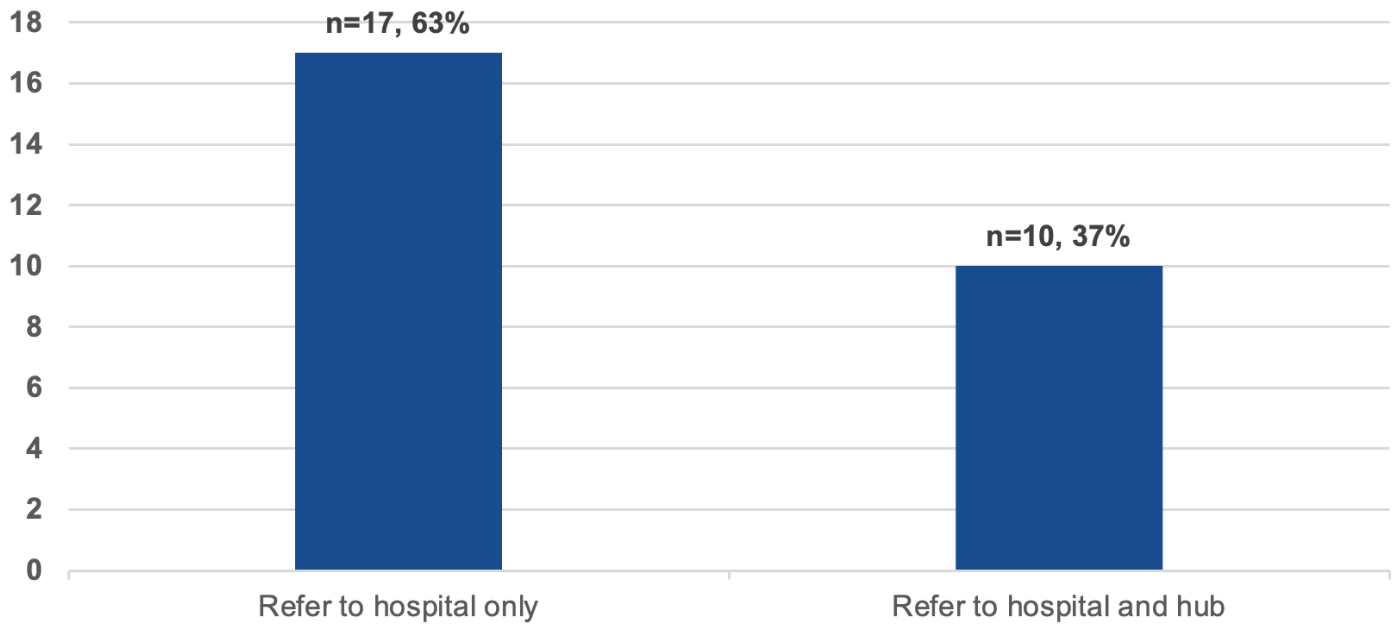


Figure 20: Referral sites for phases II and III cardiac rehabilitation

In total, 27 hospitals deliver phase I. Of these, 17 refer to hospital services only and 10 to hospital and hub services for phases II and III.

Comments highlighted that the most common reason patients were referred to a particular service was based on location (n=10), followed by patient risk, with seven sites reporting that they send lower-risk patients to the hub site.

One hospital reported signposting patients to a private cardiac rehabilitation service and another to an exercise rehabilitation programme provided by a local university.

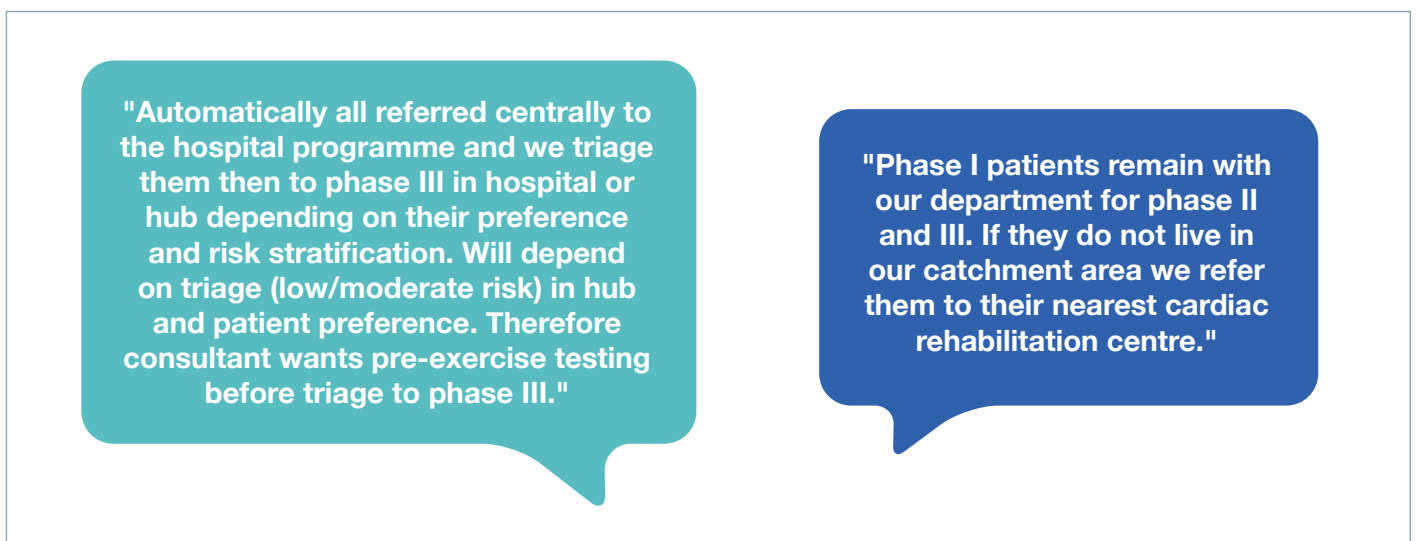


Figure 21: Comments from sites on referral methods used

## Phase II

### Delivery of phase II, as defined by the Model of Care

A total of 41 sites confirmed that they provide phase II as per the Model of Care, of which 31 were hospital sites and 10 hub sites.

There is significant variation across the country with regard to the composition of phase II e.g. in one hospital site they identify phase II as the initial assessment and phase III is the actual exercise and education and programme. Phase II is sometimes combined in with phase III, with one hospital stating that phase II is undertaken as part of the initial assessment for phase III, and three other sites stating that phases II and III are combined.

In the context of gaps in cardiac rehabilitation teams, collaboration between hospitals and hubs as they endeavour to deliver phase II was evident in a number of areas.



Figure 22: Comments from sites on collaboration between hospital and hub sites

### Team members usually delivering phase II

Cardiac Rehabilitation Co-ordinators were involved in delivery of phase II in 28 sites (64%), physiotherapists in 20 sites (45%), the CNS Cardiac Rehabilitation in 16 sites (36%), and staff nurses in 15 sites (34%) (Figure 23). Other team members that contributed to delivery of phase II included a dietitian, social worker, pharmacist and occupational therapist.

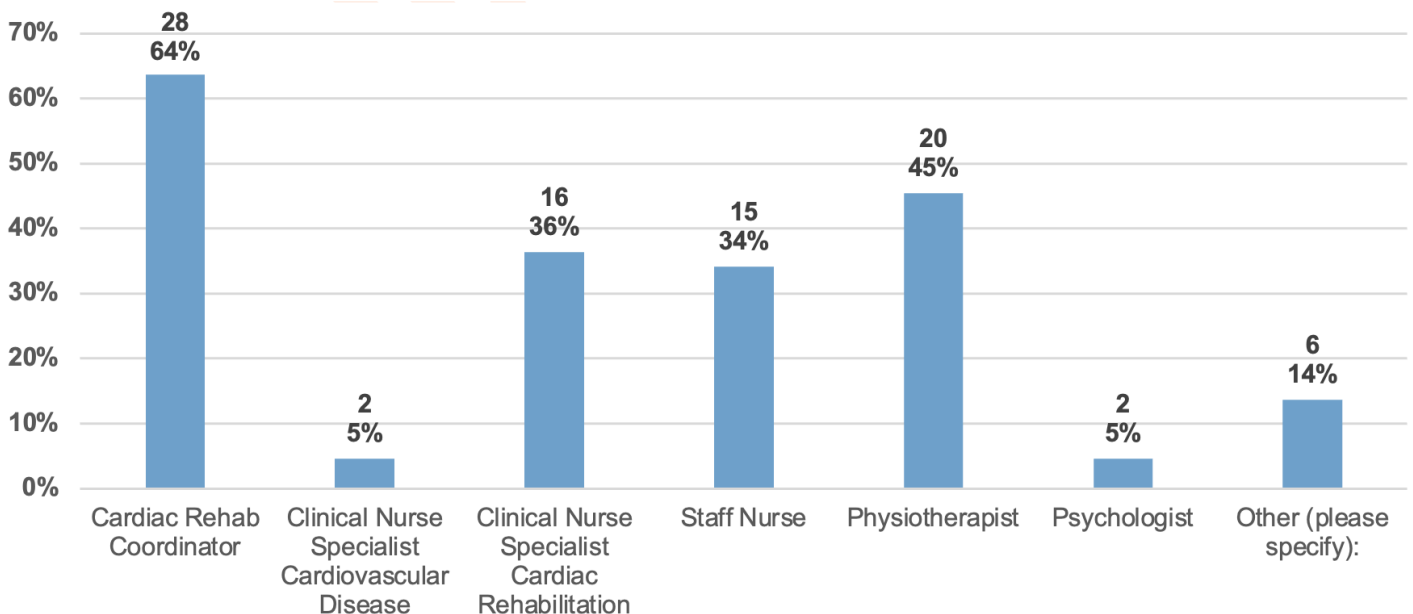


Figure 23: Team members usually delivering phase II. Responses (n=44) indicate all team members in a service who contribute to delivery of phase II.

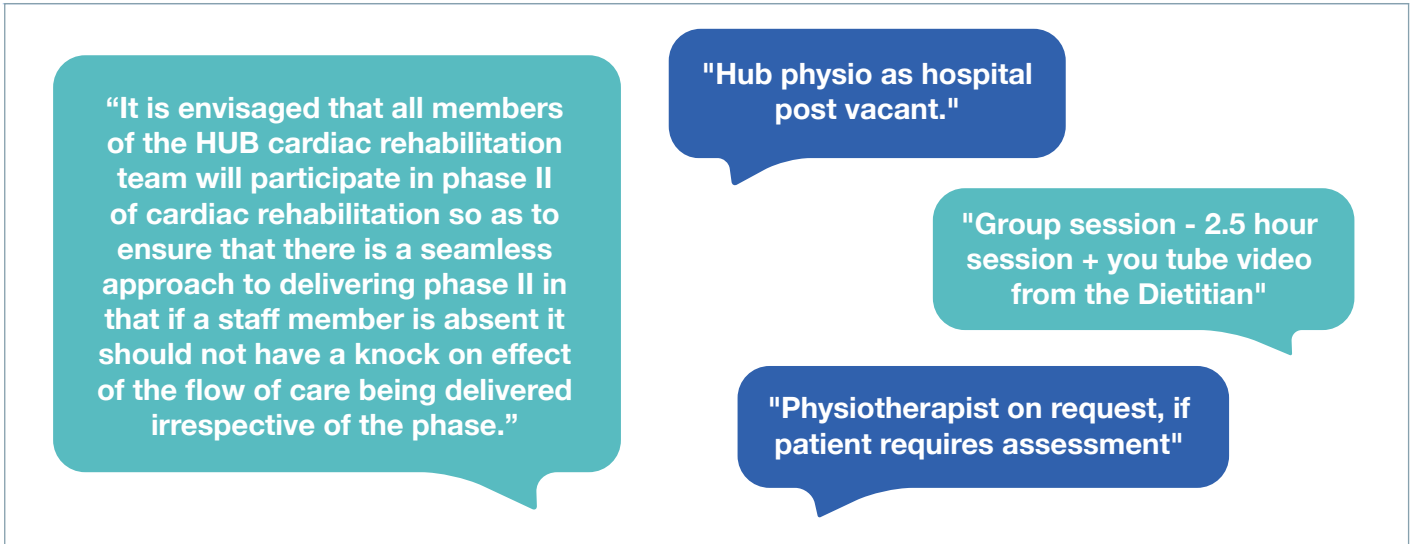


Figure 24: Comments highlighting the variances in definition of phase II

### Phase II delivery method

Forty four sites provided detail on their method of delivery of phase II, the majority of sites deliver phase II via telephone call (80%) or out-patients department (OPD) Appointment (66%), and 41% of sites convene an in-person group session for phase II. One site delivers phase II via a home visit.

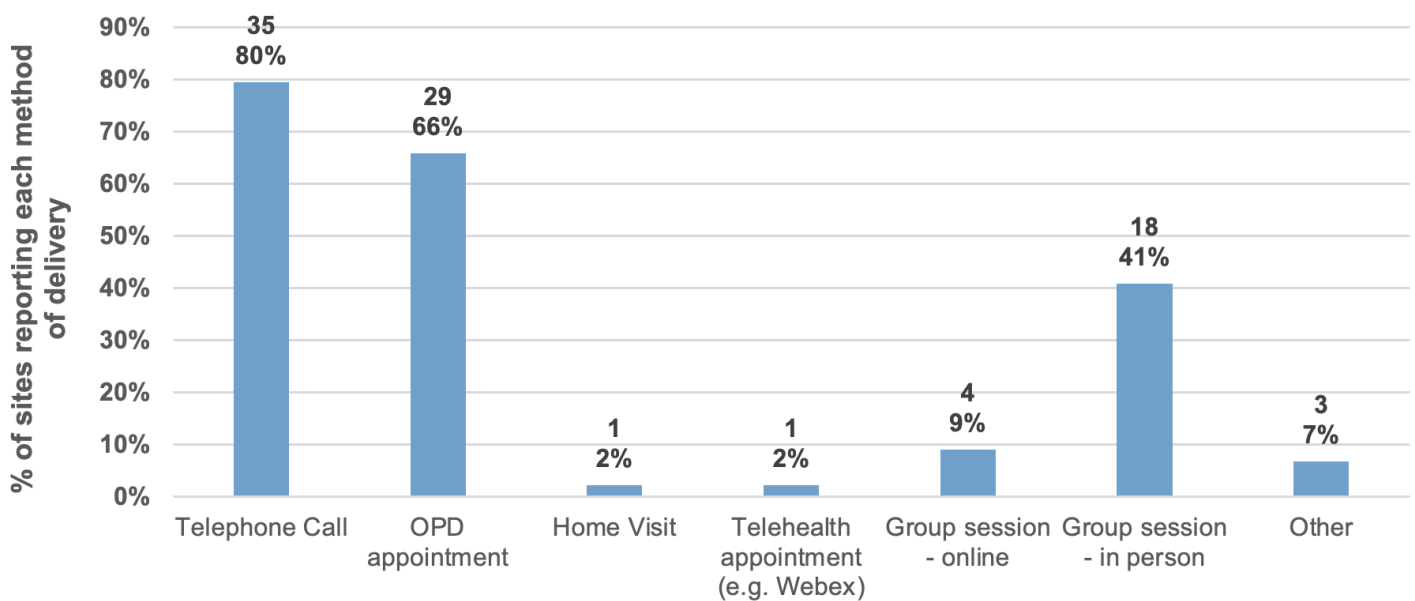


Figure 25: Methods of delivery for phase II, n=44.

Under the "Other" category, three sites (two hospitals and one hub), confirmed that they provide an individualised appointment for phase II. Some sites used more than one mode of delivery for phase II.

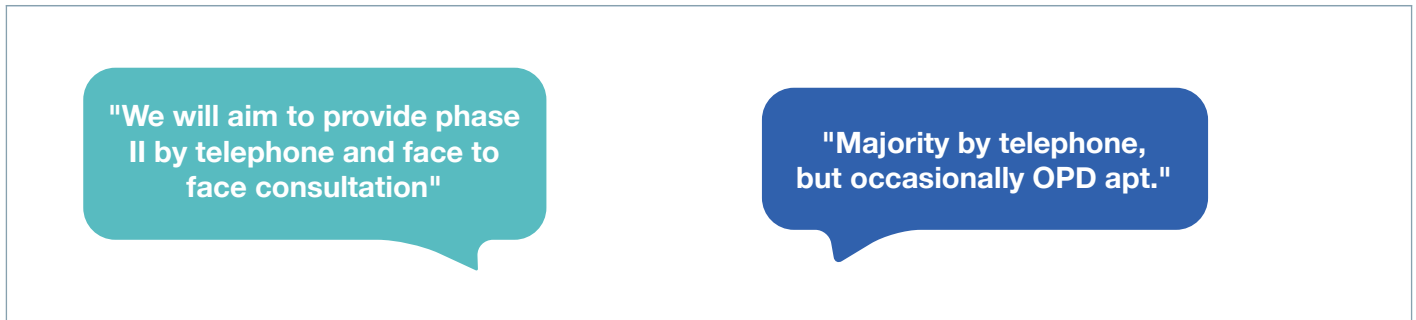


Figure 26: Comments from sites that selected 'other' category, confirming offering individual appointment for phase II cardiac rehabilitation

Qualitative responses reveal the variation in composition and mode of delivery of phase II. Whilst hospitals and hubs equally tended to deliver phase II via telephone call and an in-person group session, hospitals were more likely to schedule an OPD appointment (23 hospitals versus six hubs).

### Phase II content

Responses highlighted that phase II was an opportunity to explain to patients what cardiac rehabilitation is, particularly what phase III is and that it is an opportunity to engage with and encourage patients to attend. Many responses indicated that phase II was an important opportunity for patients to ask questions.

