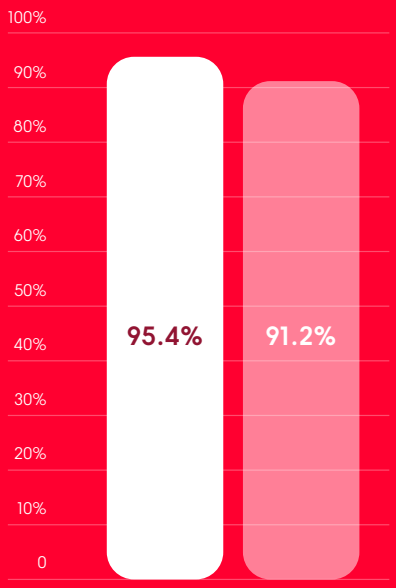
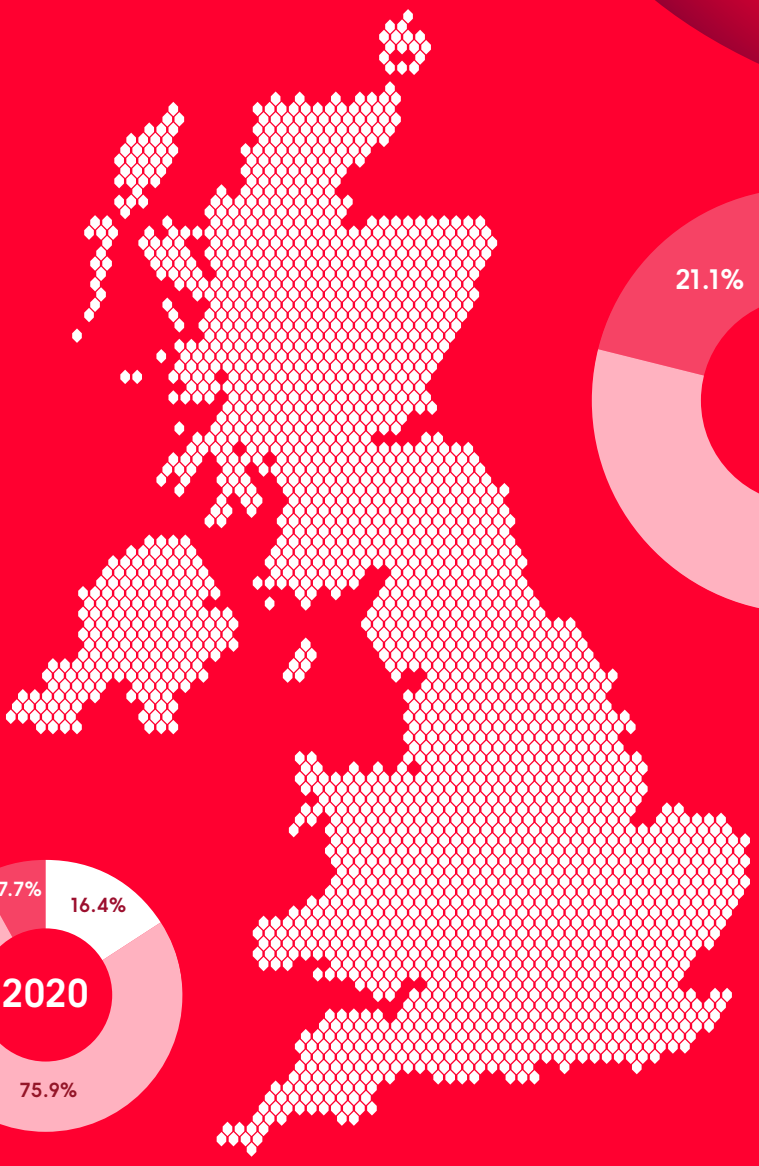
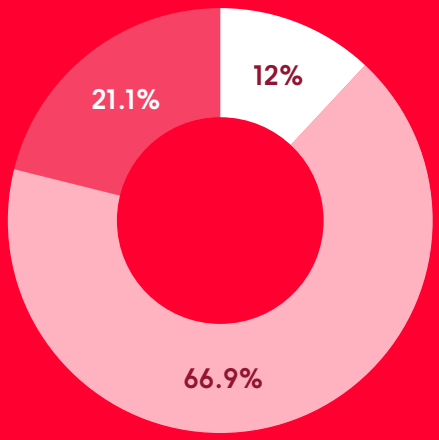
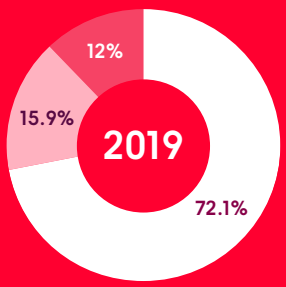
British Heart Foundation









The National Audit of Cardiac Rehabilitation

Quality and Outcomes Report 2021

Executive Summary

Over the past 18 months, cardiac rehabilitation (CR) programmes have continued to adapt their services in response to the Covid-19 coronavirus pandemic. This was achieved through significant adjustment in service provision and unprecedented levels of innovation in service delivery in the face of repeated national and regional lockdown periods and extensive NHS staff redeployment. In doing so, CR has played its part in supporting the NHS through very challenging times and CR staff and clinical services should be proud of their contribution.

