

National Audit of Cardiac Rehabilitation Quality and Outcomes Report 2024

Executive Summary

This year's 2024 NACR Quality and Outcomes Report shows positive improvements in the number of patients receiving cardiac rehabilitation (CR) and in the quality of those services. Patient choice has been enhanced through a more proportional offer of CR in terms of mode of delivery. The report also shows that there are now over 90% of programmes entering data.

This is the first NACR report on CR uptake since the audit's move into NHS England where a new integrated methodology with other cardiac registries was adopted using only patient data entered directly or uploaded to the NACR database. The 2024 report on CR uptake for patients with Acute Coronary Syndrome (ACS) and patients with Heart Failure (HF) should be treated as the new baseline. Uptake is reported this year for England and Wales only. Northern Ireland uptake will be published in 2025 when further validation has been undertaken. Uptake for patients with ACS for England and Wales stands at 41.3% for England and 51% for Wales. The HF uptake stands at 13% in England and 16.6% for Wales.

This year for the first time, half of all services are Green certified in the National Certification Programme for Cardiac Rehabilitation (NCP_CR) report meeting all seven key performance indicators (KPIs). A further 30% of programmes are just one category lower with Amber status (4-6 KPIs). Wait times (MI/PCI and CABG) and Assessment 2 (post-CR) remain the three most challenging KPIs to achieve. NACR will continue to support services as they strive to meet quality standards and deliver good patient care.

In this report there is a near equilibrium in mode with around 35% on both Group-based and Home-based/Self-managed CR and the remainder taking up a Hybrid mode (combination of Group-based and Home-based/Self-managed). The report further explores different CR Home-based/Self-managed modes delivered routinely by clinical teams, all of which improves access to CR for patients.

The assessment of patient outcomes is fundamental to NACR being able to report what is achieved in respect of risk factor management and psychosocial wellbeing. Despite exercise training being the cornerstone of CR, the reporting of physical fitness exercise tests pre- and post- CR is poorly recorded. This year, the audit has highlighted variation in assessment completion across different modes of delivery.

Our annual staffing survey has provided useful insights into the redeployment of staff, which is slowly reducing since the height of redeployment/reallocation during the pandemic era. Staff departure is still a concern with over 60% of services reporting staff leaving the team. Reassuringly, there seems to be a good level of replacement/ returning staff, however 15% of staff that left were replaced at different band/hours.

The audit team is working closely with NHS England, British Association of Cardiovascular Prevention and Rehabilitation (BACPR), Northern Ireland Department of Health and Social Care, All Wales Group, British Heart Foundation (BHF) and patients through the Coronary Care Partnership (UK) (CCPUK) to achieve the aims recommended in this report. NACR would like to thank CR teams and all involved in data submission as the internationally recognised quality of data is not possible without your continued work in submitting and inputting patient data.

Collectively NACR aims to support services to implement the recommendations based on this year's audit findings.

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Professor Patrick Doherty, Director -National Audit of Cardiac Rehabilitation

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Heather Probert, President - British Association for Cardiovascular Prevention and Rehabilitation

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Diane Saunders, CVD Programme Lead - NHS England

Roland Malkin, President, Cardiovascular Care Partnership UK

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SECTION 1

Uptake to Cardiac Rehabilitation by Country

Number of patients starting CR has surpassed the 2019 historical peak with an extra 2,175 patients bringing the total to 64,217

Number and Type of Patients Starting Cardiac Rehabilitation by Country

Over the last 12 months the National Audit of Cardiac Rehabilitation (NACR) team has worked closely with NHS data governance and senior analytical teams cross England, Northern Ireland and Wales to agree a new and robust methodology for reporting the number of patients eligible for cardiac rehabilitation (CR) (denominator) and the number starting CR (numerator). The integration of NACR into NHS England has enabled CR uptake to be reported based purely on patient data entered on the NACR database, whereas in previous years the number was increased with data from the survey of programmes. The ability of the audit to report in this way owes thanks to CR staff for entering quality data and national bodies from the three nations, including integrated support from the networks/ICBs and also NHS targeted funding over the last two years. The National Certification Programme for Cardiac Rehabilitation (NCP_CR) has also acted as a catalyst for programmes to enter data. This year's report had 90% data entry which is increasing in the period for 2024, improving coverage and accuracy of the data and the audit's findings.

Prior to 2020 the number of patients starting CR was increasing year on year (Figure 1) however, as was the case world-wide, there was a marked drop in patient numbers in 2020 due to national level lockdowns, NHS staff redeployment and general population concerns about disease transmission. The UK trend from 2021 onwards indicates that services are not only back up to levels pre-pandemic but that more patients than ever are taking up CR.





