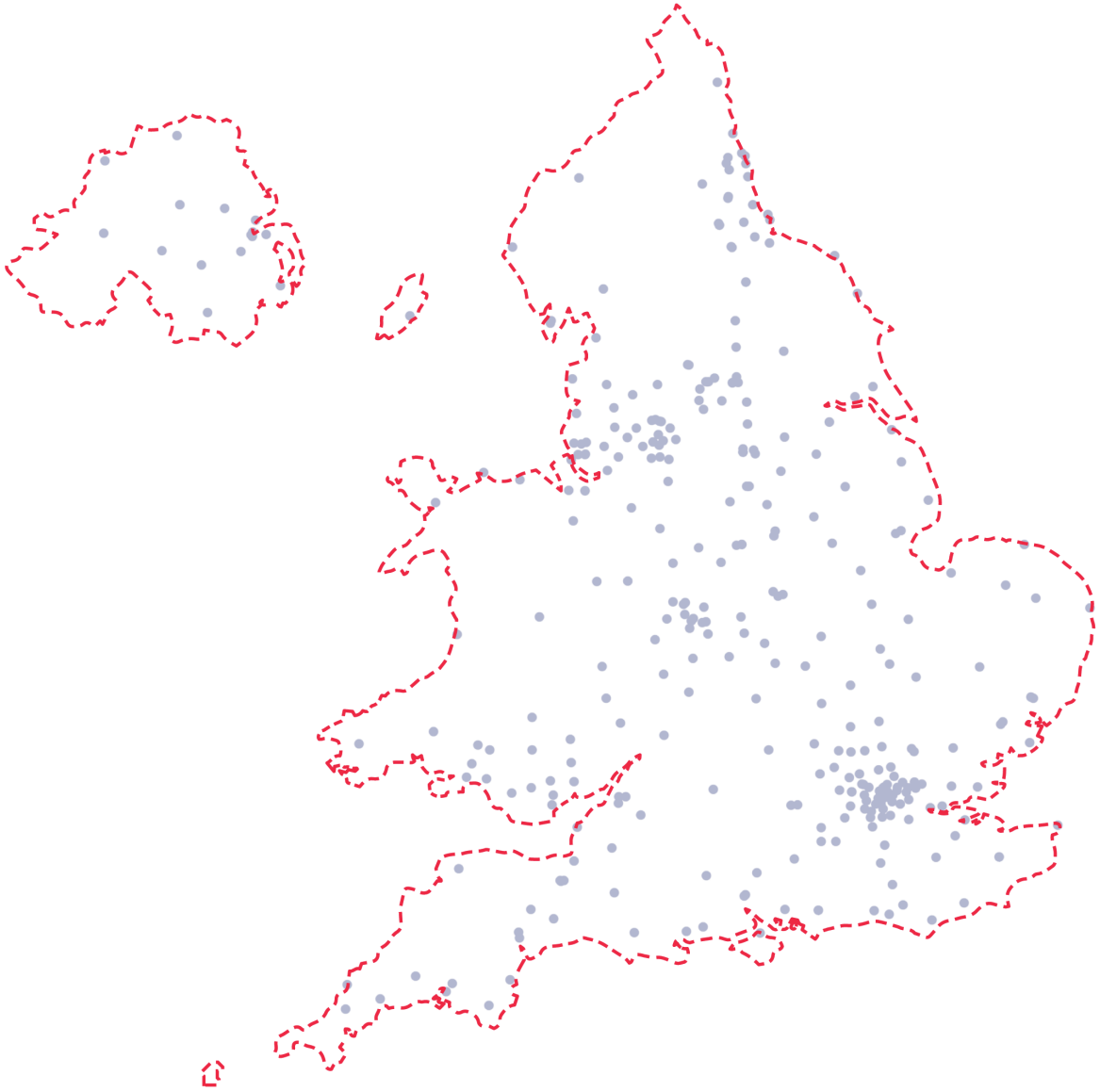
British Heart Foundation

The National Audit of Cardiac Rehabilitation

Annual Statistical Report 2013



BEATING HEART DISEASE TOGETHER

Acknowledgements

Thank you to the British Heart Foundation (BHF) for their continuing support of cardiac rehabilitation and for funding the NACR.

Although an unsung hero in previous years we would like to thank the Health and Social Care Information Centre (HSCIC) for their support and expertise over the last 12 months.

The NACR would not function, as well as it does, without the continuing dedication of the staff of the CR programmes in England, Wales and Northern Ireland, who collect, score and enter the data into the NACR through direct entry, uploading from other databases and by completing the annual postal survey.

We would like to thank the patients who completed the questionnaires, before, after and at 12 months following discharge from their CR programme.