For the vast majority of sites, phase II was about education and discussion, but the intersection of phase II and phase III was evident in some responses (n=5), which highlighted that the initial assessment and functional capacity testing were undertaken at the same time as the phase II appointment. Comments included: "*Sometimes the initial assessment and stress test are undertaken on the same day as phase II*" and "*Going to send the SOP - all on there. But really it's the initial assessment.*" In general, there was wide variation in terms of what phase II consists of.

Standard templates for delivery of phase II included locally-developed templates, PowerPoint presentations and the use of relevant booklets. Some did not have a formal template but rather used the cardiac rehabilitation referral form to guide the conversation with the patient.

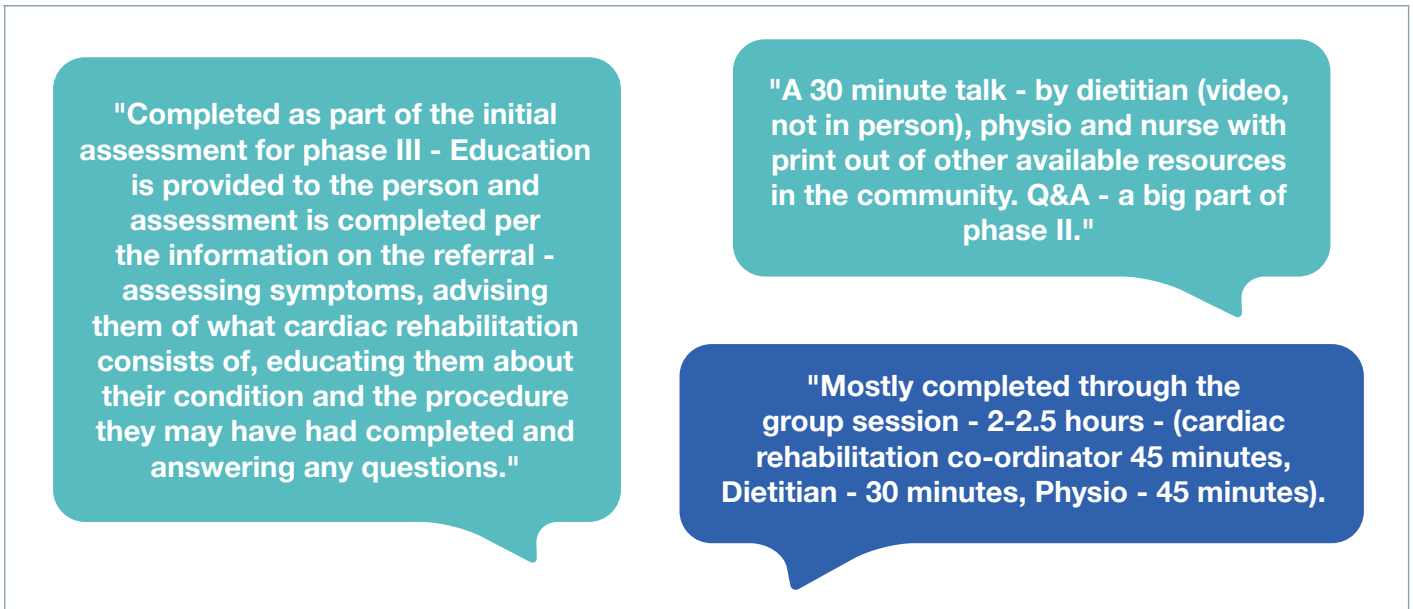


Figure 27: Comments from sites on what phase II cardiac rehabilitation consists of

### Usual follow-up if a person does not respond when offered phase II cardiac rehabilitation

Sites gave details regarding usual follow-up if a person doesn't respond when offered phase II. In general, there was consistency across sites, with all making more than one attempt to contact the patient. All sites indicated that they followed up with patients who did not respond, whether it be through a phone call or letter. For most sites, a minimum of two attempts were made to contact the patient, and if the patient did not respond, the service then sent a letter to the patient's GP and Consultant informing them. The opportunity to facilitate patients to re-engage with cardiac rehabilitation was also evident in responses.

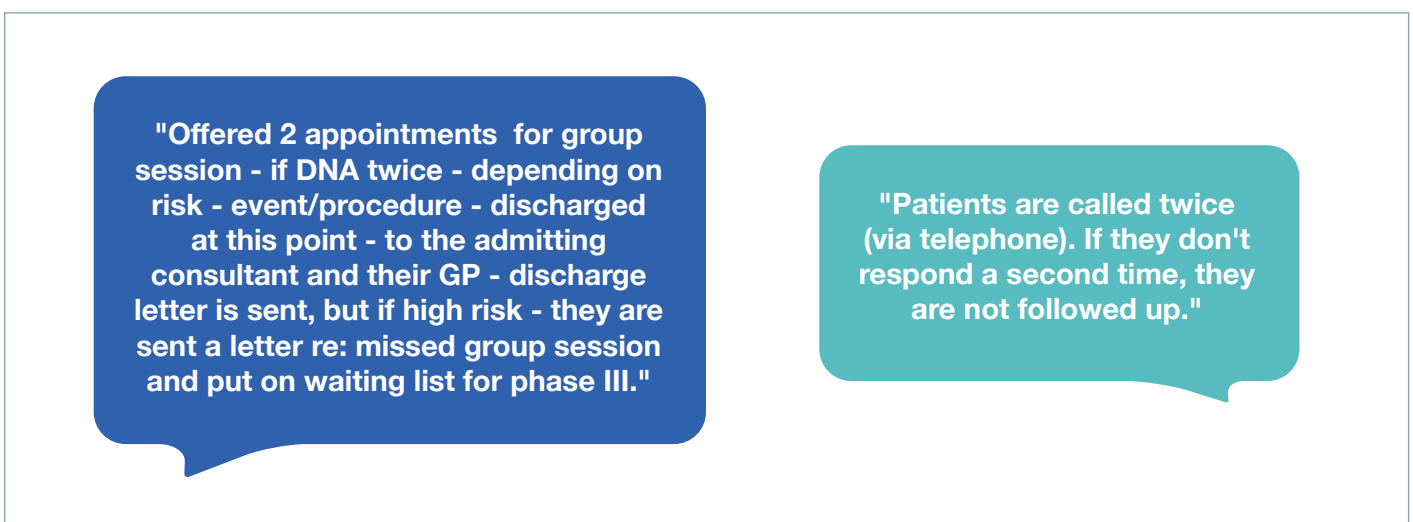


Figure 28: Comments from sites on the usual follow-up if a person does not respond when offered phase II cardiac rehabilitation

## Phase III

In May and June 2024, 46 sites were actively delivering phase III cardiac rehabilitation. Other sites which were not actively delivering phase III but which were in planning and preparation to deliver responded to the questions in this section, in terms of how they planned to deliver their phase III service.

### **Staff responsible for co-ordinating the delivery of phase III cardiac rehabilitation**

A total of 47 sites provided information on the staff responsible for co-ordinating phase III cardiac rehabilitation. Co-ordination is undertaken by the cardiac rehabilitation co-ordinator in 28 sites (60%), CNS cardiac rehabilitation in 15 sites (32%), physiotherapist in two sites (4%) and by the CNS cardiovascular disease in one site (2%). In one area, the role is shared between the physiotherapist and CNS (2%). Several sites commented that co-ordination is a team effort and sometimes challenging due to a lack of administrative support.

### **Discipline of the Cardiac Rehabilitation Co-ordinator**

Of the 51 responses received, the Cardiac Rehabilitation Co-ordinator was a Clinical Nurse Manager (CNM) II in 34 (67%) of responses, a Clinical Nurse Specialist (CNS) in 13 (25%) of responses and a physiotherapist in one site. Three responses indicated that the role was currently vacant.

### **Team members involved in the delivery of phase III cardiac rehabilitation**

Fifty sites provided detail on the team members involved in the delivery of phase III cardiac rehabilitation. A broad range of disciplines contributed to phase III delivery. While the team delivering cardiac rehabilitation was potentially broad in some sites, many of the contributions by individual disciplines were irregular, infrequent and often based on goodwill, for example, dietetic input ranged from a 30 minute pre-recorded video, to a one hour group session once every six weeks or another delivering two hours once every 10 weeks.

A wide range of additional contributors were listed under 'Other', including the Advanced Nurse Practitioner (ANP) heart failure, smoking cessation officer, physiotherapy assistants, peer support and community social prescribers. Some sites reported that it has become increasingly difficult to source non-core staff (e.g. dietitian, social worker, pharmacist, occupational therapist) to contribute, due to their other service demands.

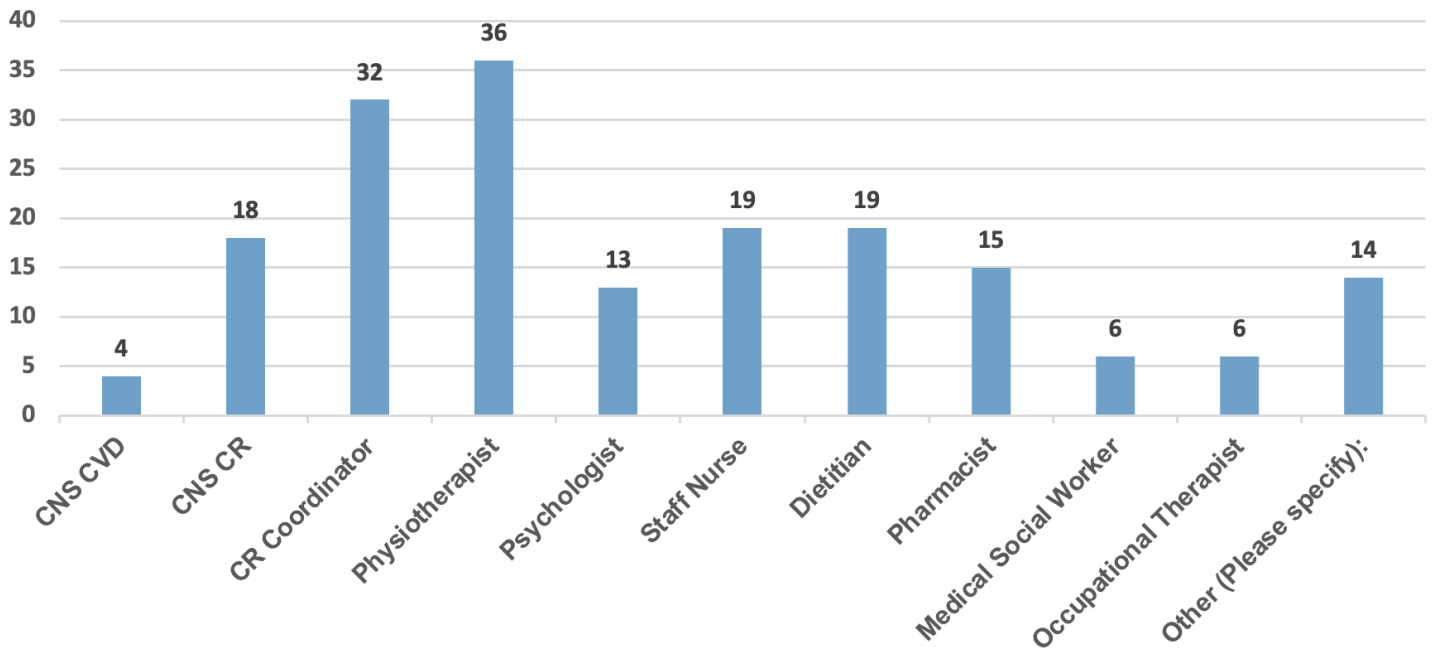


Figure 29: Staff involved in delivery of phase III across all sites, June 2024

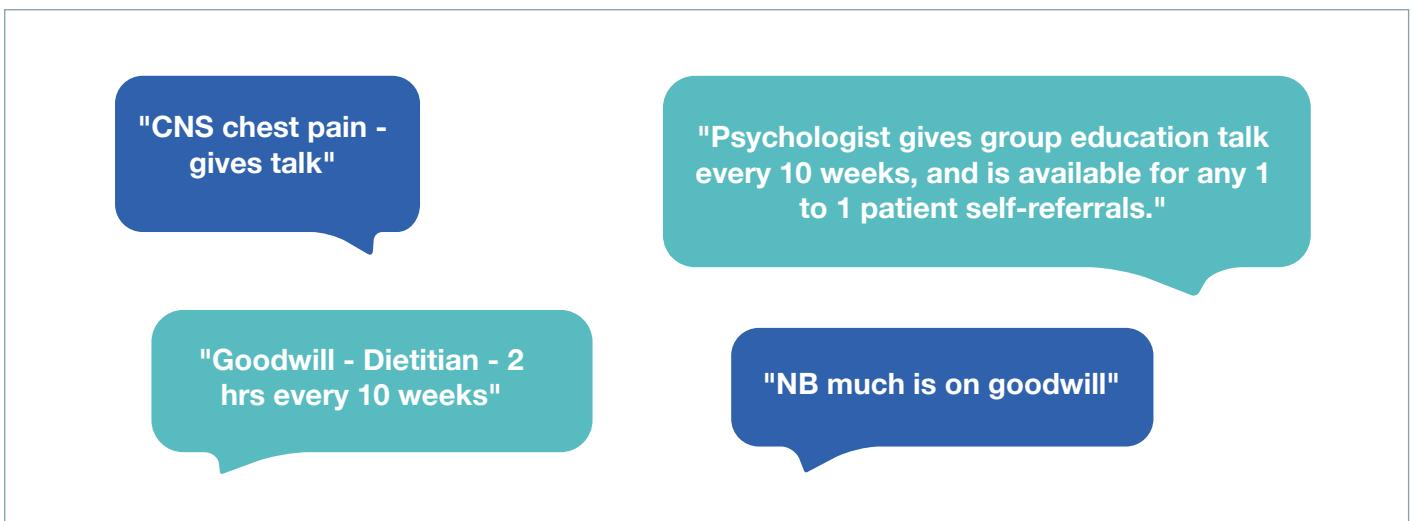


Figure 30: Comments on the staff involved in the delivery of phase III cardiac rehabilitation

### Location for phase III cardiac rehabilitation programme delivery

Forty-nine sites shared information on the location of delivery of phase III cardiac rehabilitation. Of the 32 hospital sites that responded all were delivering cardiac rehabilitation in the hospital itself, three reported that they also use a private venue and one uses a primary care facility. Amongst the 17 hub sites that responded, 10 deliver phase III in hub facilities, five were using private venues, five were using other HSE venues, and one hub was delivering Phase III in the hospital site linked to their hub. Of note, no site was delivering phase III online at the time of the survey.

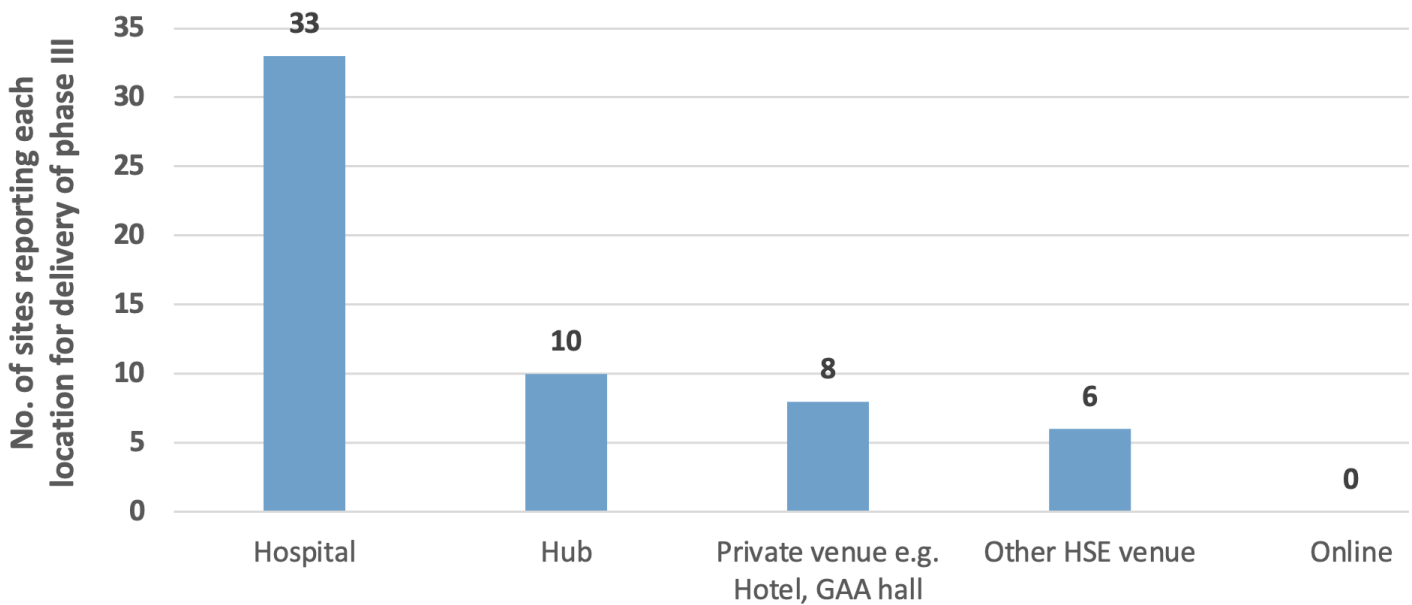


Figure 31: Location(s) used for delivery of phase III cardiac rehabilitation programme, June 2024



Figure 32: Comments on locations where phase III cardiac rehabilitation is delivered

### Initial Assessment

All 46 sites delivering phase III reported that they utilise a standard initial assessment template. There were 35 responses from sites with regard to the components of the initial assessment. Most (94-100%) reported that demographic information, medical history, prescribed medication, medication adherence, medical risk factor review and lifestyle risk factor review were core components of their initial assessment (Figure 34).