CR – Cardiac Rehabilitation

Table 1 shows the breakdown of starters entered onto the NACR database and shows across the three nations 64,217 patients accessing/starting CR in 2023 (Jan-Dec). The largest single group of patients starting CR is the MI + PCI (Myocardial Infarction with Percutaneous Coronary Intervention) group, making up one third of all patients. Notably the Heart Failure (HF) group is

Table 1. Number and type of patients starting CR by country							
Diagnosis/Treatment Type	England	Northern Ireland	Wales	Total			
MI	6961	198	461	7620			
MI + PCI	19061	801	1697	21559			
MI + CABG	2198	96	159	2453			
PCI (no MI)	7479	371	459	8309			
CABG (no MI)	4759	174	366	5299			
HF	8352	250	596	9198			
Heart Devices	1577	55	98	1730			
Surgery*	4411	147	400	4958			
Stable Angina	1127	39	106	1272			
PAD	127	0	0	127			
Unstable Angina	235	20	36	291			
Other **	1280	22	99	1401			
Total	57567	2171	4477	64217			

increasing in size from previous years which is positive as it shows the inclusion of this group who are evidenced to benefit from attending CR.

* Surgery is - Mitral Valve, Aortic Valve, Tricuspid Valve or TAVI in absence of MI and HF

** Other including - Other with no CVD treatment, High Risk CVD, Arrythmia/Cardiac Arrest and Unknown. These are combined to avoid suppression of low numbers

CR – Cardiac Rehabilitation, CVD – Cardiovascular Disease, MI – Myocardial Infarction, PCI – Percutaneous Coronary Intervention, CABG – Coronary Artery Bypass Graft, HF- Heart Failure, PAD - Peripheral Artery Disease and TAVI - Transcatheter Aortic Valve Implantation

Overview of Method Change

Our Annual Quality and Outcome report draws from our quarterly releases of local and regional uptake and service inequalities via the NHS England Model Health System (MHS) (England) and FutureNHS (England). In order to have single source of truth on CR uptake we now utilise only electronic patient data that has been verified by NHS and NACR analytical teams and as such only electronic records entered by the report deadline are included (for this report May 2024). In order for the reporting to accurately represent the activity and quality of service provision teams should seek to enter complete and timely data. The small number of programmes not entering data are listed in the <u>NCP_CR supplement</u> for the CR period of 2023.

This report states the uptake rates specifically for Acute Coronary Syndrome (ACS) (comprised of MI, MI+PCI and MI+CABG) and HF. The method for calculating the denominator has been validated against the Myocardial Ischemia National Audit Project and National Heart Failure Audit, and the denominator comes from Hospital Episode Statistics (HES) and Secondary User Service (SUS) data in England, the Department of Health in Northern Ireland and the Digital Health and Care Team in Wales.

In future reporting the patient groups will also include those treated with PCI and CABG without a diagnosis of MI. To accurately calculate the eligible PCI and CABG numbers it is important to perform similar validation with appropriate audits. Therefore, due to this requirement, uptake of CR presently does not include PCI and CABG without MI. These groups, historically, had higher uptake than that of MI alone and thus comparisons to the historical total CR uptake should not be made.

England

Uptake reporting for CR in England is hosted on MHS and FutureNHS. This data is routinely updated and is used to track the extent to which CR is aligning with NHS Long Term Plan uptake targets of 85% for ACS and 33% for HF.

Utilising the new methodology, the uptake for ACS is 41.3%, increasing from 33% in 2020. HF has shown a significant increase to 13%, which is almost double the uptake seen prior to the pandemic. The delivery of different modes of CR to HF patients by clinical teams set alongside NHS targeted funding has been highly instrumental in bringing about this change.

Northern Ireland

The data for the eligible group for Northern Ireland was from the Department of Health that provided releases for each year. This is a slightly different method as it does not allow for patients straddling a year to be removed as a duplicate. At the point of publication, validation with this new approach is ongoing and as such, only the numbers starting/accessing CR will be presented in Table 2, without the eligible numbers and percentage uptake information. The audit will look to report on this in 2025.

Using the new methodology, the number of patients from ACS and HF groups have been in recovery since 2020. In the 2024 NCP_CR report it was shown that one Health and Social Care Trust (HSCT) was not submitting data for this year and as such this impacts the numbers at a national level. Comparing the four HSCTs with data from 2020 to 2023, there is a staggered increase of over 250 extra ACS patients accessing CR and a near fourfold increase in HF starters (68 in 2020 to 250 in 2023).

As Northern Ireland moves to a new software platform and new methods of data entry, data flowing into NACR in a complete and timely manner is vital for the activity to be showcased in NACR reporting.

Wales

The Digital Health and Care Team Wales provides the eligibility data, which is produced in a matched way to England's HES extract for mapping of methodologies. The uptake rate for ACS is 51% and HF is 16.6%. In 2025, NACR will further explore, via the All Wales group, what Wales is doing to achieve this activity and share with the other nations.