We would also like to thank the members of the steering committee who helped the NACR team during this year of significant and positive change for the audit. They are Linda Binder, Prof Nick Black, Mel Clark, Dr Susan Connolly, Dr Jane Flint, Prof Gill Furze, Dr Chris Gale, Julie Henderson, Suzanne Indge, Jenni Jones, Catherine Kelly, Dr Mike Knapton, Rachel Owen, Dr Terry McCormack, Dr Sally Turner and Prof Peter Weissberg.

Foreword by the British Heart Foundation (BHF) - Dr. Mike Knapton

It is gratifying to see the National Audit of Cardiac Rehabilitation (NACR) shows that, even though the number of eligible patients from cardiology has increased, the numbers attending cardiac rehabilitation (CR) improved from 55,452 to 58,299 in the twelve months between audit reports. The average uptake was 43%, across the three nations and three cardiac conditions (e.g. post MI, CABG and PCI), with some regions achieving very high values (e.g. 88% uptake) with others not doing so well (e.g. less than 20% uptake).

The type of patient seen in 2012 was very different to the type of patient seen in 2006 where only 13% presented with co-morbidities compared to 2012 where 46% of patients presented with co-morbidities. The role of the multi-disciplinary team approach has never been more needed yet the NACR shows, that the staffing profile of CR programmes continues to fall with all seven disciplines showing a drop in percentage involvement.

Last year I wrote that initiatives implemented since 2010, such as the DH CR Commissioning Pack, Cardiac Delivery Plan in Wales and the integrated approach to health and social care in Northern Ireland may yield benefits. It is reassuring to see that the number of patients recorded as having a 'referral' in the NACR who 'did not take up CR' has decreased by 8% in the 2013 report.

Going forward the ambitions set out in the Cardiovascular Disease Outcomes Strategy for England, and other recommendations in Wales and Northern Ireland, calls for programmes to push the average uptake, across all in-scope conditions, to above 60%. This is a huge challenge that will require even stronger commitment from the NACR, BACPR and CR practitioners to meet these aims.

Set against an ever increasing number of eligible patients the positive achievements outlined in this year's audit reflect the dedication, expertise and skill of the health care professionals who work in cardiac rehabilitation across England, Wales and Northern Ireland, and I would wish to acknowledge their contribution to improving the heart health of the population. I would also like to thank the NACR Team in York who undertake the audit and provide support for cardiac rehabilitation.

Dr Mike Knapton
British Heart Foundation

Foreword by the BACPR - Prof Gill Furze

The British Association for Cardiovascular Prevention and Rehabilitation (BACPR) welcomes the NACR report showing that demand on programmes continues to grow and that patients entering cardiac rehabilitation (CR) have more complex needs than ever before. One of the alarming findings is that the multi-disciplinary team (MDT) profile, and the range of interventions offered, is slowly being eroded which is, a finding, at odds with the increasingly higher frequency of multiple co-morbidities.

The data on uptake to CR shows a slight fall from 44 to 43% which, albeit disappointing, is understandable as the denominator (number of eligible patients) continues to rise. The CR uptake hierarchy remains with CABG being highest followed by Post MI with PCI uptake lowest, by a large margin, in some regions. Given the increasing trend toward revascularisation, through PCI, the recruitment of a much higher proportion of PCI patients should be a top priority. On average less than a third of the population accessing CR are female which unfortunately has remained constant for the last three years.

The proportion of patients who were referred to CR but did not take part in CR has come down from 21% to 13% since the last audit. This represents a marked improvement on previous years which means that more patients are benefitting by successfully making the transition from ‘referral’ to actual CR attendance.

The number of patients with co-morbidities has gone up from 17,753 in 2006 to over 60,000 in each of the last three years. This represents a huge change in the complexity of patients accessing CR programmes and has meant that CR programmes managed over 43,000 more patients with co-morbidities in 2012 compared to 2006.

On the upside, clinical outcomes following rehabilitation show positive changes in smoking cessation, physical activity status, anxiety and depression. On the downside, all seven professional disciplines have seen a drop in percentage involvement - which is a finding at odds with the increasingly co-morbid profile of the CR population.

As part of a concerted drive to improve the quality of CR programmes, and to demonstrate that quality to commissioners, the BACPR and the NACR, informed by wider accountability agendas from the NHS, are investigating the feasibility of a certification programme for UK CR. This is a major collaboration that we feel will support services in the midst of commissioning challenges in the coming years.

Prof Gill Furze
Vice President, BACPR

NACR summary

Welcome to the 2013 NACR report which covers clinical services and outcomes for the period 2011-12. Cardiac rehabilitation (CR) staff and programmes have seen record numbers of patients compared to previous years. Unfortunately, mean uptake to services has not changed which is partly influenced by an increase in the number of cardiology procedures and patients but also influenced by poor uptake of CR. The low uptake figures, seen in this and previous NACR reports, tend to drag the national average figure down which is a concern for high-performing programmes, the NACR and the BACPR. More needs to be done, by some programmes, to better align the CR offer with the needs and motivation of patients experiencing a wide range of cardiac events and procedures.