During this time the significant redeployment of CR staff to other services (close to 80% at its peak), together with reduced referral from cardiology, has inevitably reduced uptake to CR. Over the audit year clinicians were often and understandably unavailable to verify uptake figures for their service as part of our established validation process. The NACR Steering Group were clear that the audit should not place additional burden on clinical teams to check and validate uptake figures. Therefore, this year's report instead focuses on CR service delivery quality and inequalities in relation to patient participation in CR during the Covid-19 era.

Despite the challenges of CR service delivery during the Covid-19 pandemic, clinicians returning from redeployment have prioritised entry of patient data which has enabled us to understand how the pandemic has impacted services.

The National Certification Programme for CR (NCP_CR) continued to assess CR quality and can report that in the 2020 data period there were 96 Green status programmes. Of these, 64 achieved Green/Certified status, meeting all seven KPIs based on NCP_CR agreed standards, while 32 were held and thus classified as Green/Not Certified. This was in part because of significant gaps in service delivery and patient throughput in the audit year and the NCP_CR Steering Group's decision not to carry over certification status from the pre-Covid-19 period. The need to reassure patients on the current quality of CR remains a key objective of the NCP_CR and the designated status (i.e. Green/Certified, Green/Not Certified, Amber or Red) should, despite the impact of the Covid-19, continue to be based on the most recent data rather than historic data. Encouragingly, there were 12 newly Green/Certified programmes; a major achievement given the impact of the pandemic and one that shows that improved service quality remains possible in the Covid-19 era.

In the first full year of service delivery in the Covid-19 era, CR has changed dramatically with home-based now dominating the mode of delivery. Using audit data from the 12 months prior to Covid-19 and a comparable time period for 12 months of CR service delivery during the Covid-19 era, we see a significant shift away from group-based (72.2% to 16.4%) to home-based CR (15.9% to 76%).

At the same time, analysis of the participation rates in patients found significant relative reductions for females (-5.9%), males (-8.1%) and patients from ethnic minority groups (-11%) in 2020 compared to 2019. In addition, patients from more deprived areas had lower relative participation rates (-3.3%) in 2020, as did patients with no additional long-term conditions, with a drop of 5.7% compared to 2019.

The reasons for ongoing inequalities are complex and any future service delivery solutions will need to take account of NHS service factors alongside patient-level determinants including perceived Covid-19 risk profile (e.g. age, ethnicity, number of additional long-term medical conditions and extent of social deprivation) in the eligible population.

Based on this year's audit data CR patients have an average age of 68 years, often present with two or more additional long-term medical conditions (e.g. lung disease, diabetes, heart failure), and include patients from ethnic minorities with increased cardiovascular and Covid-19 risk as well as patients from areas with high levels of social deprivation. For patients, carers and CR programme providers alike, this high risk cardiovascular/Covid-19 patient profile has created, and will continue to create, additional challenges to CR engagement during the Covid-19 era and perhaps beyond.

In light of ongoing national infection prevention and control strategies and an NHS commitment to deliver more services in the community, CR providers and clinical teams will increasingly be required to re-think the use of large hospital space for group-based exercise and aim to adopt an integrated approach across the wider community sector.

Tailored CR, based on patient needs and preference, is more important than ever yet the extent of patient baseline assessment (prior to starting CR) has reduced significantly in this audit period. Fewer than half of all patients starting CR had an assessment of psychosocial wellbeing and less than 20% had their physical fitness assessed.

At this pivotal time of service change and innovation in NHS practice, NACR, in collaboration with the British Association of Cardiovascular Prevention and Rehabilitation (BACPR), British Heart Foundation (BHF), NHS England and NHS Improvement, National Cardiovascular Intelligence Network and the Cardiovascular Care Partnership (UK) (CCPUK), will work with clinical teams and associated Cardiac Networks, Health Boards and Trusts to provide quality assessment of innovation with a shared aim of an equitable and inclusive approach to CR.