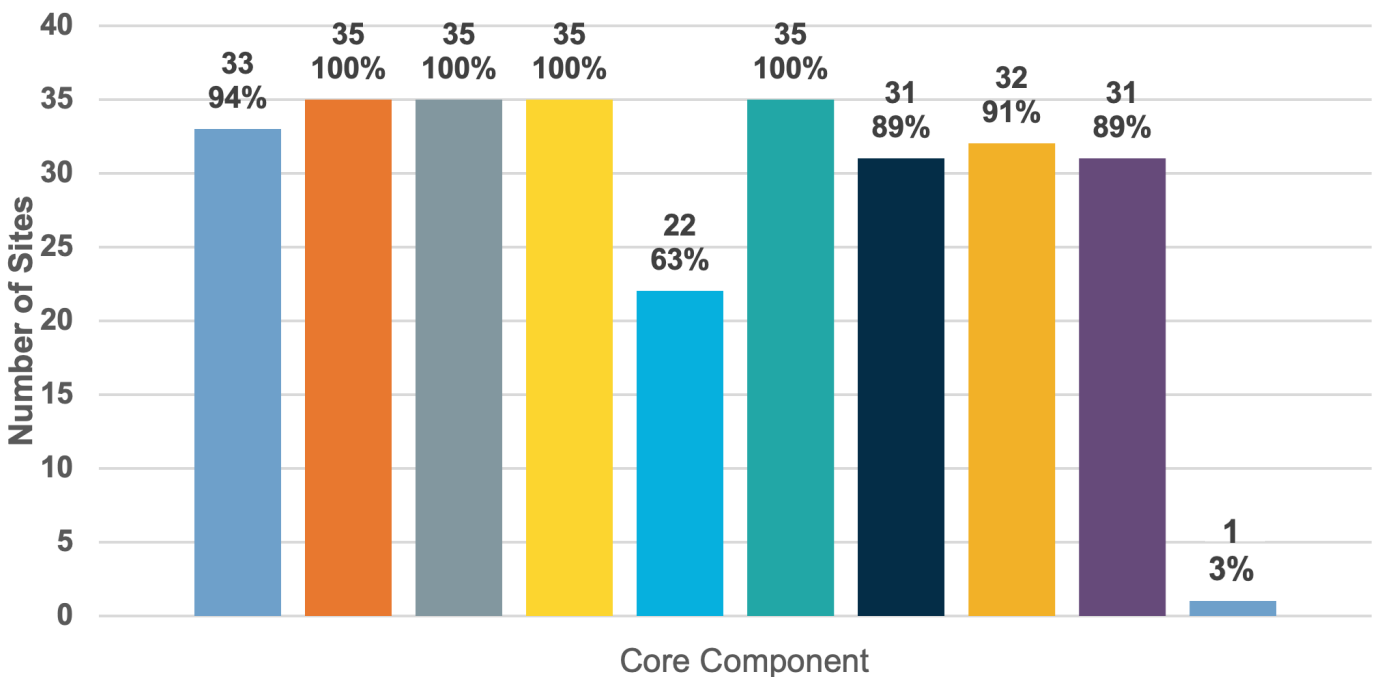
A comprehensive assessment of dietary risk factors was recorded as being a core component of the initial assessment for the lowest number of sites (n=22, 63%). Comments from these sites qualified that they give dietary advice or take physical measurements, but that they did not have access to the dietetic support required for a comprehensive assessment.

There was some variability amongst sites with regards to review of psychosocial status (32 sites, 91%), functional capacity testing (31 sites, 89%) and personal planning/goal setting (n=31, 89%) as core components of the initial assessment.





Figure 33: Comments from sites regarding assessment of dietary risk factors as part of the initial assessment of phase III cardiac rehabilitation



- Demographic information and social determinants of health
- A full medical history, current health status and symptoms, review of relevant investigations
- Prescribed medication along with review of medication adherence
- Medical risk factor review with discussion of body composition including BMI and waist circumference, blood results, current blood pressure and heart rate, and the identification of any arrhythmias
- Comprehensive assessment of dietary risk factors
- Review of lifestyle risk factors e.g. smoking, physical activity and alcohol
- Functional capacity testing, risk stratification and exercise prescription
- Holistic review of psychosocial status including assessing for the presence of anxiety and/or depression, illness perception, social support, psychological stress, sexual wellbeing and quality of life
- Personal plan / goal setting
- Other (Please specify)

Figure 34: Components of the initial assessment being assessed by sites (n=35) June 2024

## Optimisation of medical risk factor cardioprotective medications

Of 49 sites which provided responses, 30 (61%) reported the Consultant was responsible for medication optimisation; 14 (29%) reported that it was the Consultant-led multi-disciplinary team and four sites (8%, 3 hospitals and 1 hub) selected 'other' which included nurse prescribers. One site listed the GP as responsible, but made a comment that the GP and consultant were both responsible. Seven of the aforementioned sites (5 hospitals and 2 hubs) commented that they had the support of a nurse prescriber to adjust medications, but did not list them as those solely responsible for medication optimisation.

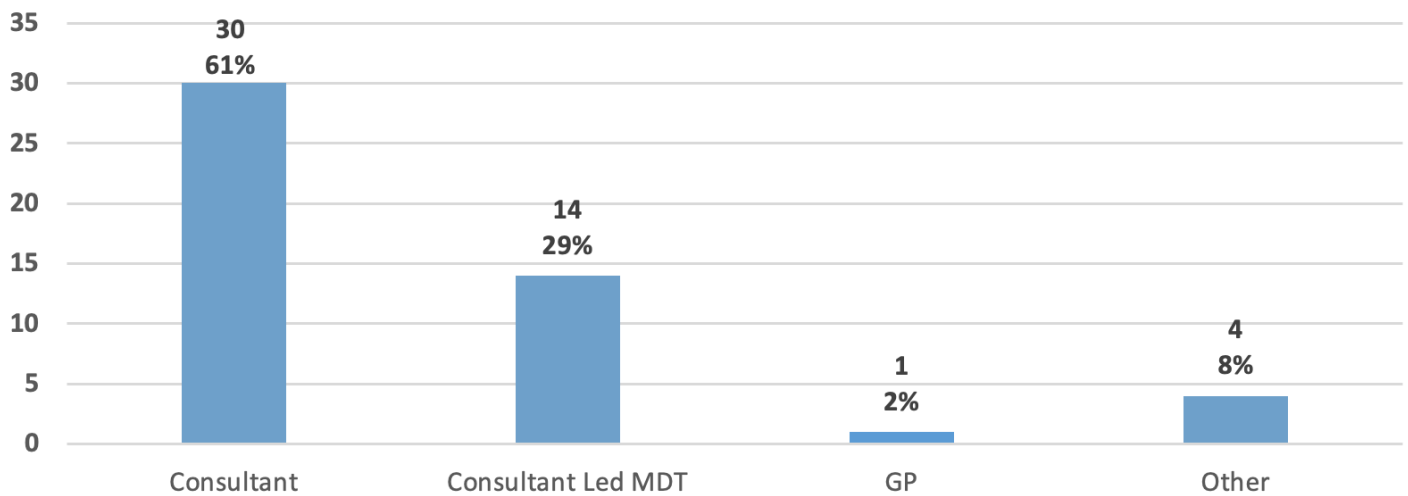


Figure 35: Staff responsible for the optimisation of medical risk factor cardio protective medications amongst those attending phase III, June 2024

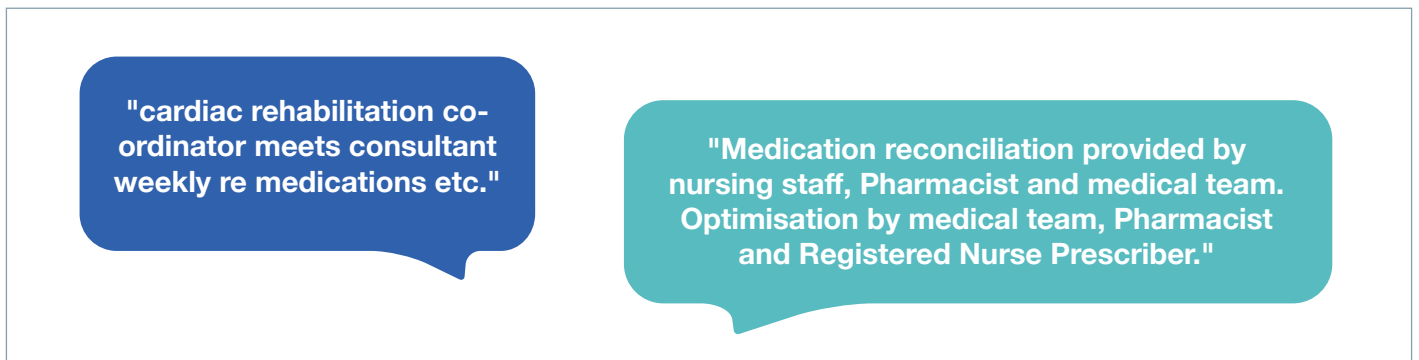


Figure 36: Comments on the staff responsible for optimisation of medical risk factor cardioprotective medications amongst those attending phase III cardiac rehabilitation

## Standard curriculum for delivery of Phase III cardiac rehabilitation

A total of 45 sites provided information on whether they had a standard curriculum for Phase III. Thirty-eight sites confirmed they have a standard curriculum, of which 25 were hospitals and 13 were hubs. Four of these hospital sites reported using Irish Association of Cardiac Rehabilitation (IACR) guidelines. Seven sites (five hospital and two hubs) reported not having a standard curriculum.

### Phase III education components

Sites were provided with a list of the recommended topics for education in phase III cardiac rehabilitation as laid out in the *Model of Care for Integrated Cardiac Rehabilitation* and were asked to confirm if their curriculum included these components.

Forty-four responses were received and highlighted the variation in education topics covered as part of phase III across sites (Figure 37). Almost all sites reported that they provide education on understanding the condition, management of risk factors, physical activity, medication management and smoking cessation. Topics which were not covered by as many sites included weight management, return to work and occupational factors, sexual health, making and sustaining behavioural changes, and psychosocial self-management.

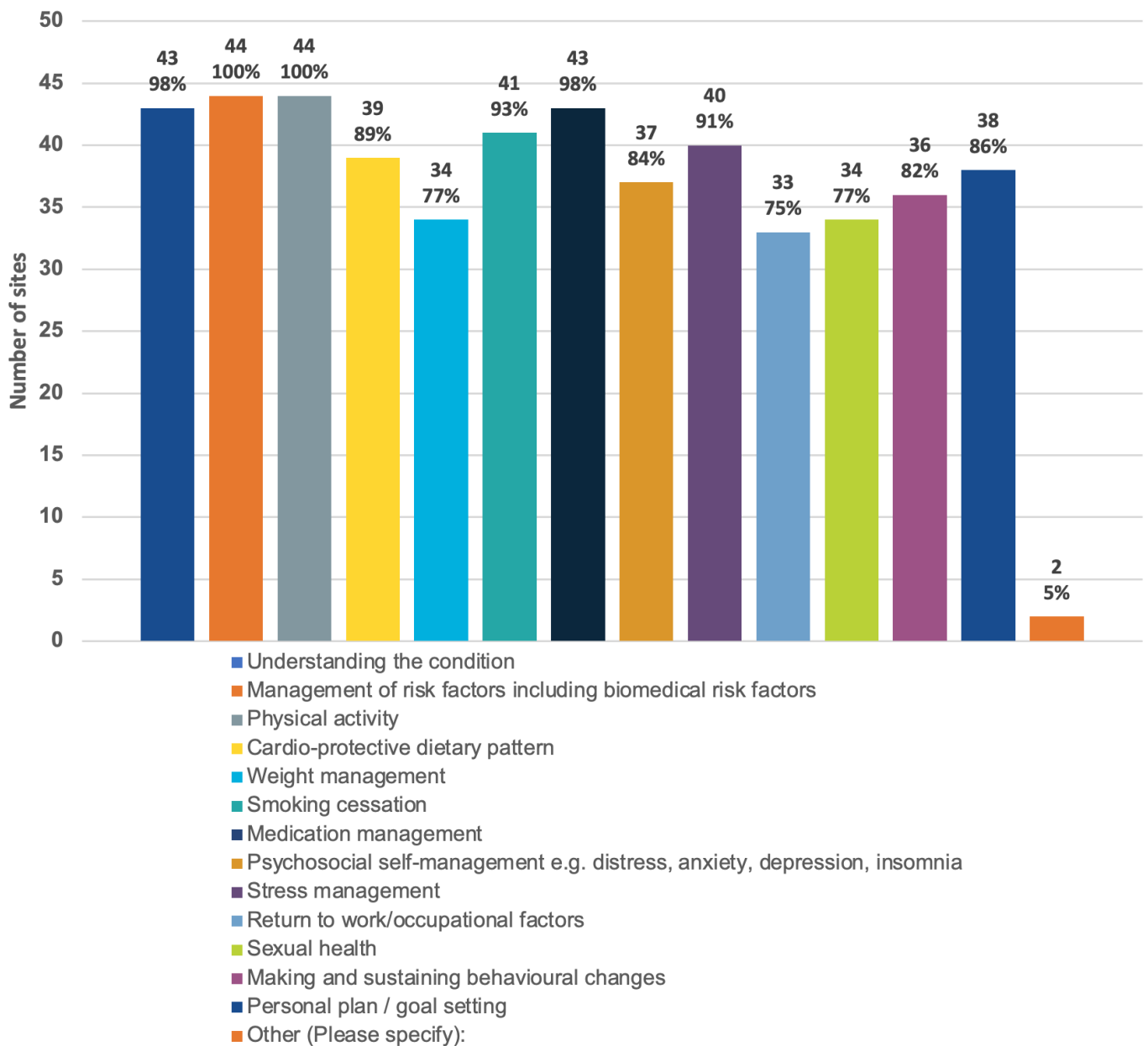


Figure 37: Educational components of Phase III Cardiac Rehabilitation and number of sites delivering each topic (n=44), June 2024



Figure 38: Comments from sites on the education components of the phase III cardiac rehabilitation programme

### Details of how the phase III programme is delivered

Sites were asked to describe the structure of the phase III programme facilitated by their site. The information provided highlighted there is significant variability nationally in terms of frequency and duration of sessions of the phase III programme. Sites reported number of sessions ranging from eight to 32; session duration from one hour to 2.5 hours; frequency of once per week to three times per week, and programme duration from six weeks to 12 weeks.

### Duration of cardiac rehabilitation programme delivery (in weeks)

Forty-six sites provided information on the duration over which phase III is delivered (Figure 39). It varies nationally ranging from six to 12 weeks. Ten sites (22%) reported delivering over six weeks; four sites (9%) reported delivering over 6-8 weeks; 24 sites (52%) reported delivering over 8-10 weeks; six sites (13%) reported delivering over 10 weeks; and two hub sites (4%) reported delivering over 12 weeks.

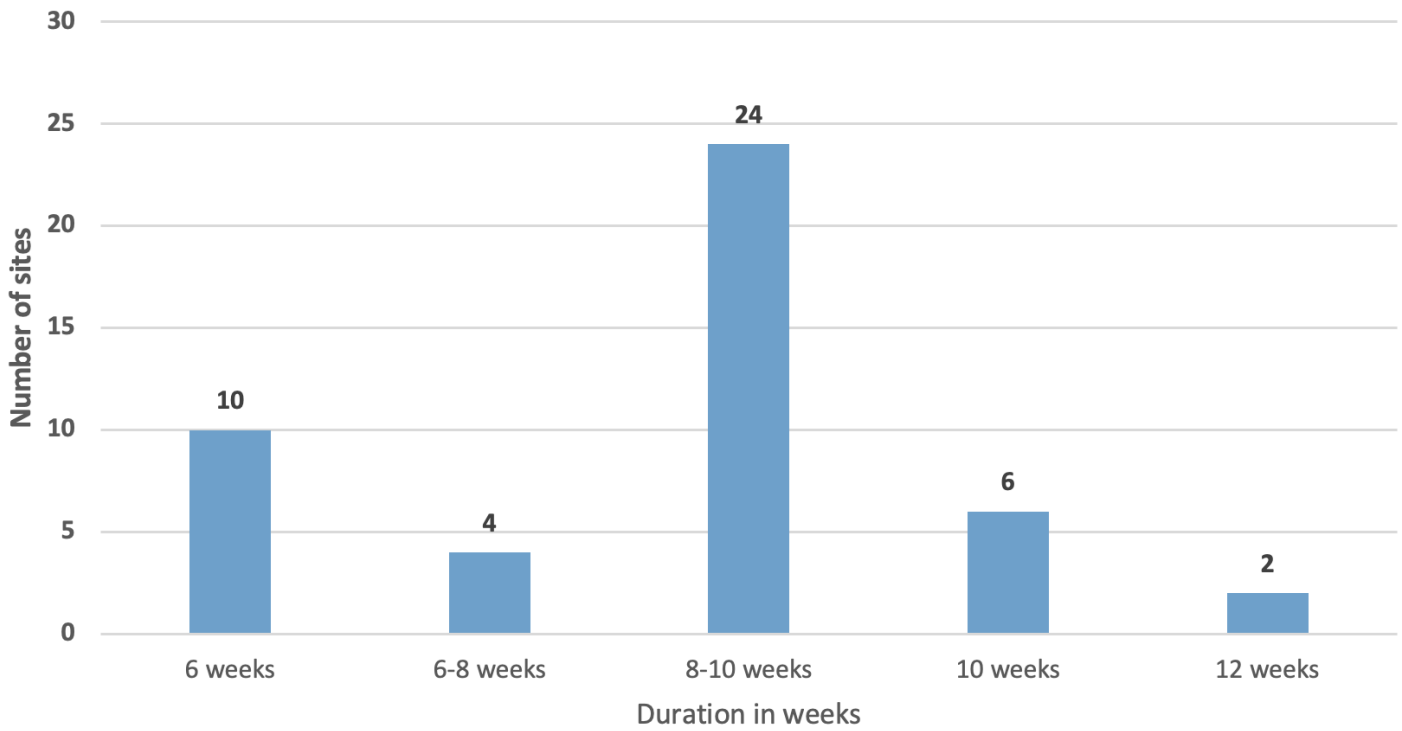


Figure 39: Duration of phase III cardiac rehabilitation sessions (in weeks) and the number of sites, n=46, June 2024

### Duration of individual sessions (in hours)

Duration in hours of each session varied from one to 2.5 hours (Figure 40). Fourteen (32%) sites delivered sessions of approximately one hour, eight (19%) sites delivered sessions of 1-1.5 hours duration and 19 (44%) sites delivered sessions of 1-2 hours duration, adding that an exercise session on its own was approximately one hour and this was extended to two hours if an education session followed. Two (5%) hub sites reported delivering sessions over 2.5 hours long.