One major improvement in CR service provision has been an 8% drop in the number of patients recorded as a 'referral' on the NACR who 'did not take up CR'. This is a welcome change which possibly relates to major initiatives, in 2010, implemented by the Department of Health, NHS Improvement and the BACPR that supported services and staff to covert a CR referral into CR assessment and attendance.

All patients deserve access to an excellent CR service which, given an uptake range of 13% to 88%, is not presently happening in all areas. The ambition, of the NHS and other national and professional associations, is to achieve much higher average uptake, across all in-scope conditions. The NACR is working with the HSCIC to embed CR in the NHS accountability agenda and is also working with the BACPR to test the feasibility of a CR certification programme. Both these initiatives will support programmes in reaching the new thresholds for uptake whilst assuring quality of CR.

The benefits to patients completing CR are evident through positive changes, in important clinical outcomes, such as; smoking cessation, physical activity status, anxiety and depression. As highlighted by the BHF and BACPR the drop in the MDT staffing profile is a worrying trend especially when programmes are seeing unprecedented numbers of patients with co-morbidities.

We intend to report more data at a local service level, across all three nations, in the coming years. For England this is the final year reporting at SHA level which will, once fully established, be replaced by clinical commissioning group reporting.

The BHF, BACPR and NACR are committed to ensuring that patients get the best possible care following a cardiac event which, we know, can only be achieved through the commitment of the CR staff. Going forward clinical audit will play an even greater role in safeguarding patient services which is why we have developed, alongside the HSCIC, the new NACR platform. We believe this will better support programmes and position the audit to fulfil its role in the new healthcare arena.

Report prepared by: Professor Patrick Doherty and Professor Bob Lewin
Department of Health Sciences, University of York.

Summary of main findings:

- The number of eligible patients (e.g. MI, PCI and CABG) has increased by 8,011 compared to 2010-2011 data and the number taking up CR has also increased by 2,847.
- The proportion of patients who were referred to CR but did not take part in CR has come down from 21% to 13% in the last two years. This represents a marked improvement on previous years.
- The number of patients with co-morbidities has gone up from 17,753 (13%) in 2006 to 61,000 patients (46%) in 2012. This represents a huge change in the complexity of patients accessing CR programmes and has meant that CR programmes managed over 43,000 more patients with co-morbidities in 2012.
- Outcomes following Rehabilitation, for both men and women, led to positive changes in; smoking cessation, physical activity status, anxiety and depression.
- Outcomes at 12 months continued to improve for; non-smoking, psychological well-being, exercise and physical activity but not for BMI.
- All seven professional disciplines, forming the multi-disciplinary team (MDT), have seen a drop in percentage involvement which is a finding at odds with the increasingly co-morbid profile of CR patients attending programmes.

Contents

Section 1

How has the number of programmes changed?

There were 327 Phase I, II or III CR programmes in England, Northern Ireland and Wales in 2011-12 (table 1 shows this by country), and there were a total of 276 CR centres. Some CR centres report for more than one CR programme. There were 8 fewer programmes in 2011-12 compared with the previous year 2010-11 due to more programmes wishing to return audit figures from one centre.

Table 1. CR programmes in England, Northern Ireland and Wales

Country	*2009-10*	*2010-11*	*2011-12*
England	306	293	285
Northern Ireland	15	15	15
Wales	24	24	24
Isle of Man and Channel Islands	3	3	3
Total of programmes for annual survey	348	335	327

Caveats

Maintaining an accurate record of the number of programmes is dependent on new programmes (or neighbouring programmes) reporting to the NACR team and existing programmes notifying the team of changes.

Which patient groups are being excluded from referral protocols?

As table 2 shows there is little change in the trends for exclusion to CR through local referral protocols. On a positive note this remains a big improvement compared to 2006 when very few programmes included patients with ICD and valve surgery.

Table 2. Number and percentage of programmes that reported a policy of not accepting certain diagnoses for Phase III CR

Reason for referral	*2010-11*		*2011-12*	
	N	*%*	*N*	*%*
Pacemaker	58	19	64	22
Heart failure	46	15	40	14
ICD	41	14	40	14
Angina	51	17	47	16
ACS	41	14	35	12
Cardiac arrest	41	14	46	16
Surgical (excluding valve or CABG)	31	10	33	11
PCI	18	6	15	5
Valve surgery	9	3	11	4

(*Number of Phase III programmes that returned the survey: N for each year, 299, 291*)

Caveats

It is possible that in a few cases the exclusion may be because programmes cross-refer patients with certain diagnoses to another centre.

What percentage of people who have had an MI, PCI or CABG took part in CR in England, Northern Ireland and Wales?