Key recommendations

- Develop and implement strategies to halt the widening inequalities gap in CR participation
- Ensure that the content and quality of all modes of CR delivery aligns with national standards
- Ensure that all CR delivery modes (e.g. home-based, group-based and hybrid versions) are offered to all eligible patients and that patient choice is supported
- Implement a comprehensive and audited patient assessment at the start of CR that incorporates all the core components.

Recommended actions

1 **a.** Introduce inclusive protocols and checklists to ensure that all eligible patients are being offered CR
b. Take proactive steps to recruit patients from underrepresented ethnic groups and patients from areas of higher deprivation

2 At a programme level check that the core CR components of traditional and new modes of delivery align with BACPR national standards.

3 Actively promote comprehensive home-based, group-based and hybrid versions of CR and ensure appropriate support of staff (including training) is available to deliver these according to BACPR national standards.

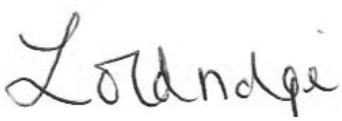
4 Review patient assessment protocols and routine practice assessment to ensure they are implemented thoroughly at the start of CR and ensure that the findings are documented in a format that can be audited.

National Audit of Cardiac Rehabilitation (NACR)

Professor Patrick Doherty, Director - National Audit of Cardiac Rehabilitation

Professor Susan Dawkes, President - British Association for Cardiovascular Prevention and Rehabilitation

Kate Cheema, Director of Health Insights - British Heart Foundation



Lorraine Oldridge, National Lead - National Cardiovascular Intelligence Network

Diane Saunders, Senior Programme Manager - NHS England and NHS Improvement

Trevor Fernandes, President, Cardiovascular Care Partnership UK

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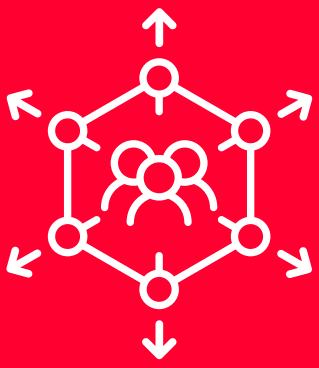
Section 1

Staffing

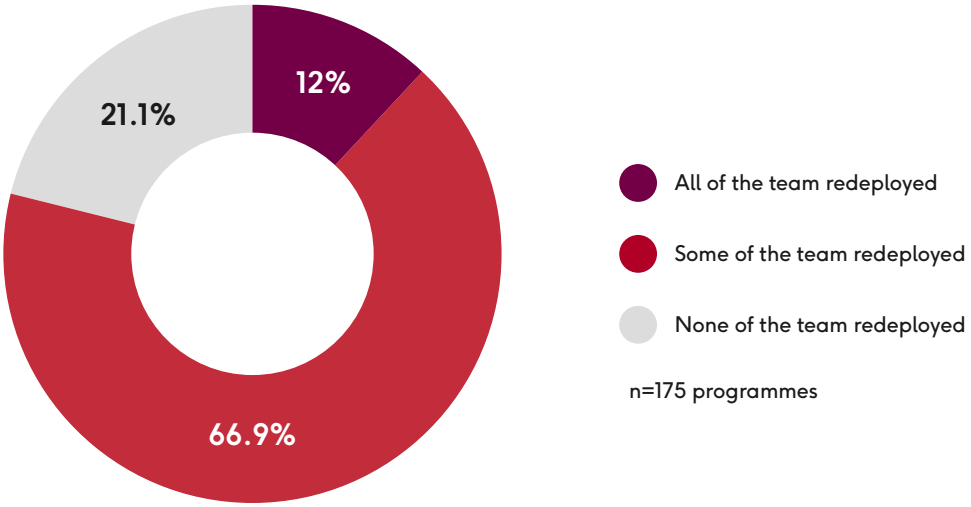


12%

of programmes had their whole team redeployed

NHS staff redeployment or suspension of service during Covid-19 service delivery has had a significant impact on CR delivery; almost 80% of CR programmes across England, Northern Ireland, and Wales had some or all of their team redeployed between January and December 2020 (Figure 1). The impact of redeployment on CR services was considerable, with 12% of programmes ceasing to run completely due to full staff redeployment in their teams. Approximately 67% of programmes had key members of their team redeployed which led to limited support for CR services with an associated reduction in patient throughout. Around 21% of programmes were unaffected by redeployment but these programmes would have been affected by the reduced patient throughput due to Covid-19 restrictions and reduced cardiology referrals.