Table 2. CR	Table 2. CR uptake split by country and main diagnosis/treatment group							
Country	Diagnosis/Treatment Type	Eligible Number	Number Starting/Accessing CR	Uptake %				
England*	ACS (MI w/o Revascularisation)	66882	27591	41.3				
	HF	59723	7760	13.0				
Northern	ACS (MI w/o Revascularisation)	Pendina	1095	Pendina				
Ireland**	HF	Validation	250	Validation				
Wales	ACS (MI w/o Revascularisation)	4546	2317	51.0				
	HF	3598	596	16.6				

*Due to method of processing, some outliers in both denominator and numerator have been removed ** Due to ongoing validation of the number of eligible patients (denominator) from the Department of Health, no uptake value is provided

CR – Cardiac Rehabilitation, ACS – Acute Coronary Syndrome, MI – Myocardial Infarction, HF – Heart Failure

SECTION 2

Staffing

Over half of CR programmes have medication prescribers embedded in the service

Cardiac Rehabilitation Workforce in 2023

Each year, NACR carries out a staffing survey to show the staff composition supporting the delivery of CR. Over the past few years, further questions have been added to provide insights into the impact of the pandemic, redeployment/reallocation of staff and difficulties in recruitment.

The analysis below focuses on five key areas:

- Staffing profile
- Staff reallocation/loss
- Staff recruitment
- Staff types involved in NACR data entry
- Medication prescriber within CR team

Staffing

Table 3 shows the proportion of staff types in England, Northern Ireland and Wales. Across the three nations, the highest staff type is Nurses (between 99-100%). The most common other staff are Physiotherapists (63%), Any Secretarial/Clerical/ Admin (81%) and Exercise Specialists (56%).

Programmes in England make up the greatest proportion of the services and therefore the UK national average tends to mirror England's data. The Northern Ireland staff profile has a greater proportion of Physiotherapists (100%), Pharmacists and Dietitians (78% each) whereas Wales has a much higher proportion of Occupational Therapists (67%) across their programmes.

Table 3. Proportion of staff type by country								
Staff Types	England	(n=180)	Northeri (n:	Northern Ireland (n=9)		Wales (n=12)		n=201)
	Count of services	% of services	Count of services	% of services	Count of services	% of services	Count of services	% of services
Any Secretarial /Clerical/ Admin	144	80	6	66.7	12	100	162	80.6
Assistant Practitioner	17	9.4	0	0	3	25	20	10
Counsellor	16	8.9	0	0	0	0	16	8
Dietitian	70	38.9	7	77.8	5	41.7	82	40.8
Doctor e.g. Cardiologist	43	23.9	4	44.4	0	0	47	23.4
Exercise Physiologist	46	25.6	0	0	4	33.3	50	24.9
Exercise Specialist	107	59.4	2	22.2	4	33.3	113	56.2
Health Care Assistant	23	12.8	4	44.4	2	16.7	29	14.4
Nurse	179	99.4	9	100	12	100	200	99.5
Nursing Associate*	3	1.7	0	0	0	0	3	1.5
Occupational Therapist	23	12.8	3	33.3	8	66.7	34	16.9
Pharmacist	47	26.1	7	77.8	3	25	57	28.4
Physiotherapist	109	60.6	9	100	8	66.7	126	62.7
Physiotherapy Assistant	40	22.2	1	11.1	4	33.3	45	22.4
Psychologist	34	18.9	1	11.1	2	16.7	37	18.4
Other Staff type	37	20.6	2	22.2	3	25	42	20.9

*under band 4

Staff Reallocation

The NACR staffing survey asked services about two forms of staff departure, these were reallocation within the year or staff loss out of the team. In 2023, 8.4% of services reported having staff reallocation (17 of 201 programmes) with staff being removed from teams to work elsewhere in the NHS. A follow-up question asked if staff had returned, three services reported that staff were still reallocated.

Although reallocation of staff remains a challenge for some programmes this is a marked reduction from the levels in 2021 where around 55% of services reported staff redeployment/reallocation.

Staff Loss

Services were also asked about complete staff loss in 2023, and the data is shown in Figure 2. There were 44% of services that reported no staff loss. Where staff loss was reported the largest reason was staff moving jobs within the NHS (32%), followed by retired (17%) and maternity leave (14%). The remaining reasons for staff loss were moving out of the NHS, long term sick and Other (11-8%), with reasons listed under Other including temporary funding for positions, secondment period ending and career breaks.





The stated reasons for staff loss were non-exclusive and more than one reason could be selected by services

The survey asked a secondary question regarding the staff departure shown in Figure 2 to identify whether they were replaced or returned (Table 4). The total number of staff types across programmes that were lost from the team in 2023 was 142. There was 61% replacement of these staff, however, 20% were not replaced and 15% were replaced at different bands or hours.

Table 4. The numbers and staff type that left the team in 2023 and whether they were replaced/returned							
to the CR programme							
Staff Type	Replaced/	Not	Some	Replaced/ Returned	Total		
	Returned	Replaced/	Replaced/	but at different			
		Returned	Returned	band/hours			
Any Secretarial /Clerical/ Admin	13	3	1	1	18		
Assistant Practitioner	0	2	0	1	3		
Counsellor	0	0	0	0	0		
Dietitian	2	1	0	0	3		
Doctor e.g. Cardiologist	0	1	0	0	1		
Exercise Physiologist	5	0	1	1	7		
Exercise Specialist	2	1	1	0	4		
Health Care Assistant	4	1	0	1	6		
Nurse	44	14	2	12	72		
Nursing Associate*	0	1	0	0	1		
Occupational Therapist	1	1	0	0	2		
Pharmacist	0	0	0	0	0		
Physiotherapist	11	2	1	3	17		
Physiotherapy Assistant	1	0	0	2	3		
Psychologist	3	1	0	0	4		
Other Staff type	0	1	0	0	1		
Total	86	29	6	21	142		
Percentage of Total	60.6	20.4	4.2	14.8			