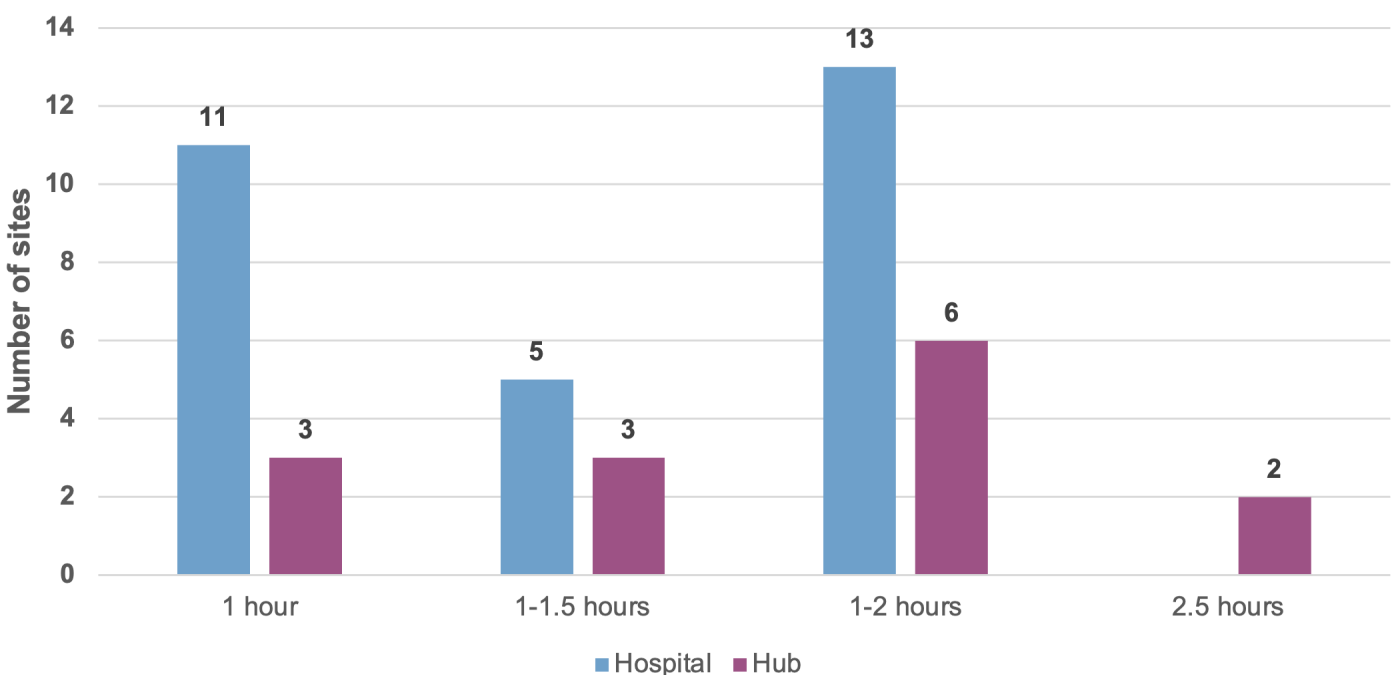


Figure 40: Duration in hours of phase III Cardiac Rehabilitation sessions by service, (n=43), June 2024

## Frequency of sessions

A total of 42 sites provided detail on the frequency of sessions per week for each programme facilitated, with five (12%) sites delivering once weekly sessions, 36 (86%) sites delivering twice weekly sessions and one (2%) site delivering sessions three times per week (Figure 41).

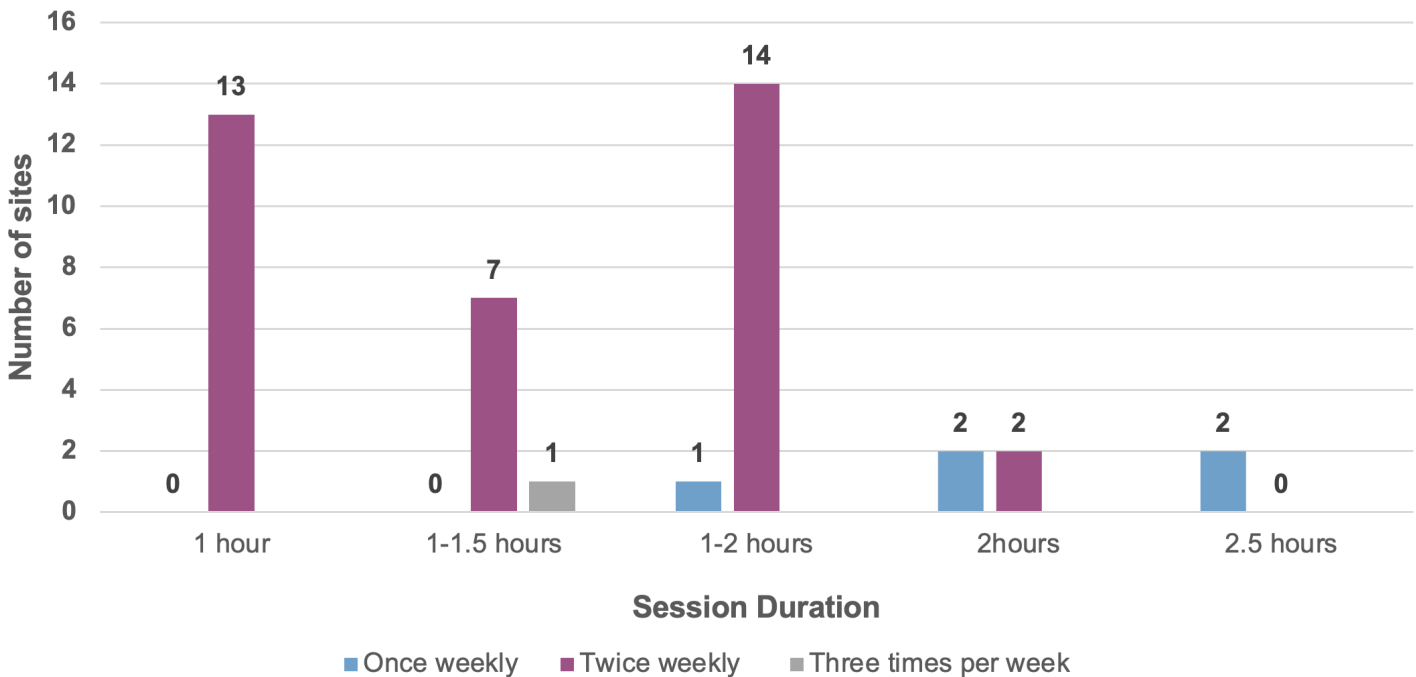


Figure 41: Frequency of phase III session delivery and duration (n=42), June 2024

## Standard End of Programme Assessment

A total of 40 sites, 27 (68%) hospitals and 13 (32%) hubs, confirmed that they utilise a standard End of Programme Assessment template. Several sites commented that the Initial Assessment and End of Programme Assessment were on the same form. Among the five sites that reported not using an End of Programme Assessment template, comments included *"No standard assessment at the end. The discharge letter has all the information. All the questionnaires are repeated at the end of programme assessment"* and *"they use the same one as initial assessment but might not use it all"*

Thirty one sites provided detail on the core components of the End of Programme assessment. Most sites reported that the core components included a review of current health status and symptoms, prescribed medication and medication adherence, medical risk factor review, lifestyle risk factor review and functional testing (Figure 42). A comprehensive assessment of dietary risk factors was the component which was addressed by the least number (58%) of sites.

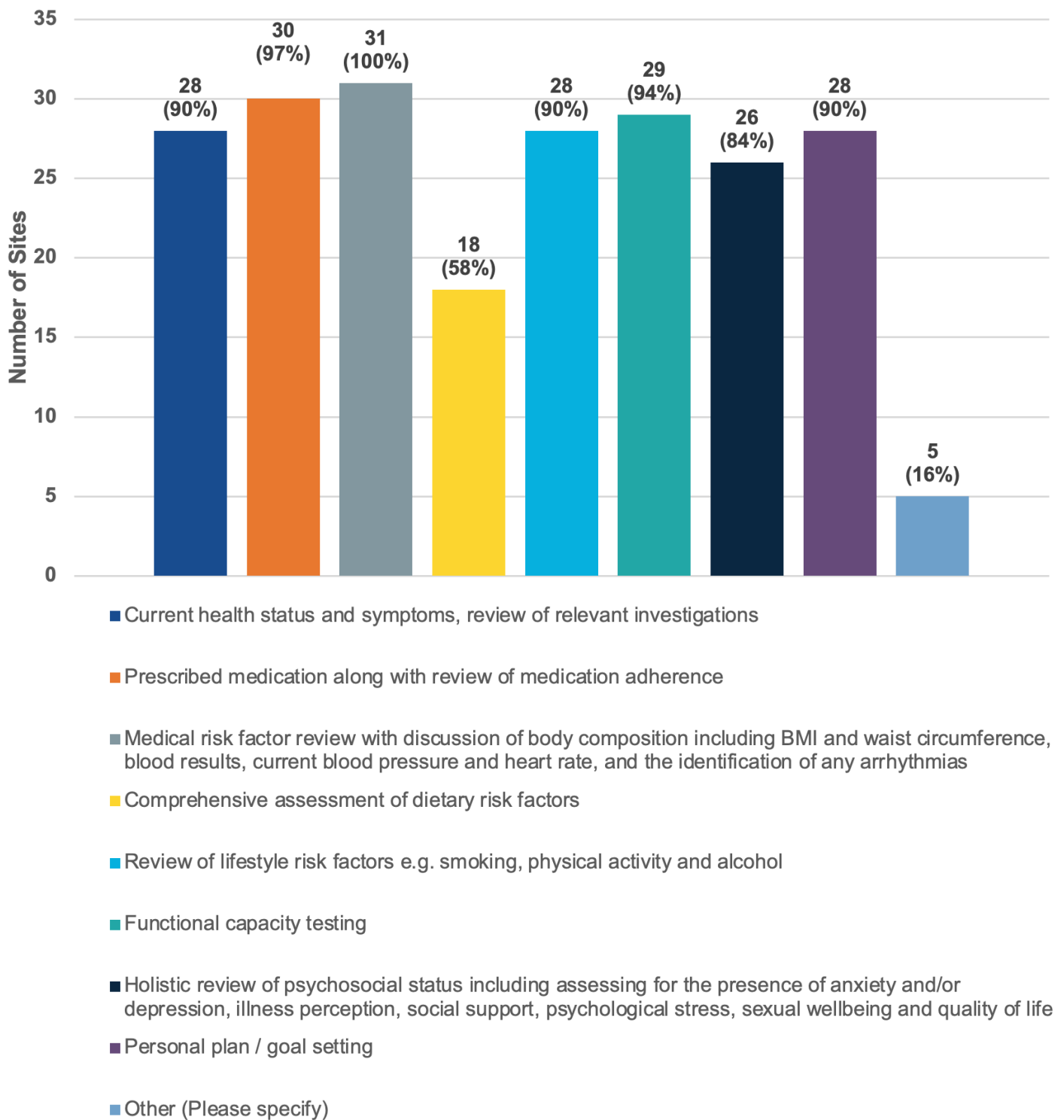


Figure 42: Sites delivering core components of the End of Programme Assessment (n=31), June 2024

## Discharge process

A total of 42 sites confirmed they had a standard discharge process in place: this normally involves a standard discharge letter or report sent to the GP and/or consultant.



Figure 43: Comments from sites on their standard discharge process

### Usual follow-up if a person does not respond when offered phase III cardiac rehabilitation

Forty-nine sites gave details regarding usual follow-up if a person doesn't respond when offered phase III, 32 hospital sites and 17 hub sites. Some sites offered multiple appointments or made one or multiple phone calls to try to engage the eligible person with phase III. If unsuccessful, the person was discharged from the service back to GP/Consultant with some sites also choosing to send the discharge communication (email/letter) to the person.

Seven sites reported that if a person is discharged, they can self-refer back into the service. Two of these sites reported that this option is available up to one year post discharge from the service.

Ten sites stated they use the same follow-up procedure if a person does not respond to phase II for a person who does not respond to phase III.

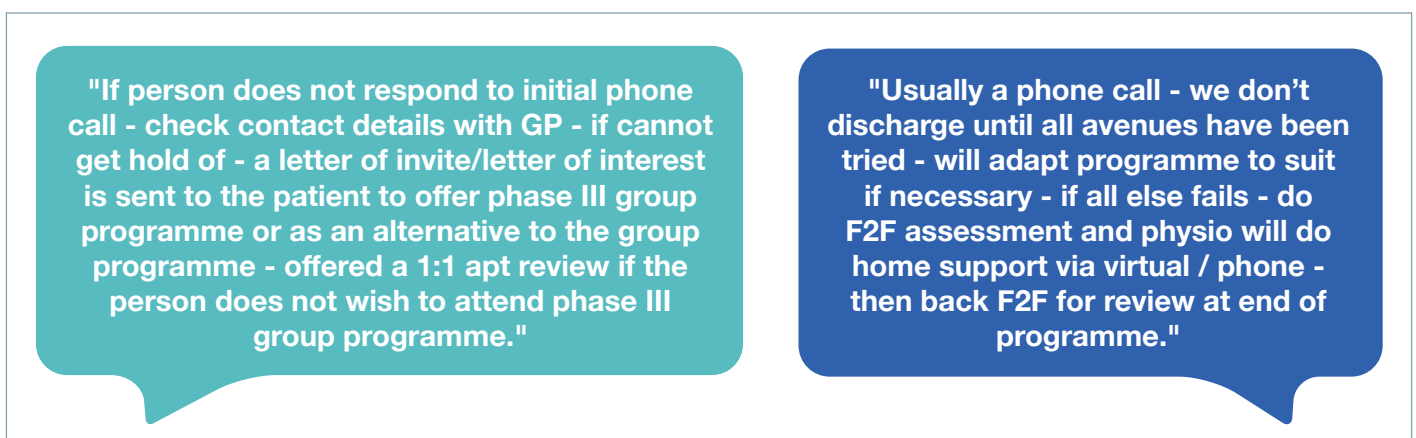


Figure 44: Comments from sites on the usual process when a person does not respond when offered phase III



## Waiting Times

### Waiting times for phase II following receipt of referral

Forty one sites provided detail on the waiting time for phase II. There is significant variation in waiting times for phase II cardiac rehabilitation ranging from less than one week in some sites to 24 weeks in others:

- 20 sites (49%) reported waiting times of up to four weeks
- 19 sites (46%) reported waiting times of 4–24 weeks

### Waiting times for phase III (initial assessment) following receipt of referral

The date of the initial assessment is considered the date of commencement of phase III cardiac rehabilitation. Similar to phase II, there was wide variation in waiting times for phase III:

- Minimum waiting times by site varied from 2-44 weeks, median 4 weeks
- Maximum waiting times by site varied from 4-96 weeks, median 16 weeks
- Overall median waiting time was 12 weeks

The Model of Care recommends that patients commence phase III within two weeks, and no later than four weeks, of discharge from hospital, as starting within this timeframe is associated with increased uptake: seven sites commenced phase III within four weeks of discharge. Some comments from respondents highlighted that patient request sometimes delayed the initial assessment e.g. holidays or non-cardiac medical reason.

### Waiting times for phase III (group programme) following the initial assessment

Thirty three sites responded to this question.

- Minimum waiting time by site ranged from <1-12 weeks, median 2 weeks
- Maximum waiting time by site ranged from 1-24 weeks, median 4 weeks
- Overall median waiting time was 3 weeks

Several comments from respondents indicated that referrals to phase III were often prioritised by risk and/or age.

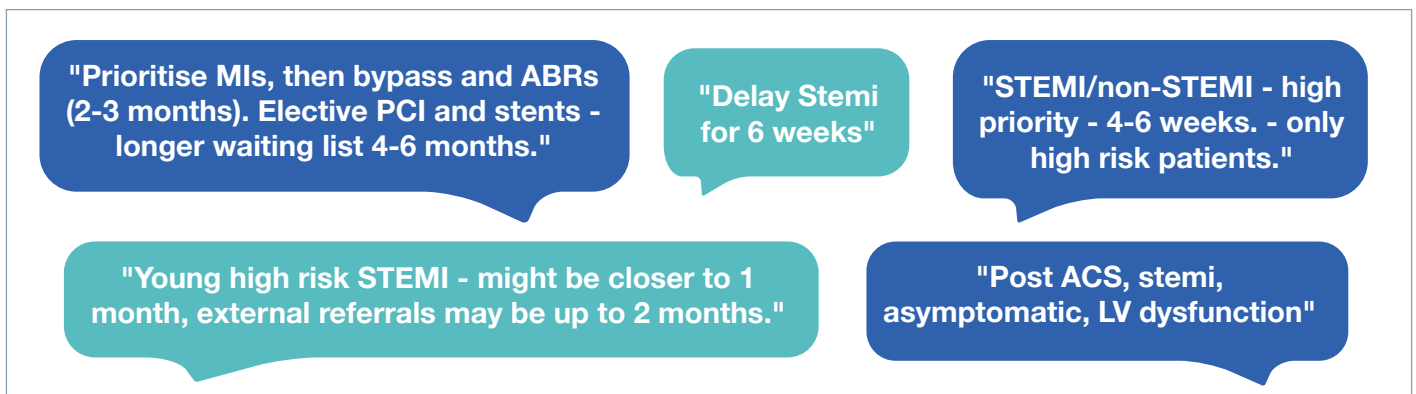


Figure 45: Comments from sites regarding prioritisation of referrals

## Standard Operating Procedures

Sites were asked if they had a standard operating procedure (SOP) for each phase of cardiac rehabilitation. A majority of sites highlighted that they had a combined SOP for all phases of cardiac rehabilitation rather than a stand-alone SOP for phase III.