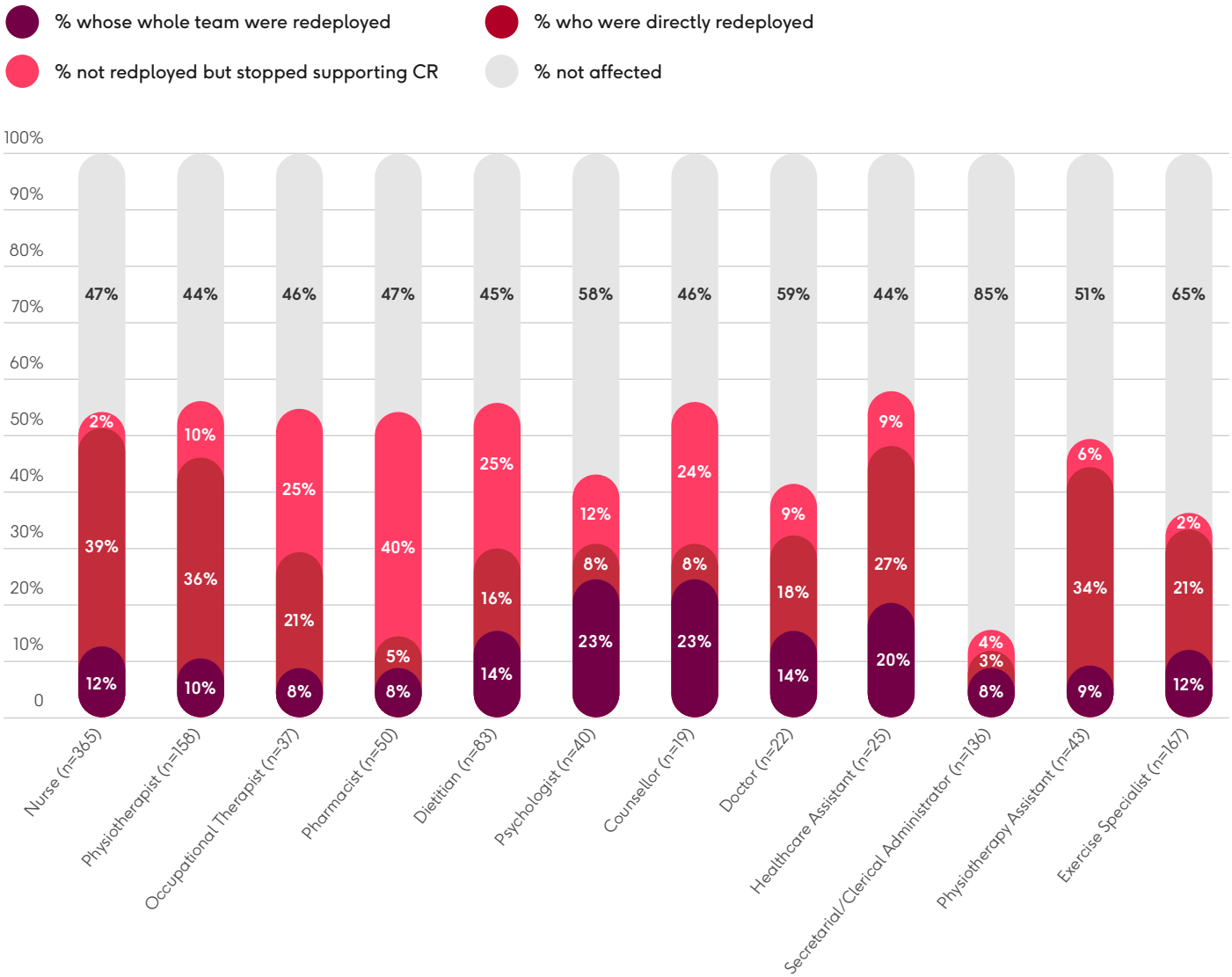
Fig. 1 **Impact on services of redeployment during the period Jan-Dec 2020**



Further analysis of the impact of redeployment on programmes by type of staff showed that redeployment spanned the full spectrum of CR staff types (Figure 2). In Figure 2 the burgundy region of the bar chart shows the proportion of a specific staff-type who worked in a programme where all CR staff were redeployed. The red part of the bar chart shows the proportion of staff who themselves were redeployed to a different role. The pink part of the bar chart shows the proportion of each staff group who did not report themselves as redeployed, but who were unable to continue offering CR support to patients because their CR programme had shut down. The grey bar shows the proportion of staff in each category whose participation in CR delivery was unaffected by redeployment.