The number of eligible patients for CR (MI, PCI and CABG) increased by 8,011 compared to 2010-2011data which meant, once again, that the denominator for the overall uptake calculation increased. This makes it increasingly difficult to track uptake trends year-on-year but as table 3 shows post MI patients managed to demonstrate an increase of two percentage points. PCI and CABG patients showed a slight decrease but in all three categories more patients actually received CR compared to last year.

Table 3. Summary percentages (including all three nations) for patients who had an MI, a PCI, or a CABG recorded in the audit as taking part in CR over two reporting years.

Reason for referral	*2010-11*	*2011-12*	*Change*
	%	*%*	*% point*
MI	44	46	+2
PCI	31	28	-3
CABG	74	70	-4
Total	44	43	-1

Tables in Section 2 (pages 20 to 27) show that breakdown by country, Strategic Health Authorities (SHAs) in England, Northern Ireland as a whole, and networks in Wales.

Is the goal in the England NSF for Coronary Heart Disease (CHD) for 85% of people who have had an MI, PCI or CABG to take part in CR being met?

The NSF for CHD (England) goal, that 85% of patients should be 'offered' CR, has been superseded by the new CVD Outcomes Strategy for England which has set an ambition of 65% uptake (not just offered) across all three main categories (e.g. MI, PCI and CABG). Using this as the benchmark, on average, programmes in England are 21% short of the new threshold. There are clearly many programmes that individually cross the 65% uptake ambition but at the same time there are just as many that fall well short of it.

Are women under-represented in CR programmes and do they benefit in the same ways as men?

If participation in CR among men and women following an MI was proportionate to case rates, 39% of participants would be women. However, women made up 30% of referrals and only 26% of Phase III participants (estimated from NACR figures). If the rate of participation for rehabilitation had been proportionate to the case rate, approximately 9,800 more women would have benefited from rehabilitation in 2011-12.

Table 4. Gender and age at entry to CR in 2011-12 as recorded in NACR

Number referred and age	*Men*	*Women*
% referred	70	30
Average age	65	70

(N, 107,131)

After rehabilitation, women were less likely to meet the nationally recommended physical activity level than men, but they demonstrated greater reduction in the occurrence of clinically significant anxiety and depression.

Table 5. Comparison of outcomes from CR between men and women in 2011-12 as recorded in NACR

Outcomes	*Men*			*Women*		
	Before	*After*	*Change*	*Before*	*After*	*Change*
% smoking	12	7	-5	11	7	-4
% 5 x 30 min exercise per week*	36	58	+22	26	50	+24
% Normal score HADs Anxiety*	73	79	+6	61	69	+8
% Normal HADs Depression*	83	87	+4	79	85	+6

(N, 15,967)

*Statistically significant difference in outcome level between men and women - the large number of cases means that even slight differences are likely to be statistically significant

What proportion of patients who were referred to CR did not take part, and why?

Of those who were referred and entered into the NACR database, 13% did not go on to take part in a CR programme. This has improved substantially from previous years where over 20% of patients did not make a successful transition from 'referral' to CR uptake.

Table 6. Percentage of patients referred to CR who did not take part as recorded in NACR

	2009-10	*2010-11*	*2011-12*
	%	*%*	*%*
Did not take part	25	21	13

(N for each year, 100,380, 102,994, 108,531)

Of the 13% who were referred and did not go on to take part in a CR programme the main reasons are recorded in Table 7.

The greatest loss of patients in the rehabilitation pathway is at entry to Phase III and the most commonly given reason is a lack of interest/refusal by the patient.

Table 7. Reasons given for patients not taking part in CR in 2011-12 as recorded in NACR

Reason	Phase I	Phase II	Phase III	Phase IV
	%	%	%	%
Not interested/refused	4	15	33	31
On-going investigation	4	2	5	2
Too far to travel	<1	8	6	1
Physical incapacity	1	4	9	6
Returned to work	<1	<1	2	2
Local exclusion criteria	4	11	5	9
Language barrier	<1	<1	<1	<1
Holidaymaker	<1	1	1	<1
Mental incapacity	1	1	1	<1
No transport	<1	<1	1	<1
Died	2	3	2	1
Not referred	14	3	1	3
Too ill	2	2	3	2
Rehabilitation not needed	3	2	3	1
Rehabilitation not appropriate	4	7	7	5
Other	27	12	7	4
Unknown	33	26	16	31

(N for each phase, 15,402, 16,185, 32,615, 13,403)

How long are patients waiting for the first assessment and to start each of the four phases of CR?

There are very significant wait times for CR. The median time between having an MI and the start of Phase III rehabilitation is 49 days, and following a PCI, is 46 days. The wait for post-CABG CR is 68 days.