### Standard operating procedure for phase I

Of the 27 hospitals that deliver phase I, 18 (67%) had an SOP in place. Many of the sites that did not have an SOP in place reported it was a priority to address this. One hub had an SOP for phase I as staff at this hub deliver phase I in the acute hospital by local arrangement.

Seven respondents commented that either their SOP required updating or was "in progress." Four sites gave high level answers to this question, for example, reporting using a "booklet", national or IACR guidelines.

### Standard operating procedure for phase II

A total of 43 sites responded, of which 31 (72%) confirmed they have a standard operating procedure (SOP) for phase II (20 hospital and 11 hubs). Some said their SOP was in draft format and currently being updated and a number stated that their SOP was underpinned by IACR guidelines.

### Standard operating procedure for phase III

A total of 49 sites responded, of which 41 (84%) reported having a SOP for the delivery of phase III in place, 28 of these were hospital and 13 were hubs.

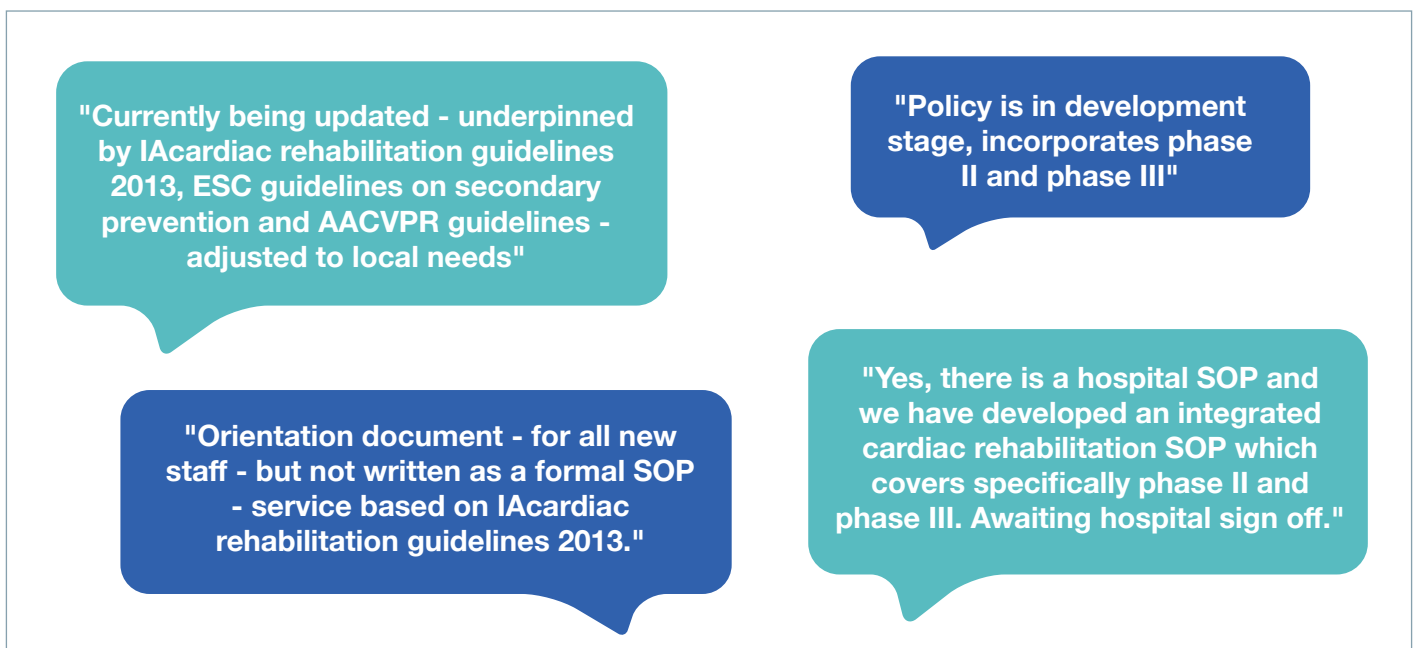


Figure 46: Comments from sites regarding the stats of their SOP development

## Audit and evaluation

### Audit

A total of 45 sites provided detail on audit for phase III cardiac rehabilitation, of which 42 of these were delivering phase III at the time of the needs assessment. Two thirds (n=28) of sites reported that they undertake audit. Half of these (n=14) audited both their activity and outcome measures, a further one third (n=11) audited their activity only and the remaining three sites audited outcome measures only (Figure 47). Seventeen of the 45 sites reported they were not undertaking audit at the time of the survey, citing reasons such as insufficient staff numbers, time constraints and a focus on establishing the cardiac rehabilitation service. Some sites were collecting data but not actively auditing and others commented that they submitted activity metrics on a monthly or annual basis to management or their finance departments.

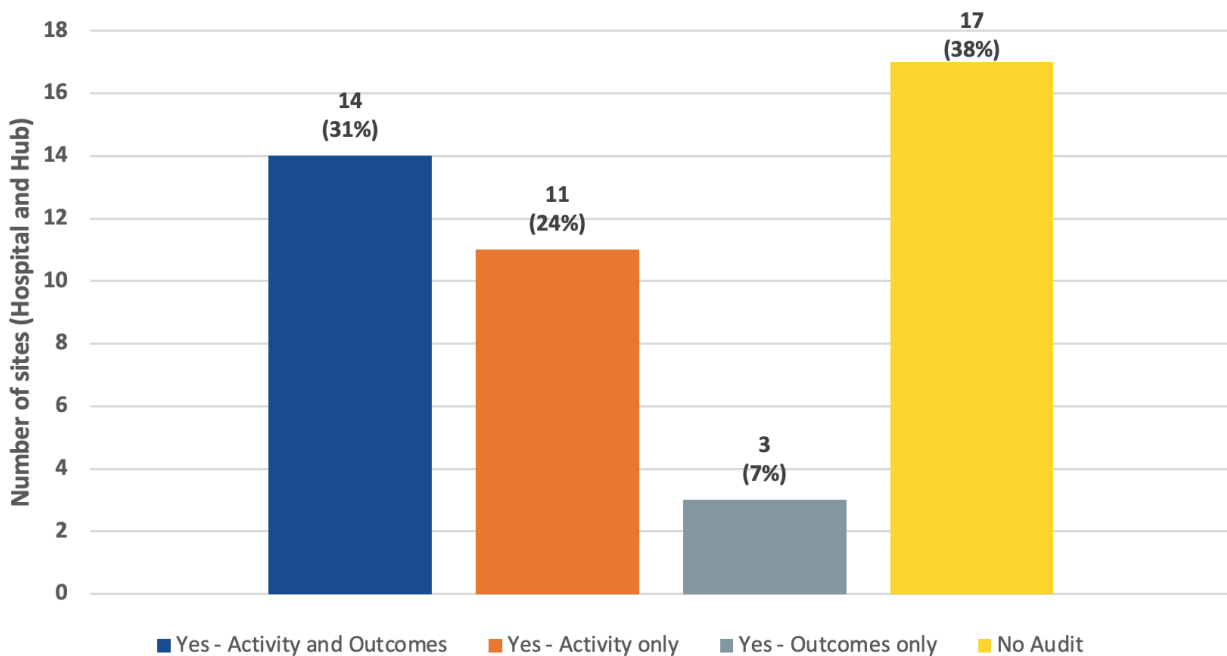


Figure 47: Audit activity reporting for sites delivering phase III Cardiac Rehabilitation, June 2024

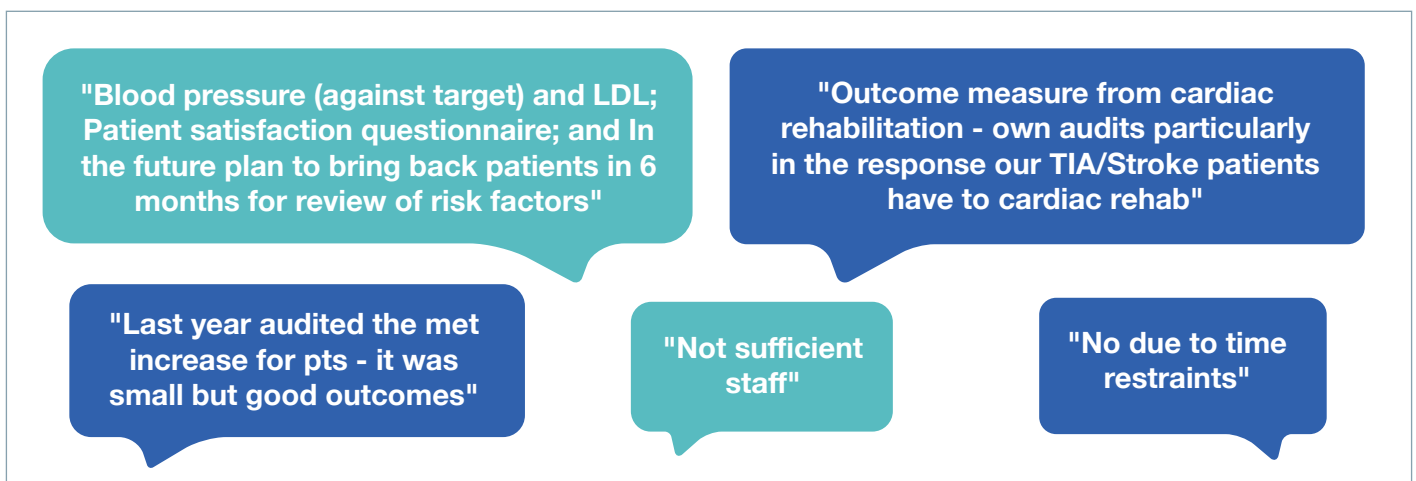


Figure 48: Comments on audit of the cardiac rehabilitation programme made by sites

## Returning other data

Sites were asked to provide details regarding collecting and returning other data on delivery of phase III, aside from internal audit of their service.

Of 26 sites that responded, four confirmed that they return other data. Four hospitals returned data to IACR, but two qualified that this return is on hold at present, and three hospitals returned phase III participant outcome data to a referring hospital.

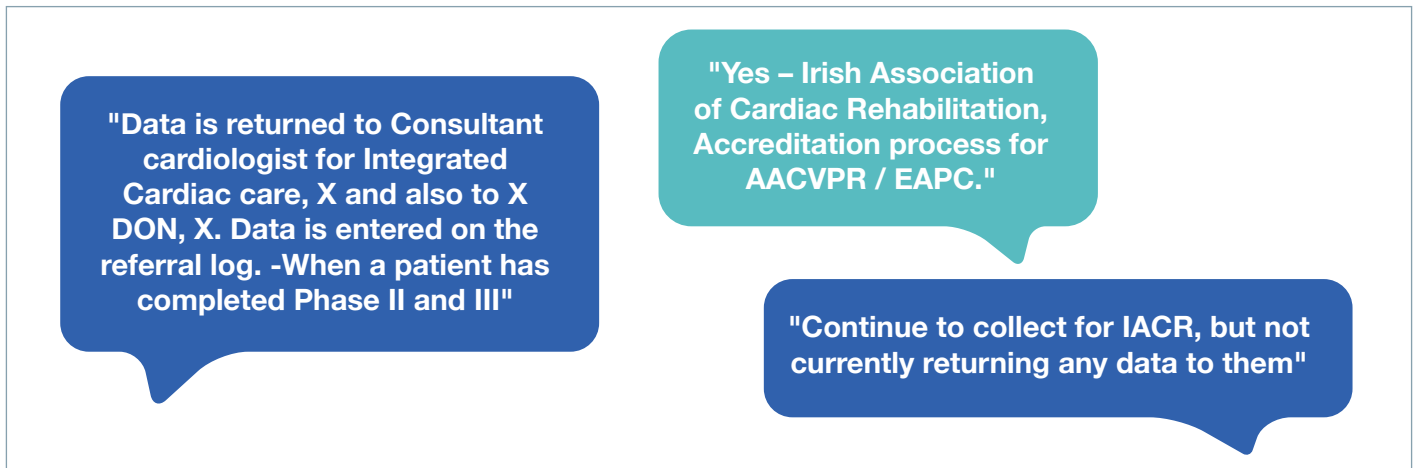


Figure 49: Comments from three of the four sites returning data other than internal audit

## Service user evaluation

Of 49 sites that responded, 38 (78%) reported that they routinely undertake service user evaluation. The majority of comments highlighted that patient satisfaction surveys were completed on paper at the final sessions (n=14). Some services (n=7) direct patients to contact "your service your say". One site reported using email/website and another a QR code to collect responses. Seven of the 11 who don't routinely complete evaluation reported they either did so in the past or plan to do it.

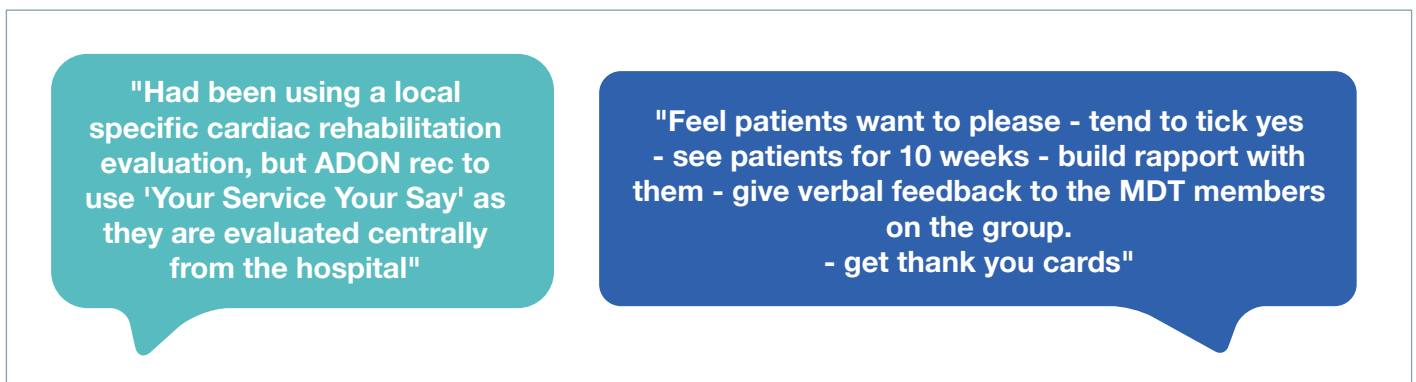


Figure 50: Comments regarding service user evaluation

## Resources

Sites were asked to describe the resources they recommend for delivery of phases I, II and III, including, for example, leaflets, online resources and support groups.

A total of 51 sites (33 hospitals and 18 hubs provided details (Figure 51). When interpreting the results it is important to consider that the question was open-ended and responders were encouraged to provide as much detail as they felt necessary. The depth and brevity of answers varied greatly.