The impact of redeployment was particularly evident in six of the 13 staff groups where the proportion of staff redeployed was at or over 40% nationally. The most striking figure was seen for pharmacists, where 40% of staff were not able to support CR even though they had not been redeployed themselves. This is perhaps unsurprising given the burden of Covid-19 on NHS pharmacy services. Three other groups that were significantly impacted were nurses, physiotherapists and physiotherapy assistants, where between 34% and 40% of staff were redeployed to other areas and were no longer available to support CR. The redeployment challenges faced during Covid-19 highlight the vulnerability of CR delivery to appropriate staffing, a risk that may well continue or increase in future years.

Fig. 2 **Redeployment rates by staff type during the Covid-19 period**



Section 2

Patient access and related inequalities

11%

relative drop in ethnic minority participation in 2020 compared to 2019

Despite the impact of staff redeployment, CR services that retained all or some staff continued to offer CR, albeit in a different format due to Covid-19 restrictions (see section 3). Using audit data from the 12 months prior to the pandemic (January to December 2019) and a comparable time period for 12 months of CR service delivery in the Covid-19 era, there were clear reductions in the proportion of certain patient groups starting CR in 2020 (Table 1). Due to the data variability by nations, the analysis and reporting throughout is combined across the three nations.

In absolute terms, the scale of reduction in the proportion of patients starting CR in 2020 from that seen in 2019 ranged from 2% to 6% across gender, ethnicity, socioeconomic status and additional long-term medical conditions.

Analysis of the relative differences in participation rates for patient groups in 2020 compared with 2019 found significant reductions for females (-5.9%), males (-8.1%), and patients from ethnic minority groups (-11%). In addition, patients from more deprived areas had lower participation rates in 2020 (-3.3%), as did patients with no additional long-term conditions with a relative drop of 5.7%. Despite the larger relative decrease in male participation rates compared to females in 2020, overall males continued to demonstrate higher CR participation rates than females.

Table 1. Impact of Covid-19 service changes on CR starting rates for different patient groups and analysis comparing the level of inequality

		2019 Starting CR	2020 Starting CR	Absolute difference (%)	Relative difference (%)
Gender	Male	53.8%	49.4%	-4.4%	-8.1%
	Female	49.1%	46.2%	-2.9%	-5.9%
Ethnicity	White-British	55.7%	50.8%	-4.9%	-8.8%
	Ethnic minorities	51.1%	45.5%	-5.6%	-11%
Socioeconomic status	Least deprived quintile	54.7%	50.4%	-4.3%	-7.8%
	Most deprived quintile	45.1%	43.6%	-1.5%	-3.3%
Additional long-term medical conditions	Two or more	61.4%	56.8%	-4.6%	-7.4%
	No	42.0%	39.6%	-2.4%	-5.7%

Due to rounding of data and category specific percentages, figures within this table will not add up to 100%

Section 3

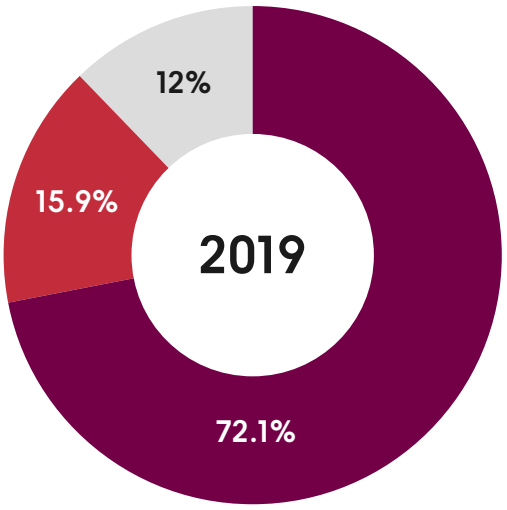
Mode of delivery

60%

increase in home-based mode of delivery

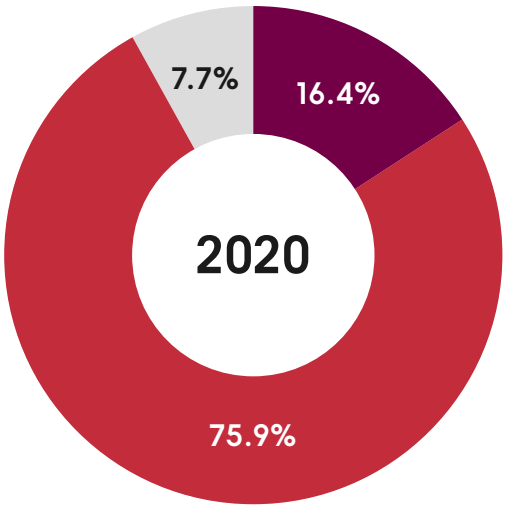
In the audit period there has been a significant shift away from group-based CR (from 72.2% in 2019 to 16.4% in 2020) and greater adoption of home-based CR (from 15.9% in 2019 to 76% in 2020) (Figure 3a & 3b). In the five audit years prior to the pandemic, home-based CR was taken up by an average of 10% of patients (NACR reports 2016 to 2019). There has been a 60% increase in participation in home-based CR this year. This huge and unprecedented change in service delivery highlights the responsiveness of CR teams at this challenging time. However, the immense impact of Covid-19 on CR staff redeployment to acute services plus the large-scale switch to home-based CR by under-resourced and poorly staffed programmes raises concerns about the content and quality of CR if this is being predominantly delivered without a full multidisciplinary team in place.