*under band 4

Staff Recruitment in 2023

Throughout 2022 and 2023 the NHS has been investing additional funds in CR services with an aim to increase uptake, reduce inequality and increase service delivery. A key strategy for the NHS is to employ more staff in addition to those staff being replaced due to staff loss. In this context services were asked if they had attempted to recruit new members of staff and also indicate if the recruitment was successful. Figure 3 shows that of the 201 services, over half did not try to recruit new positions to the team (53%). Of those that did attempt to recruit new staff the majority were successful (81 services), however, there were some services that indicated despite attempts to recruit, there were no successful candidates (22 services). This highlights that funding for staffing, although important and sought after by clinical teams, is unlikely to deliver immediate solutions due to challenges in the recruitment process. The NHS Workforce Plan (June 2023) reflects the challenges facing the NHS and sets out large scale plans to recruit and retain staff.



Figure 3. New staff recruitment, in addition to the existing team, in 2023

Staff Types Involved in Entry of NACR Data

In this year's survey, NACR wanted to identify which staff were responsible for the entry of data for the CR audit (Figure 4). This was asked alongside presentation of the types of staff reported as being within the team.

Services could respond saying no data entry which was 17 services. Of the services that do enter data, the largest staff type performing this role were Nurses (62%), Any Secretarial /Clerical/ Admin (60%) and a smaller percentage of Physiotherapists and Exercise Specialists. The role of data entry may be shared across different staff types or roles, as such multiple staff types may be present from a single team.



Figure 4. Number and types of staff involved in NACR data entry

Medication Prescriber Within CR Team

One of the new areas for reporting this year is the extent to which services delivering CR have a member of the team that can prescribe medication. Staff types that can be prescribers were additionally asked if they were qualified to prescribe. Overall, over 50% of services have this embedded within the team which can help to streamline initiation onto and titration of medications (Table 5). Staff within the team, such as nurses, can train to become non-medical prescribers which may reduce the need for additional recruitment.

Table 5. Which staff are prescribers within the programme							
Staff Type	Total Staff Type	Count of Staff Prescribers	% of Staff Prescribers				
Nurse	200	70	35.0				
Physiotherapist	126	4	3.2				
Doctor e.g. Cardiologist	47	N/A*					
Any Prescriber within the team	201	101	50.2				

*N/A due to all Doctors being qualified prescribers, presence of this staff is therefore an assumed prescriber within team

SECTION 3

Summary of NACR Quarterly Reports on CR Outcomes

Patient outcomes show clear benefit in terms of cholesterol and BP associated with attending CR

CR Outcomes

This is the second year that NACR has produced a summary of the quarterly reports on areas of service provision in the Quality and Outcomes report. This year's reports are summarised below:

- Psychosocial Wellbeing
- Exercise Tests
- Cholesterol
- Blood Pressure

It is now part of routine NACR practice to report patient outcomes following CR. These act as an important indicator of how well services are helping patients achieve optimal benefits on completion of CR. This level of reporting can also enable the NHS to understand how patient improvement may lead to longer term outcomes such as readmission, mortality and long-term health. Previous Quality and Outcomes reports have often detailed outcomes for patients, however, this year in the quarterly reports, the audit focused on four areas in greater detail.

Psychosocial Wellbeing Outcomes

Psychosocial wellbeing is routinely measured and recorded by clinical teams using validated measurements including either the Hospital Anxiety and Depression Scale (HADS) or the use of General Anxiety Disorder (GAD-7) and Patient Health Questionnaire (PHQ-9). The questionnaires are used to show the level of depression or anxiety symptoms in patients and are recorded at baseline and upon completion of CR. The scores are grouped into what is referred to as a normal expected range within the general population, borderline and clinically anxious/depressed categories.

The report showed the proportion of patients in the normal category of anxiety/ depression preand post- CR, and the overall change. The summary in Table 6 shows that over 65% of patients were categorised as normal anxiety/depression at baseline for each of the four assessment measures (65.7-78.8%). On average there was a positive increase with patients moving from borderline and clinically anxious/depressed to lower anxiety/depression levels in all four measures upon completion of CR. The greatest change was in the PHQ-9 measure (13.6%), however, this also had the lowest starting point so had the greatest capacity for improvement. The changes resulted in all measures having more than 77% of patients within the normal category upon completion. The summary provides a positive insight into the effect of CR on patients' psychosocial wellbeing.

For further information on the programme level data go to Quarterly Report January 2024.