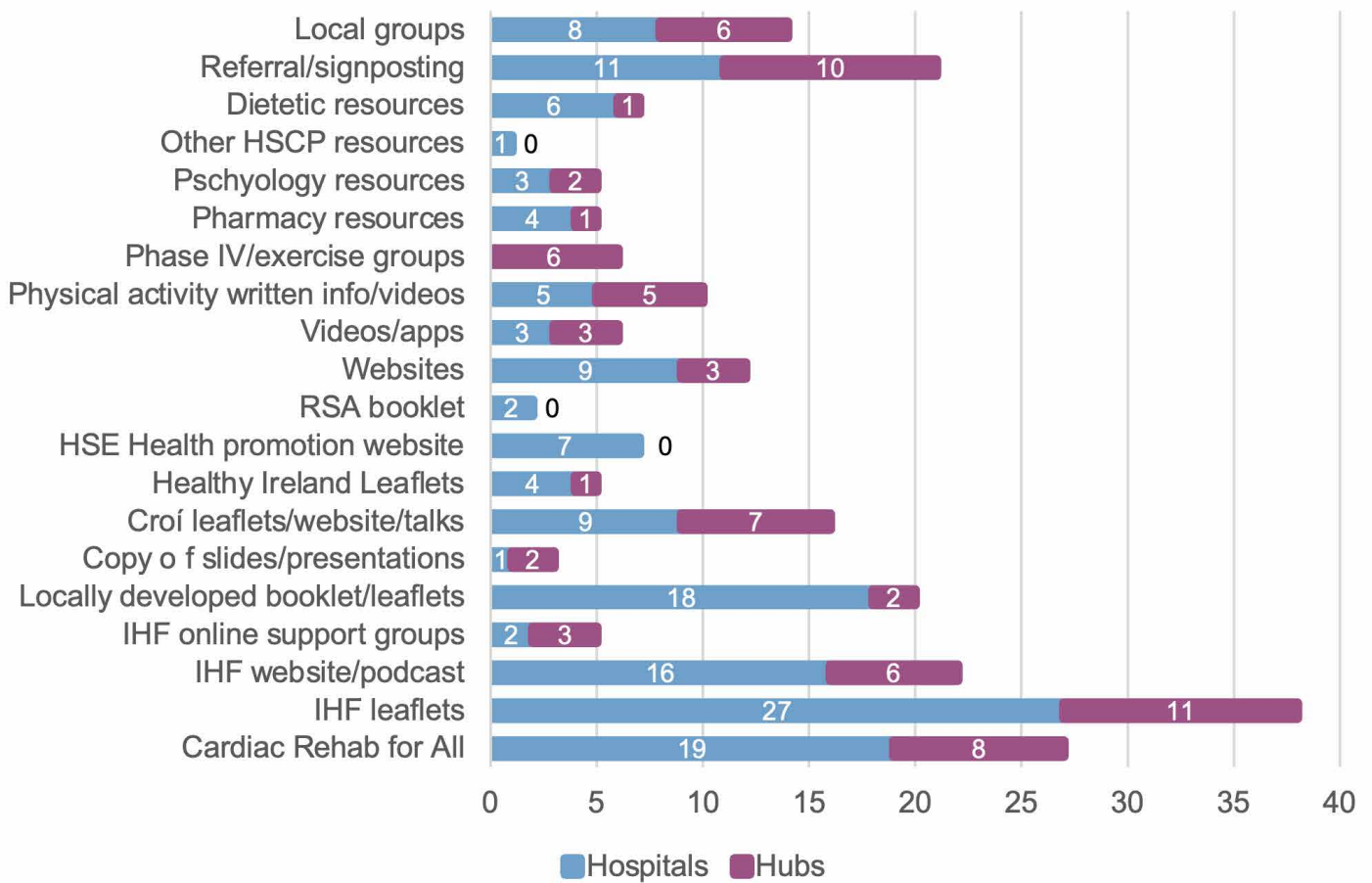


Figure 51: Cardiac rehabilitation recommended resources

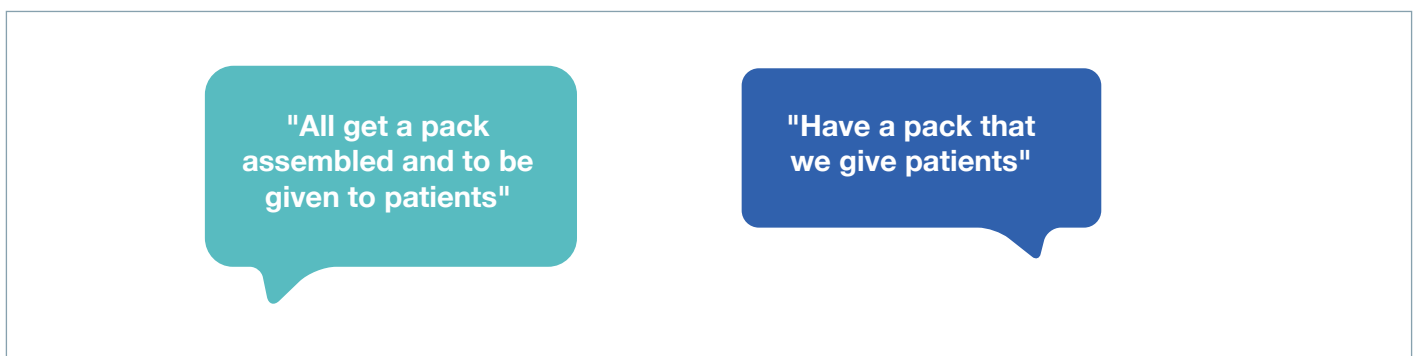


Figure 52: Comments from sites regarding resources they provide participants of cardiac rehabilitation

## **Irish Heart Foundation resources**

The most commonly recommended resources were the Irish Heart Foundation (IHF) leaflets (n=38) and separately the IHF/IACR *Cardiac Rehab for All* programme (n=27). The IHF website and online support groups were recommended by 22 and five sites respectively.

## **Locally developed resources**

Twenty-three sites reported providing patients with locally developed booklets, leaflets and copies of Powerpoint presentations. Others reported that they had adopted regionally-developed resources.

## **Digital resources**

Digital resources such as websites were also widely recommended. Sites recommended a range of websites including HSE, local, national and international websites. These included:

- Australian Heart Foundation
- British Association for Cardiovascular Prevention & Rehabilitation
- British heart foundation
- Cardiac College, The Cardiovascular Prevention and Rehabilitation Program at Toronto Rehab
- Croí, The West of Ireland Cardiac and Stroke Foundation, including leaflets and talks
- Diabetes Ireland
- Food Safety Authority of Ireland
- HSE
- Irish Association of Cardiac Rehabilitation
- Irish Heart Foundation
- Irish Nutrition and Dietetic Institute (INDI)
- National Institute for Prevention and Cardiovascular Health (NIPC)
- Voluntary hospitals mental health pages

Other digital resources recommended included apps, videos and SMILE.

## **Referrals and signposting**

Twenty-one sites reported making onward referrals and signposting to useful resources. The most common referral/signposting was to smoking cessation services, whether local smoking cessation officers or the national QUIT service.

HSE services/clinical programmes that cardiac rehabilitation services signposted to included:

- Stress management
- Alcohol support services
- Best Health Weight Management Programme
- Counselling services locally
- DISCOVER DIABETES - Type 2
- Health Food Made Easy
- HSE Living Well programme
- [Local service directory of supports](#)
- Local social prescribing services
- [Mental health service directory](#)
- National Diabetes Prevention Programme
- Social work

### Other

- List of psychological supports available in public and private service
- Alone
- Age Action Ireland

### Local groups

Fourteen sites recommended signposting to local groups. These included physical activity groups e.g. walking; social groups e.g. Men's Sheds; local cardiac and stroke support groups, including groups for specific conditions e.g. heart failure, post-surgery and upcoming local events e.g. mindfulness workshops.



## Training

Respondents were asked to outline the training courses they would recommend staff working in cardiac rehabilitation undertake. A total of 53 of the 63 sites provided answers using a ‘free text’ box. (Figure 53). The most common recommended training was the National Institute for Prevention and Cardiovascular Health (NIPC) "*Cardiac Rehabilitation in Ireland: How to deliver best practice guidelines in current clinical practice*" course. Supported by HSE and Healthy Ireland, this is a HSE-funded three-month online course designed to equip cardiac rehabilitation practitioners in Ireland with the core knowledge, skills and competences to deliver rehabilitation services in clinical practice.

The second most common recommendation was post-graduate training in cardiac rehabilitation (n=27), from universities such as University College Dublin (UCD) National University of Ireland, Galway (NUIG) and Trinity College Dublin (TCD) as well as universities abroad. The next most common training was the Mayo Clinic course (n=15) which was held in May 2024 in Cork, in association with the Irish Association of Cardiac Rehabilitation (IACR).

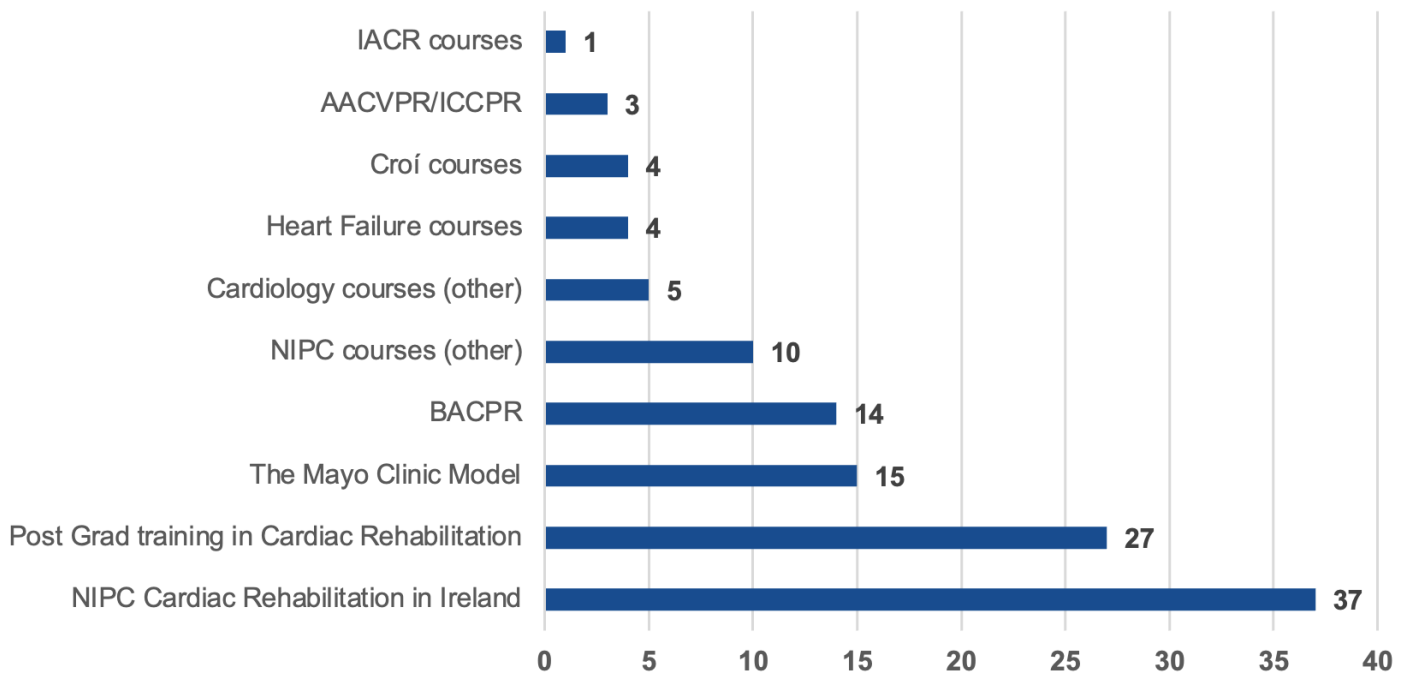


Figure 53: Recommended Cardiac Rehabilitation/Cardiology training

## Physical activity

Exercise Prescription courses by TCD, British Association of Cardiovascular Prevention and Rehabilitation (BACPR) and the NIPC were the most commonly recommended physical activity training (n=14) including training specifically for patients with heart failure (Figure 54).

Four sites recommended "*Exercise Testing and Prescription in Cardiac Rehabilitation Online Course for Healthcare & Exercise Professionals*" delivered by Heart 2 Heart Cardiac Physiotherapy, a private cardiac rehabilitation centre in Dublin.



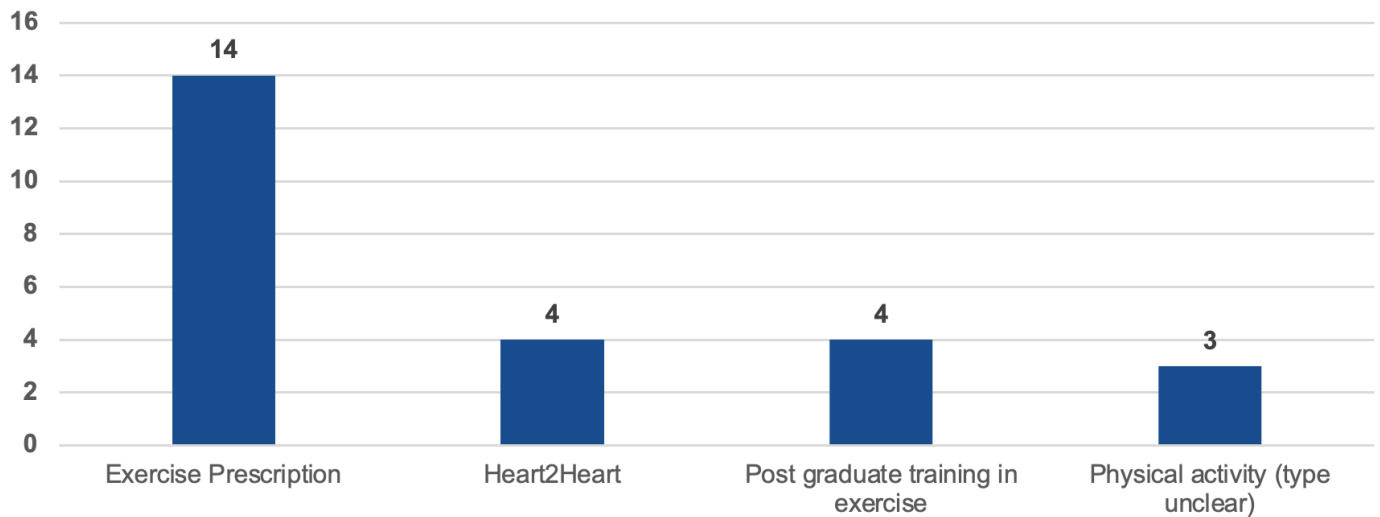


Figure 54: Recommended physical activity training

### Behaviour Change training

Training on behaviour change and lifestyle modification was recommended by 21 sites (Figure 55). There were significant differences overall between the types of training recommended, however all support staff to promote positive behaviour change on an individual or group level. *Make Every Contact Count* (MECC) was recommended by five sites. MECC is free online training for health professionals to encourage patients to make healthier lifestyle choices during routine contacts to help prevent and manage chronic diseases.

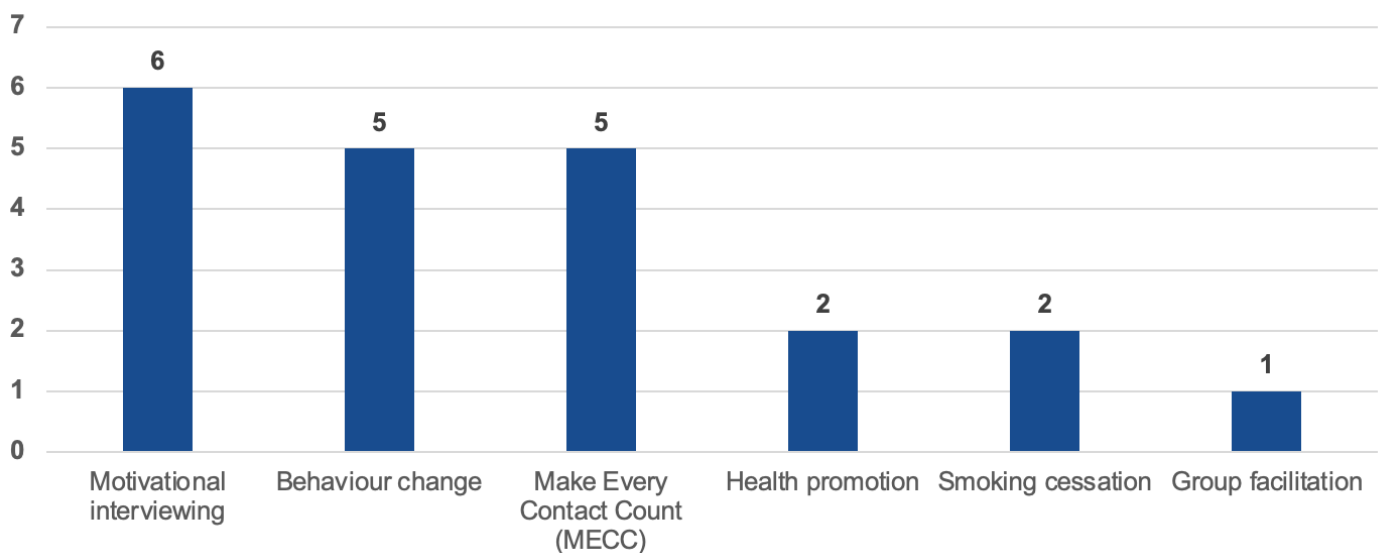


Figure 55: Recommended behaviour change training

## Other training suggestions

A small number of sites also reported the potential benefit of other training including nurse prescribing, electrocardiogram (ECG) and telemetry training (Figure 56).

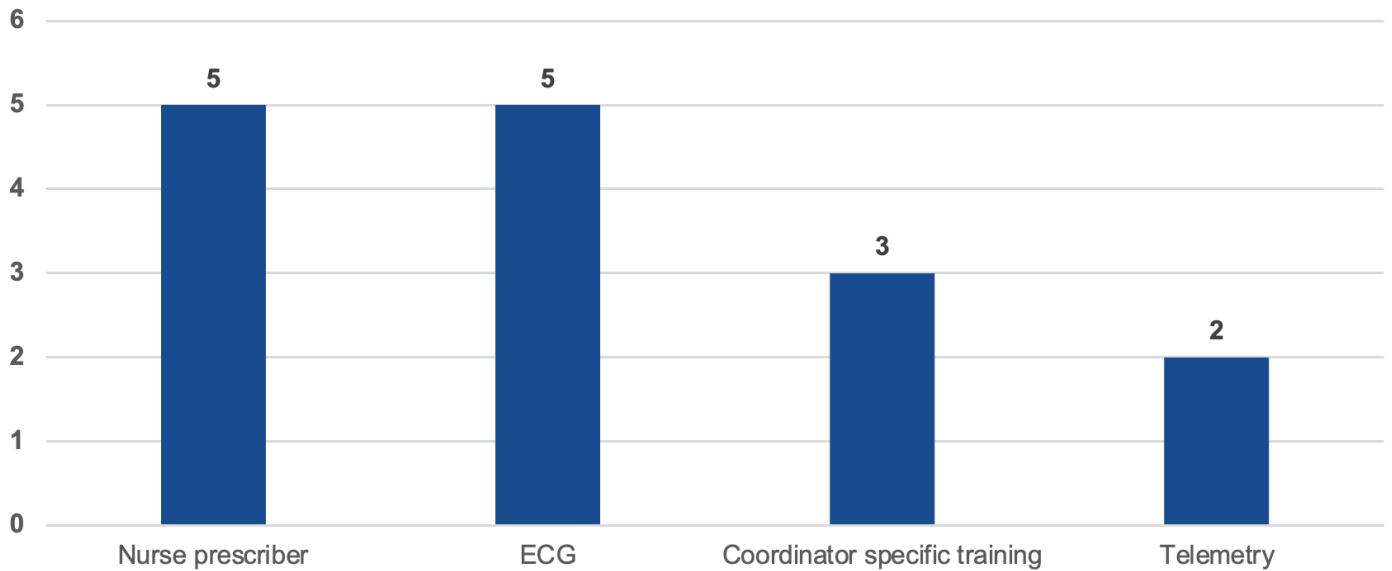


Figure 56: Other technical training recommended

## BLS/ALS / ACLS

Fourteen sites recommended Basic Life Support (BLS) and/or Advanced (Cardiovascular) Life Support (ALS/ACLS) training.