Fig. 3a **Mode of CR delivery 2019**



n=42,864 patients

Fig. 3b **Mode of CR delivery 2020**



n=35,738 patients

Group-based Home-based Hybrid

The audit data does show that close to 80% of home-based versions offered were, at least by name, working to an evidence-based version of home-based CR (e.g. Heart Manual, Reach-HF and the Angina Plan). These modes would normally be structured, facilitated or supervised versions of CR supported by a multidisciplinary staff team. Despite the tremendous work in continuing to deliver CR during the Covid-19 era, the reduction in staff numbers and expertise through redeployment (Figure 2) resulting in a lack of multidisciplinary teams creates some uncertainty about the fidelity of CR content and delivery.

There is a further concern that 20% of home-based CR delivered during this audit period did not use validated approaches and that input from CR programme staff was documented as minimal to nil. These low resourced modes of CR are unlikely to yield the desired benefits that would normally accrue if programmes were delivered to BACPR standards (BACPR 2017) by a multidisciplinary team. Throughout 2021/22 NACR will assess the impact of mode of delivery on patient outcomes and share these findings with CR programmes, BHF, BACPR and NHS stakeholders.

There was a 4.4% decrease in the proportion of CR delivered through hybrid modes where patients for instance receive two modes simultaneously or start on one mode of CR (e.g., group based) and then switch to another (e.g. home-based). This can mainly be explained by the reduction in group-based CR. If social distancing measures reduce in 2021 and 2022, group-based CR numbers may start to increase alongside further adoption of hybrid modes of delivery.