Table 6. Outcon	Table 6. Outcomes for Psychosocial Wellbeing 2023							
Quarterly Report	Outcome Measure	Time Period	Count	%				
Psychosocial	HADS Anxiety (Normal <8)	Pre-CR	12689	71.6				
Wellbeing		Post-CR	13696	77.2				
		Change following CR	1007	5.6				
	HADS Depression (Normal <8)	Pre-CR	13951	78.8				
		Post-CR	15075	85.1				
		Change following CR	1124	6.3				
	PHQ-9 (Normal <6)	Pre-CR	1834	65.7				
		Post-CR	2215	79.3				
		Change following CR	381	13.6				
	GAD-7 (Normal <6)	Pre-CR	2098	74.8				
		Post-CR	2311	82.4				
		Change following CR	213	7.6				

CR – Cardiac Rehabilitation, HADS- Hospital Anxiety and Depression Scale, GAD-7 - General Anxiety Disorder (GAD-7), PHQ-9 - Patient Health Questionnaire

Exercise Tests Outcomes

Exercise testing prior to the start of an exercise-based programme is recommended best practice (BACPR 2023). The NACR data fields cater for a range of different exercise testing methods that can be used to determine physical fitness and assess patient risk stratification (BACPR 2023). The measures included in this analysis are referred to as objective measures of exercise capacity these include two named tests: Incremental Shuttle Walk Test (ISWT) and 6-Minute Walk Test (6MWT). The third measure is an open field for use of any objective exercise test i.e. a physical test takes place using exercise equipment (treadmill, cycle ergometer or free walking tests that yields a measurement of Metabolic Equivalent of Task (MET) which is a universally accepted term to express levels of physical fitness/exercise capacity.

The report explored the average scores pre- and post- CR, and the extent of change for patients (Table 7). Although change is important there is an expectation that for fitness improvement to be meaningful it should be a certain level of change. Minimal Clinically Important Difference (MCID) is unique to each test and is used by NACR to indicate the proportion of patients meeting an MCID threshold upon completion of CR. Across each of the three measures, the exercise test result increased upon completion: 62 metres for 6MWT, 97 metres for ISWT and one MET. There were also at or above 60% of patients achieving an MCID upon completion for all three measures. Although this summary analysis shows that where exercise tests are performed they are associated with a positive effect of CR on patient's outcomes, less than 50% of CR programmes have an Assessment 2 (post-CR) exercise test recorded. This means that the majority of patients have no objective feedback on how their fitness improved following CR.

For further information on the programme level data go to Quarterly Report April 2024.

Table 7. Outcor	Table 7. Outcomes for Exercise Test 2023							
Quarterly Report	Outcome Measure	Time Period	Mean	SD				
Exercise Tests	6MWT metres	Pre-CR	319.9	111				
	(Count = 3815)	Post-CR	382.7	120.2				
		Change following CR	62.8					
	ISWT metres (Count = 5215)	Pre-CR	382.4	171.1				
		Post-CR	479.6	201.2				
		Change following CR	97.2					
	Fitness Level METS (Count =	Pre-CR	5.1	2.5				
		Post-CR	6.1	3				
	10447)	Change following CR	1.0					
% of patients n	neeting MCID	% meeting 6MWT MCID (25+metres)		72%				
		% meeting ISWT MCID (70+metres)		60%				
		% meeting METS MCID (0.5+ METs)	62%					
CD Cardiaa D	ala ala litatiana CNAVA/T	C Minute Mally Test ICM/T In succession		II. Taat				

CR – Cardiac Rehabilitation, 6MWT – 6-Minute Walk Test, ISWT – Incremental Shuttle Walk Test, MET - Metabolic Equivalent of Task, MCID - Minimal Clinically Important Difference

Cholesterol Outcomes

Cholesterol reporting and outcomes for patients includes three independent measures of lipids pre- and post- CR. The measures were Total cholesterol, LDL cholesterol (LDL-C) and Non-HDL cholesterol (Total minus HDL cholesterol level). There are published guidelines for CVD patients which are <5 Total, <2 LDL and <2.6 Non-HDL (NHS England 2022, NG238 - NICE 2023).

Lipid management is an important aspect of CVD risk management and included in the BACPR, European Society of Cardiology and American Heart Association guidelines for CR (BACPR 2023, Visseren 2021, and Brown 2024). Successful lipid management in patients with CVD is primarily influenced by initiation onto and titration of lipid reducing drugs e.g. statins and is an integral component of a comprehensive CR programme.

Table 8 shows that the majority (64%) of patients pre-CR are achieving the target Total cholesterol, however, regarding LDL-C and Non-HDL the outcome is less with around 35% achieving target status. On average across all three measures, there was a positive movement into the target status, 22% improvement in Total cholesterol, 30% in LDL-C and 29% in Non-HDL. Although, of all Assessment 2s (post-CR) there was at best 35% recording by clinical teams of Total cholesterol and 23% and 28% of LDL-C and Non-HDL respectively. Bringing patients back for Assessment 2 (post-CR) and measuring blood profile, including cholesterol, should be a priority. For further information on the programme level data go to <u>Quarterly Report</u> July 2024.