## Local knowledge

Two sites recommended all members of the team should have "*knowledge on services and supports locally*" including linking with the local Self-Management Support Coordinator.

*"Especially important for staff to be aware if coming from the hospital setting."*

## Study days and conferences

Seven sites recommended study days (n=6) and conferences (n=1), including those delivered by IACR, NIPC, hospitals and specialist groups.

## Additional training recommendations

Thirteen sites included a comment about experience in cardiology.

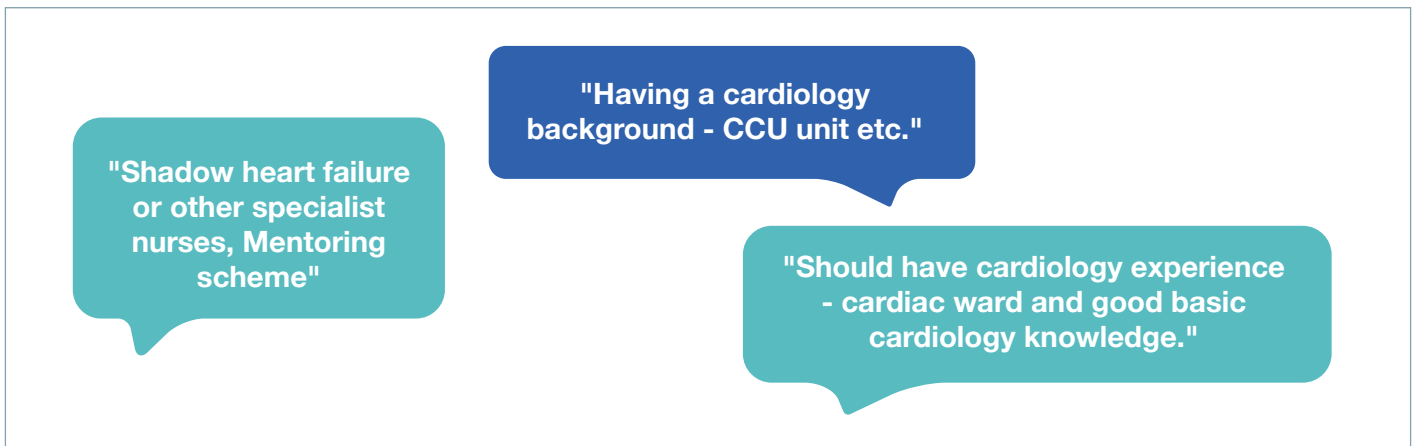


Figure 57: Comments from sites regarding additional training recommendations for nursing staff



## Barriers and enablers to implementation of the *Model of Care for Integrated Cardiac Rehabilitation*

### Barriers

Sites were asked to describe in their opinion what were the greatest barriers and enablers to delivery of integrated cardiac rehabilitation within their service: Fifty-eight sites answered this question.

The most common barrier across both hospitals and hubs was staffing (n=53), followed by site facilities (n=21), IT/communication (n=19) and site access/transport (n=13) (Figure 58).

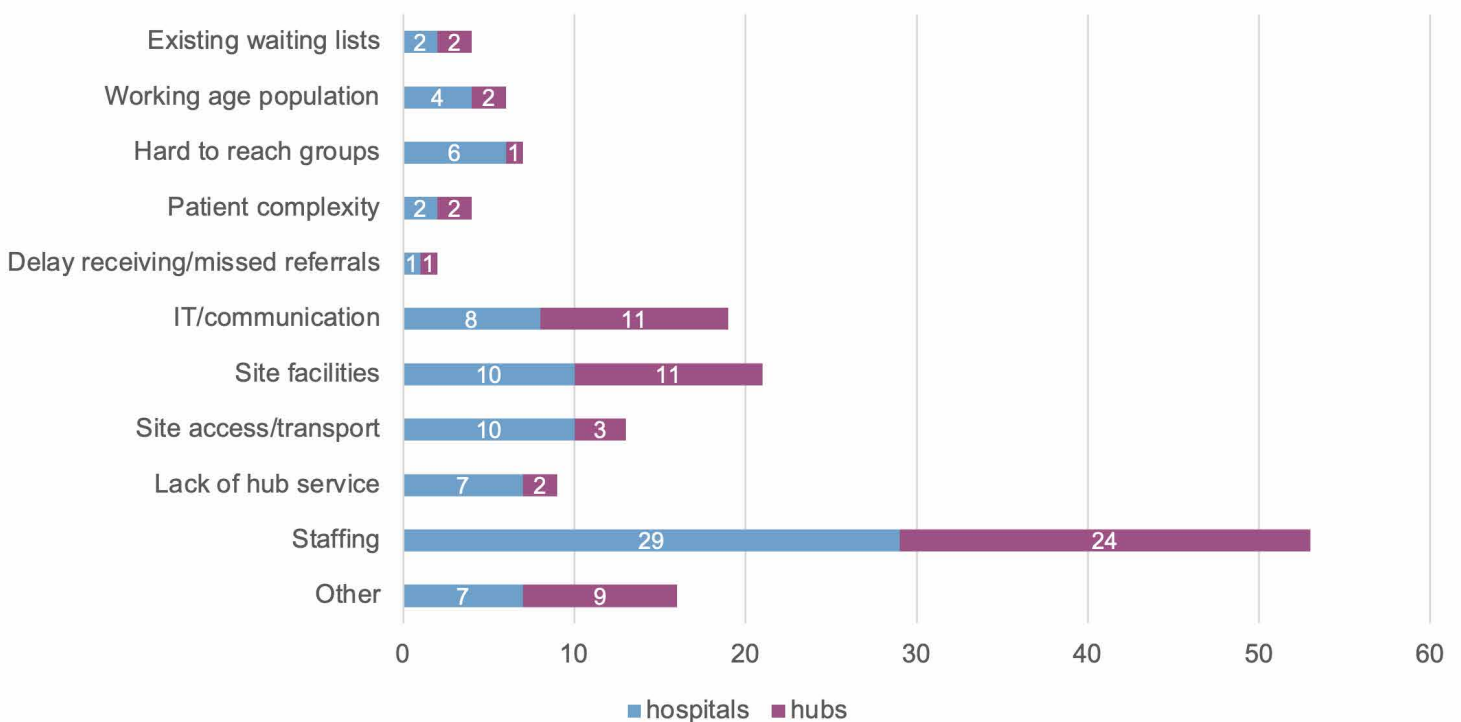


Figure 58: Barriers to delivery of integrated cardiac rehabilitation

### Enablers

Thirty-six sites described enablers (20 hospitals and 16 hubs). The main enabler identified was experienced staff (n=21) and collaboration with colleagues in hospitals/hubs (n=14), followed by Consultant/management support (n=13) (Figure 59).

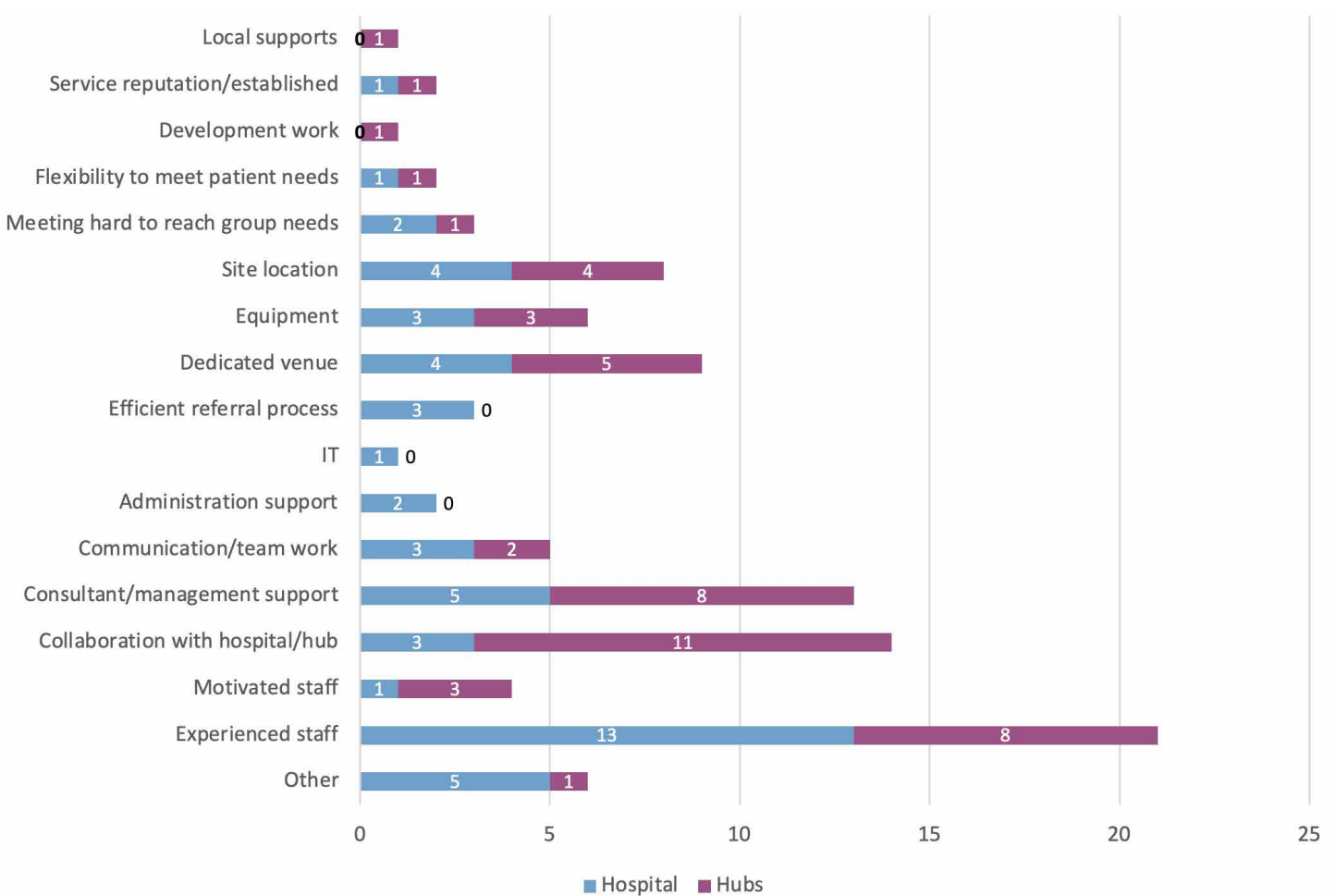


Figure 59: Enablers to delivery of integrated cardiac rehabilitation

### Staffing

Staffing was cited as both a barrier and enabler to integrated cardiac rehabilitation. Overall lack of staff and specific staff members to provide a full service was the biggest barrier. The most common staff types reported lacking from services were the dietitian (n=24), psychologist (n=19), administrator (n=18) and physiotherapist (n=15).

**"If a service/profession is short on staff cardiac rehabilitation tends to suffer and staff are pulled to wards."**

**"Don't have dietetics for talks or access route for clinic referral"**

**"Lack of dietician is significant - patients waiting over a year for access to dietician."**

**"There is a massive need and demand for dietetics input in our cohort of patients. We as coordinators can do so much but we are not specialist in this area. (physio does food labels however aware of their limitation and will refer onwards)."**

Figure 60: Comments from sites regarding lack of dietetic input on cardiac rehabilitation programme

## Consultant/management input

Thirteen sites described how support from their Consultant and/or management was an enabler to deliver an integrated service.



Figure 61: Comments regarding consultant input enabling integrated cardiac rehabilitation



## Discussion

### Overview of national delivery / staffing

Currently there are 134.6 WTE staff nationally delivering publicly-funded cardiac rehabilitation, 84.8 WTE in hospitals and 49.8 WTE in the hubs. A decline in cardiac rehabilitation staff has been observed since 2009 and effectively, it was not until the introduction of the chronic disease hubs in 2020 that there was an increase in staffing. Even so, these additional posts were allocated to the hubs, and the hospitals have therefore experienced a decline/stagnation in WTE. Even with the additional hub posts, the current overall WTE for cardiac rehabilitation nationally is 62% of what it was at its peak, in 2009.

The current estimated national need for cardiac rehabilitation is similar to that calculated for the year 2014:<sup>(10)</sup> 18,551 programme places required in 2023 compared to 19,220 places in 2014. The 2023 figure is likely to be an underestimate, as it does not consider the need for cardiac rehabilitation derived from the private sector. Furthermore, the 2014 and 2023 estimates are based on the three priority patient groups, i.e. those with ACS, a post-coronary revascularisation procedure or a hospitalisation for heart failure. However, it is well-acknowledged that other cardiovascular patient groups also benefit from cardiac rehabilitation<sup>(23-28)</sup> and should be offered a cardiac rehabilitation course where capacity allows.<sup>(9)</sup> Therefore, the 2023 estimate of 18,551 represents the minimum number of cardiac rehabilitation places that are required nationally.

Whilst the current study does not estimate the current capacity of cardiac rehabilitation services to meet the national requirements, responses to the survey indicate a need for additional resources across all disciplines to deliver cardiac rehabilitation to the priority patient groups and to the other recommended patient groups across community and hospital in line with the Model of Care.

The majority of cardiac rehabilitation staff cited lack of staff and staffing issues as the predominant barrier to implementing the *Model of Care for Integrated Cardiac Rehabilitation*. All disciplines in the multi-disciplinary cardiac rehabilitation team were affected by staff shortages, including nursing and physiotherapy. Lack of dietetic input was cited as a barrier by many, as there were no dedicated dietetic services resourced for cardiac rehabilitation in the hubs as part of the ECC programme, nor is there capacity for in-depth dietetics input in most hospital-based cardiac rehabilitation services. Furthermore, services are generally poorly resourced in terms of psychology, pharmacy, medical social work and occupational therapy. Best practice and international evidence for the cardiac rehabilitation multi-disciplinary team recommends inclusion of dietetics and psychology expertise, in addition to other disciplines.<sup>(13, 14, 16, 17, 29-31)</sup>

## Referral process

Across the country, the survey results demonstrated significant variation in referral processes from phase I cardiac rehabilitation to phases II and III cardiac rehabilitation. This variation included the use of standard templates and processes for referral. Of note, only six sites utilised Healthlink or Healthmail, which are readily-available IT solutions to facilitate the referral process. The Model of Care recommends that electronic referral e.g. Healthlink or Healthmail, of eligible patients is the preferred referral method as these will promote timely referral and triage of patients.

The Model of Care recommends the integration of cardiac rehabilitation services across hospital and hub to support delivery of a person-centred cardiac rehabilitation service to their local population. Most phase I cardiac rehabilitation sites referred to hospital-based sites for phases II and III, whilst ten reported that they referred to both hospital and hub. This is an indication of integrated cardiac rehabilitation between hospital and hub. Whilst the Model of Care states that referral should be person-centred, with patient preference guiding the decision as to where a patient undertakes cardiac rehabilitation, feedback indicated that high-risk patients were generally more likely to be referred to hospital services and low-to-moderate risk patients to hubs.

As hubs mature and as others come on stream, it is expected that in line with the Model of Care, referral pathways between hospitals and hubs will become established and embedded into local processes, to support an increase in integration between the acute and community sites.

## Waiting times

There is significant variation in waiting times for cardiac rehabilitation throughout the country. In many services, the waiting times are in excess of international best practice and the recommendation as per the Model of Care that commencement of phase III cardiac rehabilitation should occur within four weeks, and preferably two weeks, of discharge from hospital.

Commencing within this time frame is associated with increased uptake of phase III cardiac rehabilitation.<sup>(13)</sup> Furthermore, waiting time has been shown to have a negative effect on cardiac rehabilitation enrolment, such that for every 1-day increment in wait time, patients are 1% less likely to enrol.<sup>(32)</sup>

Waiting times for the commencement of phase III (denoted as the date of the initial assessment) varied from 2-96 weeks, with a median waiting time of 12 weeks. Even after the initial assessment, there was further variation in waiting times for the phase III programme (medical and lifestyle risk factor management, exercise, education and behaviour change component) to begin, with waiting times ranging from <1-24 weeks, and a median waiting time of 3 weeks.



This wide variation in waiting times across sites is likely due to a range of factors including variation in staffing levels between sites, the maturity of hubs to deliver the various components of cardiac rehabilitation and modes of delivery.

Hospital sites reported having long waiting lists: they have long-established referral pathways, leading to a steady stream of referrals. In comparison, hub referral pathways are in their initial phase and are mostly free from the high volumes seen in hospitals. It is expected that hub and hospital cardiac rehabilitation services will collaborate to deliver an integrated, flexible and responsive service, built around their local population need, with an emphasis on reducing waiting times for cardiac rehabilitation programmes across health areas.

One of the principles of the Model of Care is that cardiac rehabilitation should be accessible in a timely and equitable manner to all eligible patients, therefore addressing variation in waiting lists and the causes of this variation is required for successful implementation of the model.

## Phase II and Phase III cardiac rehabilitation

Significant overlap between phases II and III cardiac rehabilitation was observed. Whilst the Model of Care states that the aim of phase II cardiac rehabilitation is to further build on the information the patient received during phase I regarding the importance of adopting healthy lifestyle habits and addressing their specific cardiovascular disease risk factors, and phase III is the structured comprehensive prevention and rehabilitation programme, many sites combined phases II and III. This was largely based on availability of staff resources, as well as agreed local processes in terms of what works for the local service.