Section 4

Baseline assessment at the start of CR

Less than

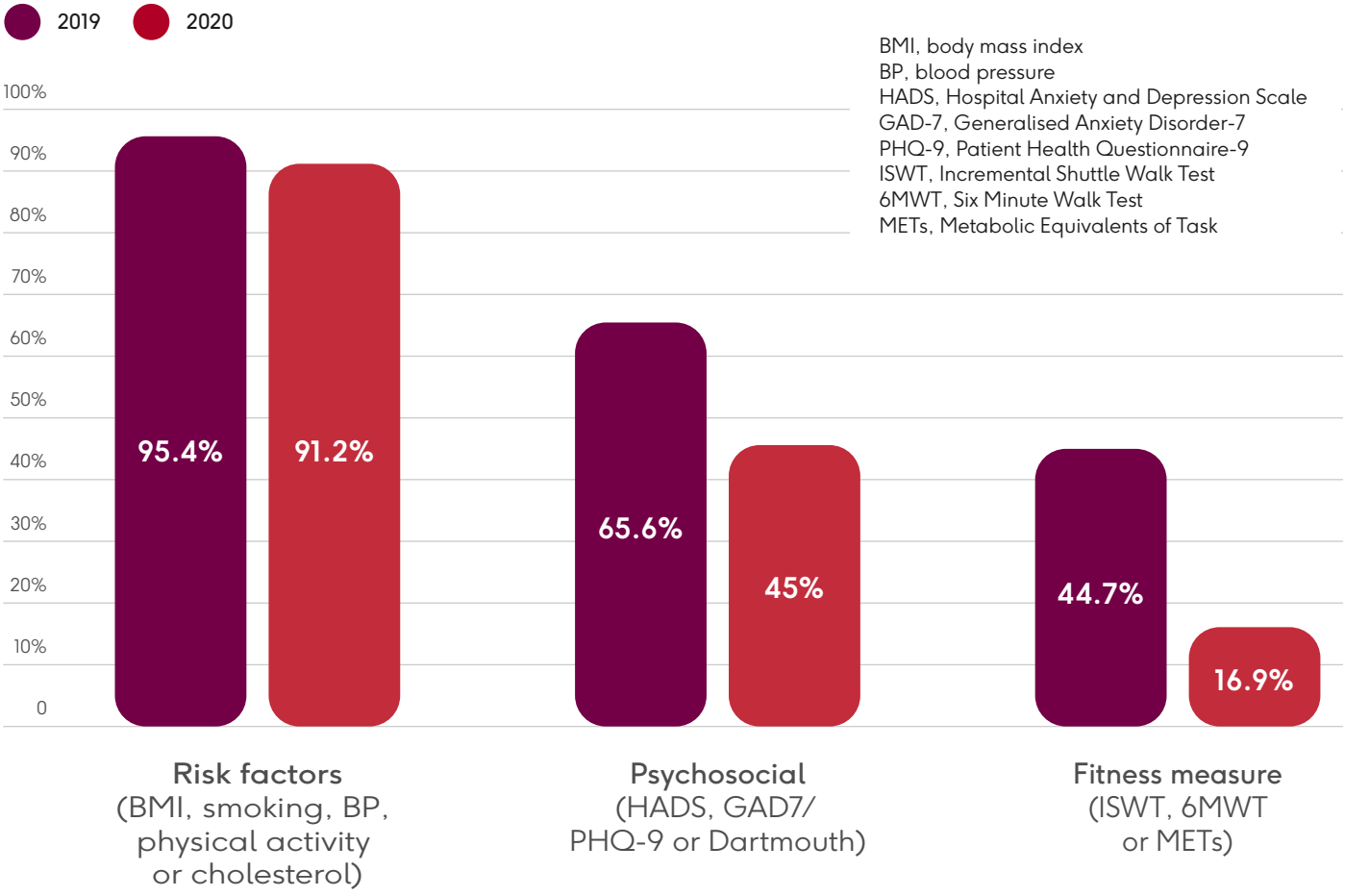
20%

have physical fitness measures

Effective CR is best achieved through a comprehensive prior assessment of patient need that aligns with the core components for CR (i.e. health behaviour change, lifestyle risk factor management, psychosocial health, medical risk management) as per standard 2.3 (BACPR 2017). These initial assessment findings should then be used to tailor the CR intervention (e.g. content, mode of delivery and support) to the identified patient needs and their goals as per standard 2.4 (BACPR 2017). Patient progress should be re-assessed at the end of CR and used to inform long-term strategies for patients as per standard 2.5 (BACPR 2017).

In the five years prior to Covid-19 the frequency of baseline patient CR assessment improved steadily year-on-year, increasing from 76% in 2014 to 94% in 2019. However, due to the pandemic, there was a reduction in the total number of assessments as well as the contents such as risk factors, psychosocial wellbeing and fitness measures (Figure 4). One positive exception was the assessment of risk factors for heart and circulatory disease, with 95.4% of these patients assessed in 2019–only a 4.2% decrease in 2020 (Figure 4).

Fig. 4 Comparison of CR baseline assessment rates pre- and post- Covid-19



By contrast, we see a more marked trend for the other two major baseline assessments. The assessment of psychosocial wellbeing, often viewed as a surrogate for mental health status, had a 20.6% drop in baseline assessment for patients starting CR in 2020. This is particularly worrying when one considers the impact of Covid-19-related social distancing and relative isolation on mental health. The routine assessment of psychosocial health in UK CR is overseen by a wide range of professionals (e.g. psychologists, nurses, physiotherapists and occupational therapists) and predominately involves the use of paper-based or online questionnaires. These should perhaps have been less affected by Covid-19 working restrictions than physical fitness assessment, which requires patients to attend a hospital setting and decreased the most in 2020 (by 27.8%). This highlights the dependency of CR service delivery on face-to-face measures of fitness. Subjective measures of fitness done via questionnaires, rather than an actual physical test, were used by around 20% of programmes in this period.

Section 5

National Certification Programme for CR

30%

of programmes were certified

Despite the challenges around Covid-19 related service delivery the National Certification Programme for CR (NCP_CR) was able to continue to assess CR quality against published minimum standards. In the 2020 NCP_CR data period there were 96 Green status programmes, 64 of them achieving 'Green/Certified' and 32 programmes held and thus classified as 'Green/Not Certified' due to a significant Covid-19 related gap in service delivery, data entry and reduced patient throughput in the audit year. The NCP_CR Steering Group made the decision to not downgrade a previous certification status if the programme missed the KPI targets due to Covid-19 service delivery change; this was classified as held.

Decisions about NCP_CR certification status need to be based on routine practice and associated data entry throughout the audit year which was not possible for some programmes (Figures 1 & 2). The NCP_CR Steering Group also decided not to carry over certification status from the pre-Covid-19 period. The need to reassure patients on the quality of current CR services remains a key objective of the NCP_CR. On that basis the designated status (i.e. Green/Certified, Green/Not Certified, Amber or Red) is based on recent data rather than historic data despite the impact of the Covid-19.