Table 8. Outcomes for Cholesterol 2023								
Quarterly Report	Outcome Measure	Time Period	Count	%				
Cholesterol	Total Cholesterol (<5)	Pre-CR	10970	64.6				
		Post-CR	14709	86.6				
		Change following CR	3739	22				
	LDL Cholesterol (<2)	Pre-CR	3824	35.1				
		Post-CR	7086	65.1				
		Change following CR	3262	30				
	Non-HDL Cholesterol (<2.6)	Pre-CR	4678	34.5				
		Post-CR	8611	63.5				
		Change following CR	3933	29				

CR - Cardiac Rehabilitation, LDL - Low-Density Lipoprotein, HDL - High-Density Lipoprotein

Blood Pressure Outcomes

Clinical teams routinely report blood pressure pre- and post- CR. Blood pressure data was presented in four ways categorised into count and percentages achieving guideline driven targets: <130/80 and <140/90 and split by Diastolic and Systolic BP using mean values and Standard Deviation (SD) analysis (ESC 2024 and NG136 - NICE 2023).

At baseline over half of all patients were achieving the target of <130/80 (51.3%) with an improvement of 1.1% upon completion (Table 9). When the <140/90 target was used 74.2% of patients pre-CR were below the threshold. This increased by 1.4% post-CR.

The Diastolic and Systolic mean values at baseline were below the 130 and 80 targets and there was a small increase and decrease upon completion in Systolic and Diastolic BP values respectively. For further information on the programme level data go to <u>Quarterly Report</u> <u>October 2024</u>.

Table 9. Outcomes for Blood Pressure 2023								
Quarterly Report	Outcome Measure	Time Period	Count	%				
Blood Pressure	Target BP <130/80	Pre-CR	14967	51.3				
		Post-CR	14191	52.4				
		Change following CR	311	1.1				
	Target BP <140/90	Pre-CR	14967	74.2				
		Post-CR	14191	75.6				
		Change following CR	311	1.4				
	Outcome Measure	Time period	Mean	SD				
	BP Systolic (Count = 29158)	Pre-CR	126.5	18.9				
		Post-CR	126.7	17.6				
		Change following CR	0.2					
	BP Diastolic (Count =	Pre-CR	74.2	11.1				
	29158)	Post-CR	74.1	10.7				
		Change following CR	-0.11					

CR - Cardiac Rehabilitation, BP - Blood Pressure

SECTION 4

Mode of Delivery: Pre- and Post- COVID Analysis

CR teams are now supporting greater patient choice through a more proportional mix of mode of delivery options

Mode of Delivery in 2023

This report establishes a new baseline for CR mode of delivery offering much more choice for patients. For ten years prior to the pandemic the proportion of delivery was dominated by Group-based CR and there had been little change in the proportion of patients accessing alternative forms. However, due to the wide scale lockdown in 2020-2021 CR teams were required to offer Home-based/Self-managed CR which soon became the dominant mode with around 76% of patients. In two years, the delivery profile shifted substantially from >75% Group-based to >75% Home-based/Self-managed. However, in 2022/23 CR mode of service delivery is settling into a more balanced and proportional distribution. One of the benefits of the pandemic has been the acceptance that health services need to be delivered differently and in doing so this has better aligned with patient choice as evidenced in Figure 5. Since 2020 there has been a steady increase in patients receiving Hybrid CR (combination of Group-based and Home-based/Self-managed) with 24% of patients on this mode in 2023.

In a previous quarterly report, published in <u>October 2023</u>, NACR showed that despite the improved UK wide offer of different CR modes, there were some concerning findings that some services are still offering single mode of delivery or no formal CR mode data being recorded for patients.

For further information on the 2023 programme level data go to the <u>Mode of Delivery</u> supplement.



Figure 5. Mode of delivery over time since 2019

In addition to the mode split by three groups (Figure 5), the audit can present the mode of delivery based on named versions of Home-based/Self-managed CR such as Heart Manual, Angina/Angioplasty Plan and REACH-HF (presented in Table 10). This year the audit is reporting the percentage of total patients receiving each mode, as well as the percent of programmes recording the mode of delivery.

In 2019, NACR changed how mode of delivery was recorded, this included splitting Groupbased CR into education and exercise. The Group-based modes are delivered to 59% and 37% based on exercise and education respectively. The 'by programme' split shows that, where mode is recorded, almost all programmes are back to delivering Group-based exercise classes and 88% are delivering Group-based education.

Within NACR, CR modes are split into named evidence-based versions of Home-based/Selfmanaged CR and there is also the option for teams to select Other Home-based/Self-managed and/or Web delivery methods which was often selected during the pandemic era. There is a risk that the non-evidence-based versions of CR, albeit justifiable during the pandemic era, may not yield the same patient benefits. It is important that these less evidence-based modes include all the BACPR recommended core components and are assessed pre- and post- CR to allow NACR to evaluate their impact on patient outcomes.

There is a diversity of named mode of delivery to patients including Heart Manual (6.4%), REACH-HF (1%), Angina/Angioplasty Plan (0.5%) and Web-based Activate Your Heart (0.4%). Between 15-36% of programmes are utilising and delivering these evidence-based modes.

Technology enabled versions of CR are being adopted and are recorded as either App- or Webbased modes. Combining these modes, 7% of patients are receiving technology enabled delivery and over 60% of programmes utilise these modes. This may be suitable for some patients however, offering these choices may create further barriers to already disadvantaged groups in terms of uptake e.g. through access to technology and the translation of materials.