Table 8. Time (median number of days) from event to referral and from event to commencing each phase of CR in 2011-12 as recorded in NACR

Initiating Event	*Wait for referral (days)*		*Phase 1 wait (days)*		*Phase 2 wait (days)*		*Phase 3 wait (days)*		*Phase 4 wait (days)*	
	10-11	11-12	10-11	11-12	10-11	11-12	10-11	11-12	10-11	11-12
MI	3	3	1	1	12	13	53	49	126	124
PCI	2	2	0	0	12	12	48	46	113	119
CABG	8	8	3	3	20	20	68	68	138	137
Other	5	4	1	1	15	16	64	62	139	138
Total	3	3	1	1	14	14	57	55	128	128

(N for each phase, 95,635, 58,712, 54,968, 36,464, 5,130)

Health service policy, across all three nations, and clinical guidance all state that CR should start much earlier. Table 9 below shows that, on average, MI and ACS provision falls within guidelines but more work is required to adhere to policy and guidelines.

Table 9. Time (median number of days) from event to first assessment by diagnostic/treatment group in 2011-12 as recorded in NACR

Initiating event	*Median (Days)*	
	2010-11	*2011-12*
MI	10	11
MI & Primary PCI	14	16
MI & recent PCI	20	19
ACS	6	9
CABG	43	45
PCI	21	21
Angina	20	22
Heart Failure	35	36
ICD	27	40

How multi-disciplinary are CR programmes?

Continuing the theme from last year there is a further fall in the number of health professionals involved in CR. This trend is evident across all seven disciplines and is at odds with the more complex co-morbidity profile seen in the patients attending CR.

Over thirty five per cent of programmes had no clerical support which creates future challenges in providing the necessary data for this audit.

Table 10. Percentage of Phase III programmes with access to the most commonly reported disciplines

Discipline available	*2009-10*	*2010-11*	*2011-12*
	% of programmes	*% of programmes*	*% of programmes*
Nurse	93	90	89
Physiotherapist	62	64	63
Dietician	51	52	44
Pharmacist	42	46	40
Exercise specialist	55	56	44
Occupational therapist	26	27	24
Psychologist	16	10	9

What do patients receive through CR programmes?

It is hardly surprising that as the MDT numbers drop so too does the range of interventions offered to patients. This has been very noticeable in previous years but as table 11 shows some interventions have remained constant this year whereas others continue to decrease.

Table 11. The CR programme components that patients took part in as recorded in NACR

Programme component	*2009-10* %	*2010-11* %	*2011-12* %
Lifestyle education: written	62	61	59
Group exercise	50	52	52
Lifestyle education: talks/video	45	43	40
Dietary: group class	32	30	28
Home exercise	27	27	27
Relaxation training	29	26	26
Diet: individual	25	21	20
Psychological: group talk	19	17	18
Home visits	16	15	16
Individual exercise	17	15	16
Other	2	1	10
Occupational therapy group sessions	5	5	7
Heart Manual	7	7	5
Physiotherapy: individual	2	3	3
Angina Plan	2	1	2
Psychological: individual counsellor	2	1	2
Other home based programme	<1	1	1
OT individual	1	1	1
Road to Recovery	1	<1	1
Vocational assessment	1	1	1

(N for each year, 44,606, 42,708, 40,893)

How many programmes offer each phase of CR and how many patients receive the first three phases?

It is encouraging to see that the vast majority of programmes (98%) offer patients core CR delivery through phase three. Understandably, fewer programmes offer Phase I (83%) and phase II (92%) and fewer still offer Phase IV (80%) as the latter is much more aligned with patient and community long-term management.

Table 12. Number and (percentage) of CR programmes in England, Northern Ireland and Wales providing or referring on to each phase in 2011-12

	Phase I	*Phase II*	*Phase III*	*Phase IV*
N=324	268 (83%)	298 (92%)	319 (98%)	259 (80%)

Each centre provided figures for the number of patients that received each phase of CR. The percentage of patients in each centre starting each phase was calculated and the average percentage is presented in Table 13.

Table 13. The mean percentage of patients starting each of the phases or referred to Phase IV in 2011-12

Phase	*Average % of patients per centre*
Phase I	61
Phase II	72
Phase III	52
Phase IV	20

Are the aims for improved health behaviour described in the England NSF for CHD being met?

What are the aims?

In England, the NSF for CHD (2000) recommended that at 12 months at least 50% of people who took part in CR should be:

1 Taking regular physical activity of at least 30 minutes duration on average for five times each week
2 Not smoking
3 Have a Body Mass Index (BMI) of less than 30 kg/m^2.

What does the NACR show?

In relation to activity levels, at 12 months after participation in CR:

1 There was a 14 percentage point increase in the number of people exercising five or more times a week for 30 minutes and a 23 percentage point reduction in those who rarely/never took exercise.
2 The proportion of people not smoking increased from 90 to 94% after CR.
3 27% of people attending CR did not possess the target level for BMI on the entry to the programme. There was a reduction of 1% at twelve months.