It is encouraging that there were 12 newly certified Green programmes in the audit year. This is a major achievement given the past 12 months and one that shows improvement in service quality remains possible in the Covid-19 era.

Table 2. NCP_CR certification status for all CR programmes 2020 NCP_CR data period

	England n=191	N. Ireland n=9	Wales n=13	UK n= 213
Green Certified	55 (28.8%)	2 (22.2%)	7 (53.8%)	64 (30%)
Green Not Certified	25 (13.1%)	4 (44.4%)	3 (23.1%)	32 (15%)
Amber	57 (30%)	3 (33.3%)	2 (15.4%)	62 (29.1%)
Red	41 (21.5%)	0 (0%)	1 (7.7%)	42 (19.7%)
Fail	13 (6.8%)	0 (0%)	0 (0%)	13 (6.1%)

Due to rounding of data and category specific percentages, figures within this table will not add up to 100%

Section 6

Recommendations and actions

Over

90%

of assessments included risk factors

Based on the data from this year's report and NACR Steering Committee feedback, the recommendations for services are as follows:

Key recommendations

- Develop and implement strategies to halt the widening inequalities gap in CR participation
- Ensure that the content and quality of all modes of CR delivery aligns with national standards
- Ensure that all CR delivery modes (e.g. home-based, group-based and hybrid versions) are offered to all eligible patients and that patient choice is supported
- Implement a comprehensive and audited patient assessment at the start of CR that incorporates all the core components.

Recommended actions

1 **a.** Introduce inclusive protocols and checklists to ensure that all eligible patients are being offered CR
b. Take proactive steps to recruit patients from underrepresented ethnic groups and patients from areas of higher deprivation

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4 Review patient assessment protocols and routine practice assessment to ensure they are implemented thoroughly at the start of CR and ensure that the findings are documented in a format that can be audited.

Acknowledgements

Thank you to the BHF for their longstanding commitment to NACR and their guidance and regular meetings with the NACR Director during the Covid-19 period.

Thank you to the BACPR for their support and for offering education and training for CR clinicians which is needed more than ever before. Thanks also to Dr Hayes Dalal (NCP_CR co-chair).

A national audit 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 (big thank you!) which is done alongside completing clinical assessments and questionnaires specific to our audit reporting.

Thanks also to NHS Digital who not only host NACR but also offer support of the highest order which enables NACR to report using quality assured data.

As the patient voice for CR in the UK, the Cardiovascular Care Partnership UK (CCPUK) makes NACR and its findings more meaningful for patients and carers. Special thank you to Trevor Fernandes who has been a great help in shaping our thinking around the patient perspective and inequalities.

We would very much like to thank the NACR Steering Committee for their continued support and expertise helping us navigate a route to reporting in this challenging year. They are:
Alison Allen (Wales User Representative),
Elaine Allen (England User Representative),
Wendy Caulkin (Patient Representative),
Dr Hayes Dalal (NCP_CR co-chair),
Professor Susan Dawkes (BACPR President),
Chris Dew (Information Analysis Lead Manager, Audit Support Unit, NHS Digital),
Trevor Fernandes (CCPUK President),
Sally Hinton (Executive Director, BACPR),
Suzanne Indge (NACR Lead for the All Wales Cardiac Rehab Group),
Alana Laverty (Northern Ireland Representative),
Lorraine Oldridge (National Lead, National Cardiovascular Intelligence Network),
Dr Lars Tang (International NACR Representative).

Writing group:

Professor Patrick Doherty, Director of NACR
Dr Alex Harrison, Health Services Researcher (Analyst)
Corinna Petre, NACR Project Manager
Nerina Onion, NACR Programme Manager
Jessica Hemingway, NACR Administrator
Dr Lars Tang, International NACR Representative
NACR Steering Committee (oversight and approval)

For further information and contact details please visit:
www.cardiacrehabilitation.org.uk

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List of Supplements

The National Audit of Cardiac Rehabilitation | Quality and Outcomes Report 2021.
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.
http://www.cardiacrehabilitation.org.uk/current-annual-report.htm

- Certification Supplements
- List of Programmes
- Supplement Participation Report
- Priority Groups Report
- Staffing Report
- Age and Gender Report
- Ethnicity Report
- Marital Status Report
- Employment Status Report
- Comorbidities Report
- Time from Referral to Start of Core Rehab Report
- Pre and Post Assessments Report
- Duration of Core Rehab Report
- Exercise Outcome Report
- HADS Anxiety Report
- HADS Depression Report
- Early CR Report

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