One of the data fields in the new mode of delivery, entitled 'Patient led - reduced staff support' mode, is a non-evidence-based intervention that does not align with BACPR standards, does not follow a structured programme and has minimal CR staff input. It is reported by NACR as it is important that a national audit captures what is being delivered as part of clinical practice. This mode of delivery accounts for around 2.5% of patients seen nationally. This mode does not count as part of a hybrid CR offer.

Table 10. Mode of delivery at patient and programme level						
Mode of Delivery at Core	Са	lendar Yea	r (Jan-Dec 2023)			
	Number of	% of all	Number of	% of all		
	patients receiving	patients	programmes	programmes		
	mode		delivering mode			
Group Exercise	30458	59.1	174	94.1		
Group Education	19048	37.0	162	87.6		
Heart Manual	3319	6.4	66	35.7		
REACH-HF*	497	1.0	51	27.6		
Angina/Angioplasty Plan	258	0.5	27	14.6		
Other Home-based/Self-Managed	21383	41.5	156	84.3		
Web-Based Activate your Heart	214	0.4	41	22.3		
Web Other	2099	4.1	90	48.6		
App-Based	1370	2.7	59	31.9		
Patient led - Reduced Staff support	1281	2.5	91	49.2		
Mode of Delivery Technology	3621	7.0	115	62.2		
Enabled (Any Web, or App-based						
CR)						
Total	51507		185			

*REACH-HF is a HF specific mode and has been delivered to 5.7% of the condition specific population CR – Cardiac Rehabilitation, REACH-HF - Rehabilitation Enablement in Chronic Heart Failure

Comprehensive Assessment 1 (Pre-CR)

Previous NACR reports have looked at comprehensive assessments to ensure all aspects of the BACPR core components are being measured pre- and post- CR. Figure 6 shows the number of all assessment records at baseline for patients starting core CR, however, within these, some patients may not have all core components recorded. The figure also indicates the proportion of patients with risk factors, psychosocial wellbeing and exercise tests recorded within their assessments. A final measure is the level of comprehensive assessments performed at baseline i.e. all three measures recorded.

Although overall numbers of Assessment 1 (pre-CR) are increasing from the 2016 national average (80% to 93%), it is concerning that only 61% and 49% respectively of patients are being assessed for psychosocial wellbeing or have an exercise test. It is even more concerning that only 37% of patients have all three aspects of the assessment recorded prior to CR. This means that 63% of patients start CR with at least one key aspect of the assessment either not measured or not recorded.



Figure 6. Recording of assessment 1 (pre-CR), including the three components and the level of comprehensive assessment

Despite the positive news that mode of delivery is becoming more equally split, a worrying discovery is that consistently at Assessment 1 (pre-CR) and Assessment 2 (post-CR), there appears to be fewer comprehensive assessments performed in Home-based/Self-managed CR modes. For example, Figure 7a-b shows that for Assessment 1 (pre-CR) 50-55% of patients on Group-based and Hybrid modes had comprehensive assessments, whereas this was only 21% in Home-based/Self-managed CR. For Assessment 2 (post-CR) this is even lower with 42-44% having comprehensive assessments at Group-based and Hybrid and only 12% in the Home-based/Self-managed modes.

Overall, these findings suggest that there is less tailoring to the patient need based on the Assessment 1 (pre-CR) in Home-based/Self-managed CR modes. This lower level of measuring and recording comprehensive assessment data makes it harder for services to set long term goals upon completion of the programme and as patients move into long term management.



Figure 7a. Comprehensive Assessment 1 (pre-CR)

Figure 7b. Comprehensive Assessment 2 (post-CR)



Comprehensive Assessment is recording of all three of: Risk Factors, Psychosocial Wellbeing and Exercise Tests Note - 2020 and 2021 have been removed due to the large impact of COVID on service delivery and data entry.

Further analysis of assessment data pre- and post- CR highlights that Home-based/Selfmanaged mode of delivery has the overall lowest comprehensive assessment records with 21% at baseline and 12% following CR (Table 11). This level of assessment is much lower than that seen in the other two mode of delivery groups. One of biggest reasons for these low values is the lack of exercise testing and or its reporting in Home-based/Self-managed CR programmes. For instance, only 29% of patients that start CR on Home-based/Self-managed had an exercise test and of these only 15% had an end of CR exercise test (Table 11). Both pre- and post- CR testing is recommended as part of the BACPR standards (2023). The exercise test pre-CR is used to assess risk and to set the appropriate exercise prescription and the post-CR test used to quantify patient benefit in physical fitness and set longer term maintenance goals.