Table 14. Percentage of patients meeting NSF recommendations before and at twelve months after CR in 2011-12 as recorded in NACR

Outcome	*Before CR* *% of patients*	*After CR* *% of patients*	*Change* *% point*
BMI <30kg/m^2	73	72	-1
Exercise: 5 x 30 minutes	34	48	+14
Exercise			
Often	12	21	+9
Sometimes	32	47	+15
Rarely/Never	55	32	-23
Non-smoker	90	94	+4

(N, 3,780)

What impact does CR have on levels of anxiety and depression, and quality of life?

Seven out of eight indicators showed an improvement following CR. The exception was pain awareness which showed a 3 point negative change. The greatest gains were in physical fitness, social support, social activities and daily activities.

Table 15. Dartmouth COOP: Twelve week outcomes from participation in CR: percentage of patients with a Normal Score in 2011-12 as recorded in NACR

	Before *% of patients*	*After* *% of patients*	*Change* *% point*
Physical fitness	40	70	+30
Feelings	83	89	+6
Daily activities	84	94	+10
Social activities	81	93	+12
Pain	88	85	-3
Overall health	76	82	+6
Social support	65	78	+13
Quality of life	95	97	+2

(N, 12,135)

Freedom from anxiety and depression is also an important aspect of quality of life. Before starting CR, 30% of patients were borderline or clinically anxious and 19% borderline or clinically depressed. The table below shows that there was a statistically significant reduction in the percentage of people who were anxious or depressed.

Table 16. Hospital Anxiety and Depression Scale (HADS): Twelve week outcomes following participation in CR in 2011-12 as recorded in NACR

	Before *% of patients*	*After* *% of patients*	*Change* *% point*
HADS Anxiety: in Normal Range	70	76	+6
Borderline or Clinically anxious	30	24	-6
HADS Depression: in Normal Range	81	86	+5
Borderline or clinically depressed	19	14	-5

(N, 13,771)

Further information

A description of all of the measures used and a copy of the questionnaire pack completed by patients is available at www.cardiacrehabilitation.org.uk/nacr

Do co-morbidities influence the outcomes of CR?

Nearly 80% of people attending CR have at least one other illness (see table 42, page 36 for a full breakdown by gender and age). Here we have asked about the association of co-morbidity with three outcomes; physical activity, smoking and psychological distress. The method we used to answer the questions and the tables showing the full results of the analyses are presented in Section 2 (pages 36-37). In answering all of the questions below we also took into account the age, gender and level people were at on entry to the programme.

Were patients with a higher number of co-morbidities less likely to be carrying out the recommended amount of physical activity after CR?

Patients with more co-morbidity were less likely to be taking moderate exercise for 30 minutes five or more times a week. The odds of not achieving this recommended level was 1.7 times higher for people with five or more co-morbidities than those with none.

Were patients with a higher number of co-morbidities more likely to be smoking after CR?

The more co-morbidity a patient had the more likely they were to be smoking at follow up. The odds of smoking were 2.3 times higher for those with five or more co-morbidities compared to those with no co-morbidities.

Were patients with a higher number of co-morbidities more likely to be anxious after CR?

The more co-morbidity a patient had the more likely they were to be anxious at follow up. The odds of being anxious were 2.2 times higher for those with five or more co-morbidities compared to those with no co-morbidities.

Were patients with a higher number of co-morbidities more likely to be depressed after CR?

The more co-morbidity a patient had the more likely they were to be depressed at follow up. The odds of being depressed were 2.3 times higher for those with five or more co-morbidities compared to those with no co-morbidities.

Conclusions

The burden on clinical teams to manage very high percentages of multiple co-morbidities is evident in this report. When this is combined with a two-fold likelihood of being more anxious, depressed, a smoker and less physically active it highlights why these patients should be managed by a MDT utilising a comprehensive CR approach.

Section 2

The electronic database and annual postal survey

The audit consists of two elements:

1) an electronic database collecting data using the HSCIC portal
2) an annual postal survey that collects information on staffing and the number of patients in each diagnostic/treatment group seen by the programmes.

How was the data collected for the annual postal survey?

In England, Northern Ireland, Wales, the Channel Islands and the Isle of Man a questionnaire was sent to the co-ordinator of every CR programme on the Cardiac Rehabilitation Register of Programmes. If programmes did not respond, they were reminded again by letter and then by phone and email.

How is the patient level data collected for the electronic database?

Patients complete a questionnaire pack before they start CR and, where resources allow, immediately after finishing the programme, and then 12 months after discharge from CR.

The programme staff enter this data into the National Database, which is then uploaded to the HSCIC. Anonymised data is passed to the NACR team at the University of York to compile the annual report.

How many programmes took part in the NACR?

One hundred and seventy nine programmes submitted data using the electronic database in 2011-12. This represents around 68% of the CR programmes in England, Wales and Northern Ireland.