It was also noted that reduced length of stays following percutaneous coronary intervention (PCI) procedures now mean that patients don't always get the opportunity to engage with phase I services during their inpatient stay, and that increasingly, the first time they engage with cardiac rehabilitation is with the phase II service following discharge.

There was a degree of variation across services in terms of procedures and content of phases II and III. Some sites were only delivering part of a phase III programme, due to constraints of staff and facilities. Some, albeit a minority, could not offer an exercise component. Weight management and psychosocial self-management were education topics which were not delivered in all sites, predominantly due to scarcity of expertise such as dietetics and psychology.

Similarly there was widespread variation in terms of duration and frequency of cardiac rehabilitation sessions: nevertheless a majority of sites delivered a cardiac rehabilitation programme of a minimum eight weeks duration as recommended by the Model of Care. A recent study on secondary prevention of heart disease in Ireland found marked variation in outpatient risk

factor management and highlighted the need to reduce hospital-level and patient-level variability in preventive care to improve outcomes.<sup>(33)</sup> Thus, whilst the Model of Care is underpinned by flexibility in how, when and where patients engage with cardiac rehabilitation services, variation in the components of cardiac rehabilitation programmes should be reduced and a standard set of evidence-based core components should be delivered.

It is notable that no site reported offering their phase III programme online. This is despite the fact that online and home-based cardiac rehabilitation has been proven to be safe, feasible and highly effective,<sup>(13, 20-22, 34)</sup> and that significant progress has been made in online delivery of other group education programmes over the past number of years, e.g. the Diabetes Prevention Programme.

Provision of phase III online will facilitate patient preference, a key principle of the Model of Care, and may overcome some individual barriers to participation in cardiac rehabilitation e.g. remote/rural locations, travel time and other responsibilities e.g. work, caring. Capacity to offer patients a menu of options, e.g. in-person, online, group, individual, in terms of what works for their lives will ultimately facilitate enrolment and adherence to cardiac rehabilitation programmes.

## Operational documentation

The availability of documentation and standard operational procedures for delivery of cardiac rehabilitation was variable across sites. Most sites had standard operational procedures in place, but many mentioned that these were in draft or required update. Standard templates for referral, for the initial assessment and end of programme assessment were largely available, however staff commented that referral information was often missing, thus requiring follow-up and additional administrative burden. It was noted that development of documentation by hubs in the establishment stage was a substantial task in advance of rolling out their cardiac rehabilitation services, and that a centralised system for development and revision of template resources would offset some of this burden.

## Patient information resources and supports

Responses from around the country highlighted the proliferation of patient information resources, both paper and online, to support patients on their cardiac rehabilitation journey. It was evident that there was not a selected set of standardised resources nationally. Based on the experience of other chronic disease self-management support programmes, e.g. the Diabetes Prevention Programme, it is suggested that a national repository of cardiac rehabilitation resources which are readily available to cardiac rehabilitation staff would be of benefit on a number of levels. First of all it would be a convenience to staff to be able to pull resources as required. Secondly, it would provide uniformity of resources for cardiac rehabilitation participants across the country.

Furthermore, if the maintenance of the repository was a centralised task, resources could be readily revised in line with evolving evidence, reviewed by patients and approved by the National Adult Literacy Association (NALA), thus removing this onerous task at local/regional level.

That being said, local resources, such as walking groups or community activities, were frequently highlighted by staff as being immensely beneficial to the cardiac rehabilitation journey, and so, in line with the Model of Care, it is important that each individual cardiac rehabilitation team is in a position to identify and signpost to key local supports. The local self-management support co-ordinator, social prescriber, sports partnership or health promotion officer will also have local knowledge in terms of signposting and phase IV cardiac rehabilitation supports.

### **Audit and evaluation**

Audit and evaluation are core components of cardiac rehabilitation and are recommended to improve participation, delivery and outcomes.<sup>(13, 18, 35-37)</sup> Hub-based cardiac rehabilitation services are required to collect and return data to the ECC regularly for performance monitoring and quality improvement. Whilst some cardiac rehabilitation services are actively auditing their activity and/or outcomes, and undertaking service user evaluation, many were not in a position to do so at the time of the survey due to the maturity of their service and due to insufficient staff numbers. Consequently, there is limited Irish data available on effectiveness of cardiac rehabilitation programmes.

### **Strengths and limitations**

The strengths of this survey of cardiac rehabilitation services in Ireland include a 100% response rate from all publically-funded services in the country.

A further strength is that the majority of surveys (84%) were administered by a member of the project team. The presence of an interviewer helps reduce the uncertainty that respondents may experience with some questions, thereby increasing the validity of the results.

The anonymisation of survey responses may also have reassured respondents: when respondents are assured their identities are protected, they are more likely to share truthful feedback, with a subsequent positive impact on the validity of the results.

Whilst there was a 100% response rate, the eligibility criteria for the survey did not include private cardiac rehabilitation services. Private services provide cardiac rehabilitation to those who have had their index cardiac event in a public hospital, as well as those who are treated in private hospitals. This survey did not capture data on cardiac rehabilitation services in private hospitals.

In a small number of cases, sites chose to return written answers, rather than completing an interview, thus some of their answers were not specific enough for inclusion in this report.

In terms of the assessment of need for cardiac rehabilitation, HIPE data is based on patient episodes and any one patient may have multiple patient episodes. Due to a lack of a unique patient identifier, it is possible that the estimate of 18,551 places is an over-estimation in terms of numbers of patients requiring cardiac rehabilitation. However, several steps were taken to avoid duplication and the methodology from the Petty-Saphon health needs assessment (2016)<sup>(10)</sup> was replicated, thereby facilitating comparison.

Another possible limitation of this survey, and survey data in general, is the potential for bias in the responses e.g. recall bias and social desirability bias. Furthermore, it was outside the scope of this survey to estimate the current capacity for cardiac rehabilitation in Ireland.

## Conclusion

It is clear that additional staff resources are required across acute and community cardiac rehabilitation teams to enable delivery of an equitable, high quality service in line with the Model of Care. This pertains to all disciplines, including nursing, physiotherapy, dietetics, psychology, and administration.

Additionally, there is significant variation in access, waiting times and delivery of cardiac rehabilitation across the country and a lack of standardisation with respect to programme design, standard operating procedures, templates and resources.

This survey will inform the requirements and next steps to implement the *Model of Care for Integrated Cardiac Rehabilitation*.

## Recommendations

Recommendations for implementation of the *Model of Care for Integrated Cardiac Rehabilitation* outlines are outlined in Chapter 6 of the document. This service review fully endorses these recommendations and further emphasises a number of actions at national, regional and local level including, as follows:

### National: HSE and Department of Health

- The re-instatement of 73.0 WTE hub-based cardiac rehabilitation posts is recommended.
- Assuming a similar national cardiac rehabilitation staff complement (123.0 WTE) for hospitals, the allocation of funding for an additional 38.0 WTE posts for hospital-based cardiac rehabilitation is recommended.
- The inclusion of 1.0 WTE dedicated dietetics resource to each hub with a remit to support cardiac rehabilitation in an integrated way across the hub and affiliated hospital site is recommended.
- An increase in the hub psychology resource from 0.2 WTE to 1.0 WTE with a remit to work across both hub and hospital sites is recommended.

### National Heart Programme, Integrated Care Programme for Chronic Disease and key stakeholders

- Develop a standard national quality assured, accredited, person centred, evidence-based cardiac rehabilitation programme for Ireland which can be delivered in-person, online or blended.
- Support cardiac rehabilitation staff, educators and patients by developing a central repository of cardiac rehabilitation resources, including template documents, standard operational procedures, national clinical action guide and patient information resources which are continually updated in line with current evidence and standards.
- Develop a framework to quality assure facilitators delivering the accredited, standard curriculum.
- Develop resources to support the audit and evaluation of cardiac rehabilitation services and develop a core national dataset for clinical audit of cardiac rehabilitation.
- Develop standard patient-reported experience measures related to cardiac rehabilitation service delivery.
- Evaluate how patient preference for cardiac rehabilitation is defined and measured.

## Health Regions

- Prioritise posts in cardiac rehabilitation across acute and community sites to support the implementation of the *Model of Care for Integrated Cardiac Rehabilitation*.
- Facilitate the strategic delivery of cardiac rehabilitation across the health regions taking into account, staffing, facilities and local population needs: consider deploying a central referral register for the health region.
- Enable staff to deliver cardiac rehabilitation services in multiple modes including in-person and online by identifying staff training, education and continuous professional development needs and ensuring training and resources are available. Ensure all staff involved in cardiac rehabilitation complete MECC training.

## Hospitals and hubs

- Ensure local governance structures are in place for the delivery of integrated cardiac rehabilitation.
- Develop a local standard operating procedure encompassing the end-to-end Model of Care to aid integrated care and multidisciplinary working across hospital and hub service.
- Develop local referral pathways with emphasis on individualising care, to ensure patient choice and flexibility in how, when and where they participate.
- Engage with the Cardiology Working Group for the region to identify and procure resources, space, equipment and IT solutions to enable efficient service delivery. The National Health Course Manager IT system is available to streamline the business process around service planning, co-ordination, delivery, reporting and evaluation for both online and in-person cardiac rehabilitation programmes.

## Abbreviations

<b>AACVPR</b>	American Association of Cardiovascular and Pulmonary Rehabilitation
<b>ANP</b>	Advanced Nurse Practitioner
<b>CDM</b>	Chronic Disease Management Hub
<b>CNM</b>	Clinical Nurse Manager
<b>CNS</b>	Clinical Nurse Specialist
<b>CPD</b>	Continuing professional development
<b>CR</b>	Cardiac rehabilitation
<b>CVD</b>	Cardiovascular disease
<b>ECC</b>	Enhanced Community Care
<b>ESC</b>	European Society of Cardiology
<b>HSCP</b>	Health and Social Care Professional
<b>IACR</b>	Irish Association of Cardiac Rehabilitation
<b>LOS</b>	Length of stay
<b>OPD</b>	Outpatients department
<b>MDT</b>	Multidisciplinary team
<b>MECC</b>	Make Every Contact Count
<b>NCHD</b>	Non-consultant hospital doctor
<b>NIPC</b>	National Institute for Prevention and Cardiovascular Health
<b>SOP</b>	Standard Operating Procedure
<b>WTE</b>	Wholetime equivalent

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## Appendices

### Appendix 1 – Prevention Sub-Group of the National Heart Programme Clinical Advisory Group

Name	Role
Prof John William McEvoy - Chair	Consultant Cardiologist, University College Hospital Galway
Dr Angie Brown	Medical Director, Irish Heart Foundation
Ms Denise Dunne	Operational Lead Integrated Care Programme Chronic Disease, Galway City Ambulatory Hub
Ms Eleanor McIntyre	Cardiac Rehabilitation Clinical Nurse Specialist, Merlin Park University Hospital Galway
Ms Irene Gibson	Director of Programmes and Innovation, National Institute for Prevention and Cardiovascular Health
Prof Ian Graham	Professor of Cardiovascular Medicine, Trinity College Dublin
Dr Jennifer Jones	Director of Training and Education, National Institute for Prevention and Cardiovascular Health
Prof Kornelia Kotseva	Professor of Preventive Cardiology, National Institute for Prevention and Cardiovascular Health, National University of Ireland Galway
Dr Sarah M. O'Brien	National Clinical Advisor & Group Lead for Chronic Disease, Office of the NCAGL for Chronic Disease
Dr Susan Connolly	Consultant Cardiologist, University College Hospital Galway
Prof Vincent Maher	Consultant Cardiologist, Tallaght University Hospital
Mr Michael Madigan	Patient Representative, Irish Heart Foundation
Mr Jim McComb	Patient Representative, Heart and Stroke Voice Ireland
Dr Lavanya Saiva	Consultant Cardiologist
Ms Elizabeth Murphy	Integrated Cardiovascular Nurse Specialist/Cardiac Rehabilitation Coordinator, Enniscorthy Primary Care Centre
Dr Laura Murphy	Consultant Cardiologist, Mater Misericordiae University Hospital
Dr Neasa Starr	Consultant Cardiologist, University Hospital Limerick
Dr Matthew Barrett	Consultant Cardiologist, St Vincent's University Hospital
Ms Sophie O'Connell	Cardiac Rehabilitation Co-ordinator, Dublin North West Integrated Care Centre
Ms Suzanne Seery	Clinical Specialist Dietitian – National Obesity Clinical Programme
Ms Eimear Farrell	Senior Clinical Psychologist - Chronic Disease Management
Ms Eimear Dolan	Senior Physiotherapist, Integrated Care Programme Chronic Disease Hub Terenure
Ms Mairead Gleeson	General Manager, Integrated Care Programme for Chronic Disease

## Appendix 2 – Cardiac Rehabilitation Structured Needs Assessment 2024

Below are the topics and specific details a member of the Integrated Care Programme for Chronic Disease (ICPCD) team used to conduct the needs assessment interview in each area.

### Your service details

1. Please enter your contact details.
2. Is your service hospital or hub based?
3. Please input the current funded WTEs for each staff grade and the staff numbers that are actually employed as part of your core team for your cardiac rehabilitation service. (Please include any staff on maternity or statutory leave etc who occupy a post in the WTE in position column).
4. What is the background discipline of the cardiac rehabilitation coordinator for your service?
5. Which cardiac rehabilitation phase does your service provide?

### Phase I Cardiac Rehabilitation

6. Do you have a standard operating procedure for Phase I cardiac rehabilitation? (If yes can you please share a copy)
7. Who is usually responsible for referring patients from Phase I to Phase II and Phase III cardiac rehabilitation?
8. Does your service use standard templates for referral to Phase II and III cardiac rehabilitation? (Please tick any that apply; if yes can you please provide these templates)
9. How are referrals for Phases II and III cardiac rehabilitation sent?
10. Where are your Phase I cardiac rehabilitation patients currently referred for Phases II and III?

### Phase II Cardiac Rehabilitation

11. Does your service routinely provide Phase II cardiac rehabilitation as per the Model of Care?
12. How long are patients usually waiting for Phase II cardiac rehabilitation following receipt of referral?
13. Does your service have a standard operating procedure for Phase II cardiac rehabilitation? (If yes, can you please provide a copy)
14. What team members usually deliver Phase II cardiac rehabilitation?
15. How does your service usually deliver Phase II cardiac rehabilitation?

**16.** What does Phase II cardiac rehabilitation consist of? (Please describe briefly). If you use a standard proforma/template/script, can you please provide a copy

**17.** What is the usual follow-up if a person does not respond when offered Phase II cardiac rehabilitation? (Please describe briefly)

### **Phase III Cardiac Rehabilitation**

**18.** How long are patients usually waiting for Phase III cardiac rehabilitation following receipt of referral? (The beginning of Phase III cardiac rehabilitation is defined as the date of the Initial Assessment)

**19.** Does your service have a standard operating procedure for the delivery of Phase III cardiac rehabilitation? (If yes, can you please provide a copy)

**20.** Who is responsible for coordinating the delivery of Phase III cardiac rehabilitation in your service?

**21.** What team members are involved in the delivery of Phase III cardiac rehabilitation in your service?

**22.** What location/s does your service use for delivery of Phase III cardiac rehabilitation?

**23.** Does your service have a standard Initial Assessment template? (If yes, can you please provide a copy - or copies if there are different templates for different components/professions)

**24.** If your service does not have a standard Initial Assessment template, please list the core components of the Initial Assessment

**25.** Who is responsible for the optimisation of medical risk factor cardioprotective medications amongst those attending Phase III cardiac rehabilitation?

**26.** Following the Initial Assessment, how long are patients usually waiting to begin Phase III cardiac rehabilitation?

**27.** Does your service have a standard curriculum for delivery of Phase III cardiac rehabilitation? (If yes, can you please provide a copy)

**28.** Does your service's Phase III cardiac rehabilitation include the following components?

**29.** Please provide details of how the Phase III cardiac rehabilitation programme is delivered.

- How many sessions are normally given in the phase III programme?
- What is the average length (in hours) of the sessions?

- What is the duration (number of weeks) of the phase III programme?
- Weekly sessions - Yes/No
- Twice weekly sessions - Yes/No

**30.** Does your service have a standard End of Programme Assessment template? (If yes, can you please provide a copy)

**31.** If your service does not have a standard End of Programme Assessment template, please list the core components of the End of Programme Assessment

**32.** Does your service have a standard discharge process from Phase III cardiac rehabilitation? (If yes, can you please provide a copy)

**33.** Does your service undertake regular audit of Phase III cardiac rehabilitation

**34.** Does your service collect and return other data on delivery of Phase III cardiac rehabilitation (outside of internal audit in your service)?

**35.** What is the usual follow-up if a person does not respond when offered Phase III cardiac rehabilitation? (Please describe briefly)

### **Resources for the Delivery of Cardiac Rehabilitation**

**36.** What patient resources do you recommend for the delivery of Phase I cardiac rehabilitation including leaflets, online resources, support groups?

**37.** What patient resources do you recommend for the delivery of Phase II cardiac rehabilitation including leaflets, online resources, support groups?

**38.** What patient resources do you recommend for the delivery of Phase III cardiac rehabilitation including leaflets, online resources, support groups?

### **Cardiac Rehabilitation Training / Service User Evaluation / Barriers / Enablers**

**39.** What training course/s in cardiac rehabilitation would you recommend your staff to undertake?

**40.** Do you routinely undertake service user evaluation? (If yes, can you please provide a copy of the format)

**41.** What in your opinion are the greatest barriers and enablers to delivery of integrated cardiac rehabilitation within your service?





*HE*