Table 11. The rates of Assessment 1 (pre-CR), Completion and Assessment 2 (post-CR) split by mode							
or delivery		Group-based		Home- based/Self- managed		Hybri	d
		Count	%	Count	%	Count	%
Total Starting	Core CR	19749		20614		12786	
	Total Assessment records	18889	95.6	18768	91.0	12425	97.2
	Assessment with Risk Factors	18798	95.2	18620	90.3	12342	96.5
	Assessment with Psychosocial Wellbeing	14003	70.9	10681	51.8	8867	69.3
Assessment 1 (Pre-CR)	Assessment with Exercise Test	12905	65.3	5925	28.7	9481	74.2
	Comprehensive Assessment i.e. Risk Factors, Psychosocial Wellbeing and Exercise Test included	9804	49.6	4299	20.9	7093	55.5
	·						
Total Complet	ting Core CR	16192	82.0	15960	77.4	11081	86.7
	Total Assessment records	15366	77.8	13737	66.6	10434	81.6
	Assessment with Risk Factors	15063	76.3	12971	62.9	10084	78.9
	Assessment with Psychosocial Wellbeing	14773	74.8	10404	50.5	9246	72.3
Assessment 2 (Post-CR)	Assessment with Exercise Test	9753	49.4	3164	15.3	6856	53.6
	Comprehensive Assessment i.e. Risk Factors, Psychosocial Wellbeing and Exercise Test included	8326	42.2	2468	12.0	5598	43.8

CR – Cardiac Rehabilitation

SECTION 5 National Certification Programme for Cardiac Rehabilitation

For the first time over 50% of CR programmes achieved Green Certified status The National Certification Programme for Cardiac Rehabilitation (NCP_CR) is recognised internationally as one of the leading quality assurance approaches which uniquely uses routine practice data from NACR alongside a staffing survey across UK based CR programmes.

The annual NCP_CR full report was published in September 2024 and is available here NCP_CR Certification Report 2024.

Key Improvements Over the Year:

- Over 50% of services now Green certified
- Increase in all programmes meeting Key Performance Indicators (KPIs) (average increase 8%)
- Four KPIs are met by ~80%
- Least met KPIs are wait times and Assessment 2 (post-CR)
- Two third reduction in programmes classed as Fail from 2023 (0 KPIs met)

Figure 8. NCP_CR status for CR programmes (count, %) across England, Northern Ireland and Wales (N=205)



Figure 9. NCP_CR KPIs met in 2023 and 2024



SECTION 6

Recommendations and Actions

Based on the data from this year's report the NACR Steering Committee proposes the following recommendations and actions for CR services:

Key recommendations	Possible actions
To have all patient data submitted in timely period	 Working with NACR improve data collection and submission: Identify areas for data submission improvement Share best practice in data entry Utilise NACR training and support
Prioritise comprehensive assessments (pre- and post- CR) covering all core components across all modes of delivery	 Adopt adaptive approaches that allow patients to receive a comprehensive assessment pre- and post- CR, for example: Telephone/video call assessments Flexible times for in-person assessments Utilising alternative versions of patient questionnaires i.e. emailable and/or reduced versions Work with NACR to identify which parts of the assessment components are missing. Set a clear point for CR discharge assessment on Home-based/Selfmanaged programmes that will help with higher adherence to the Assessment 2 (post-CR).
To ensure delivery of all core components by staff with appropriate skills and competencies	Pursue upskilling of existing staff for example: Non-medical Prescriber and psychosocial wellbeing training

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The optimal functionality of NACR relies on good quality data which is only possible through the willingness of clinical teams to audit their service and to work with us to improve CR quality. A major aspect of their work involves entering comprehensive patient data which is done alongside completing clinical assessments and questionnaires specific to our audit reporting. We would like to thank all clinical teams and staff for their continued support.

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As the patient voice for CR in the UK, the Cardiovascular Care Partnership UK (CCP UK) continues to support NACR enabling the audit and its findings to become more meaningful for patients and carers. Thanks to Roland Malkin.

Thank you also to the NACR Steering Group for their continued support, expertise and critical friend role which is one of the main reasons NACR is fit for purpose.

Alison Allen (All Wales Group Representative) Richard Corder (CCPUK Past President) Dr Hayes Dalal (NCP CR Co-chair) Claire Dobson (Health and Care Lead, BHF) Sara Drew (All Wales Group Representative) **Denise Duggan** (Northern Ireland Representative) Jennifer Hannay (England Cardiac Network Representative) **Sally Hinton** (Executive Director, BACPR) **Sarah Howard** (All Wales Group Representative) Dr Mike Lawless (Cardiologist Registrar, Newcastle Hospital/Newcastle University) **Roland Malkin** (CCPUK President) **Gillian Moore** (Northern Ireland Representative) **Dominic Povey** (NHS England) Heather Probert (BACPR President) Janine O'Rourke (England Cardiac Network Representative) Kelly Read (North London Cardiac Delivery Network) **Dr Lars Tang** (International NACR Representative)

Writing group:

Professor Patrick Doherty, Director of NACR Dr Alex Harrison, NACR Lead Analyst / Health Services Researcher Corinna Petre, NACR Project Manager Nerina Onion, NACR Programme Manager Jessica Hemingway, NACR Administrator Dr Lars Tang, International NACR Representative

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List of Supplements

In addition to the data and figures within this report, NACR provides local and regional reports online. These supplements can be used to inform services and drive improvement. The full list of available supplements is below and they can be accessed from the following web link. <u>Annual Report Supplements</u>

Inclusion Staffing Mode Early

Further information on the programme level data within Quarterly reports can be accessed from the following <u>web link</u>

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