Return rate of the annual postal survey

The survey response rate was 93%. The table below shows the return rate by country and the number of programmes that were unable to answer the question about how many patients they had seen.

Table 17. Return rate for the annual postal survey of CR Programmes for all programmes and for those providing Phase III

	*UK**	*England*	*Northern Ireland*	*Wales*
Returned survey all phases	305/327 (93%)	264/285 (93%)	15/15 (100%)	23/24 (96%)
Phase III providers	N=313	N=271	N=15	N=24
Returned survey	291 (93%)	250 (92%)	15 (100%)	23 (100%)
Provided figures	278 (89%)	241 (89%)	15 (100%)	19 (79%)
Estimated figures	35 (11%)	30 (11%)	0 (0%)	5 (21%)

**Includes three programmes from the Isle of Man and Channel Islands*

For further information about the NACR methodology please visit
www.cardiacrehabilitation.org.uk/nacr

Notes on the methodology and analysis

Missing data

Where programmes did not provide data, the numbers in the categories (MI, PCI, CABG) were estimated from NACR in the cases where the programme uploaded data to NACR, or from the median number of patients in these categories from programmes in the same country that did provide this information. Where programmes were unable to provide figures but had done so in previous years, the figures were estimated using the data from the previous year, after confirming with the centre that the service had not changed.

Calculating the proportion of patients who have had an MI, PCI or CABG taking part in CR

To work out the proportion of people who have had an MI, PCI or CABG taking part in CR, data was needed for each nation on the total number of people in 2011-2012 in each diagnostic/treatment group. Those people who were recorded as having both an MI and a PCI or CABG in the same year were counted as having an MI. The data source and methodology for each of the three countries is listed below:

England

Individual anonymised patient level HES data (with death on discharge recorded) was provided by the HSCIC on the number of people who had an MI, PCI and CABG in any diagnostic/treatment category.

Northern Ireland

The Department of Health, Social Services and Public Safety Northern Ireland Statistics provided aggregated data on people discharged alive after having an MI, PCI and CABG in any diagnostic/treatment category.

Wales

Health Solution Wales provided aggregated data on those discharged alive after having an MI, PCI and CABG in any diagnostic/treatment category.

Comparing the results on uptake by geographical region

The data on uptake of CR by region should not be regarded as a league table or reflect the performance of individual programmes. CR programmes may accept patients from outside their own SHA or Cardiac Network. Each region contains many different rehabilitation programmes. This is the final year that the NACR will present SHA level data as it will be replaced by clinical commissioning group reporting.

For Northern Ireland, because of the small number of programmes in each Health Board/Trust, as in previous reports, the figures are presented for the whole country only and are not provided in map format.

There is likely to be a small degree of underestimation in the numbers on uptake of rehabilitation because 11% of programmes were unable to provide data on how many patients they had seen and this was therefore estimated.

Uptake

Table 18. Numbers and percentages of people who have had an MI, PCI or CABG attending CR in 2011-12

Combined data for all three nations

	No. of patients	*Receiving CR*	*% uptake*
MI	79,758	36,345	46
PCI	39,057	10,921	28
CABG	15,726	11,033	70
Total	134,541	58,299	43
	Number of programmes able to provide the numbers seen		278/313 (89%)
	Number of programmes where we estimated the number attending		35/313 (11%)

England

	No. of patients	*Receiving CR*	*% uptake*
MI	72,774	33,317	46
PCI	35,036	10,236	29
CABG	14,230	10,015	70
Total	122,030	53,568	44
	Number of programmes able to provide the numbers seen		241/271 (89%)
	Number of programmes where we estimated the numbers attending		30/271 (11%)

Northern Ireland

	No. of patients	*Receiving CR*	*% uptake*
MI	2,221	1,109	50
PCI	2,309	428	19
CABG	598	405	68
Total	5,128	1,942	38
	Number of programmes able to provide the numbers seen		15/15 (100%)
	Number of programmes where we estimated the numbers attending		0/15 (0%)

Wales

	No. of patients	*Receiving CR*	*% uptake*
MI	4,763	1,919	40
PCI	1,712	257	15
CABG	898	613	68
Total	7,373	2,789	38
	Number of programmes able to provide the numbers seen		19/24 (79%)
	Number of programmes where we estimated the numbers attending		5/24 (21%)

England

Figure 1. The number and percentage of people who had an MI who took part in CR by SHA in England

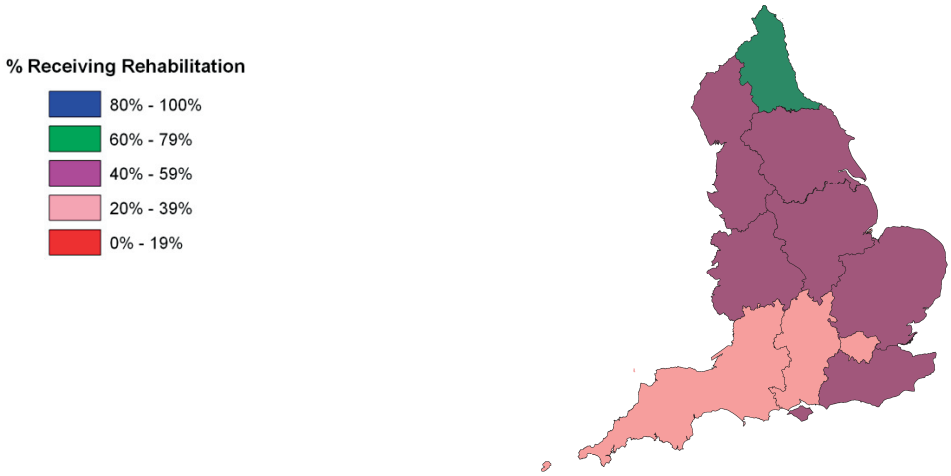


Table 19. The number and percentage of people who had an MI who took part in CR by SHA in England

			2010-2011			2011-2012		
SHA	*N*	*Estimated* N (%)*	*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North East	23	9 (39)	4,984	2,275	46	4,945	3,132	63
North West	39	4 (10)	10,314	5,398	52	10,685	5,515	52
Yorkshire and the Humber	30	3 (10)	8,114	3,487	43	8,510	4,363	51
East Midlands	23	1 (4)	7,422	2,781	37	5,719	2,820	49
West Midlands	28	4 (14)	7,090	2,850	40	7,429	3,002	40
East of England	26	2 (8)	7,575	4,221	56	7,582	3,970	52
London	37	3 (8)	7,696	2,965	39	8,831	2,750	31
South East Coast	23	0 (0)	5,632	2,358	42	5,530	2,792	50
South Central	14	2 (14)	4,967	2,012	41	4,941	1,717	35
South West	28	2 (7)	7,567	2,850	38	8,602	3,256	38
TOTAL	271	30 (11)	71,361	31,197	44	72,774	33,317	46

*the number and % of programmes where data had to be estimated

** patients taken from national statistical sources

Figure 2. The number and percentage of people who had a PCI who took part in CR by SHA in England

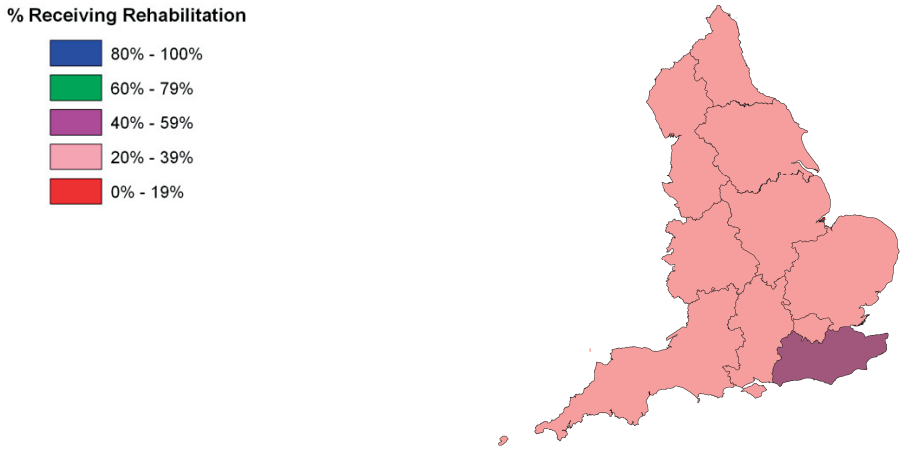


Table 20. The number and percentage of people who have had a PCI who took part in CR by SHA in England

SHA	*N*	*Estimated* N (%)*	*2010-2011*			*2010-2011*		
			*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North East	23	9 (39)	1,688	620	37	2,231	749	34
North West	39	4 (10)	3,269	1,512	46	4,408	1,424	32
Yorkshire and the Humber	30	3 (10)	2,752	735	27	2,889	694	24
East Midlands	23	1 (4)	2,687	368	14	2,957	617	21
West Midlands	28	4 (14)	3,007	1,132	38	3,474	1,084	31
East of England	26	2 (8)	3,395	1,288	38	3,600	1,331	37
London	37	3 (8)	4,181	1,286	31	6,589	1,297	20
South East Coast	23	0 (0)	2,538	902	36	2,490	1,123	45
South Central	14	2 (14)	2,359	681	29	2,259	717	32
South West	28	2 (7)	3,139	1,060	34	4,139	1,200	29
TOTAL	271	30 (11)	29,015	9,584	33	35,036	10,236	29

*the number and % of programmes where data had to be estimated

** patients taken from national statistical sources

Figure 3. The number and percentage of people who had a CABG who took part in CR by SHA in England

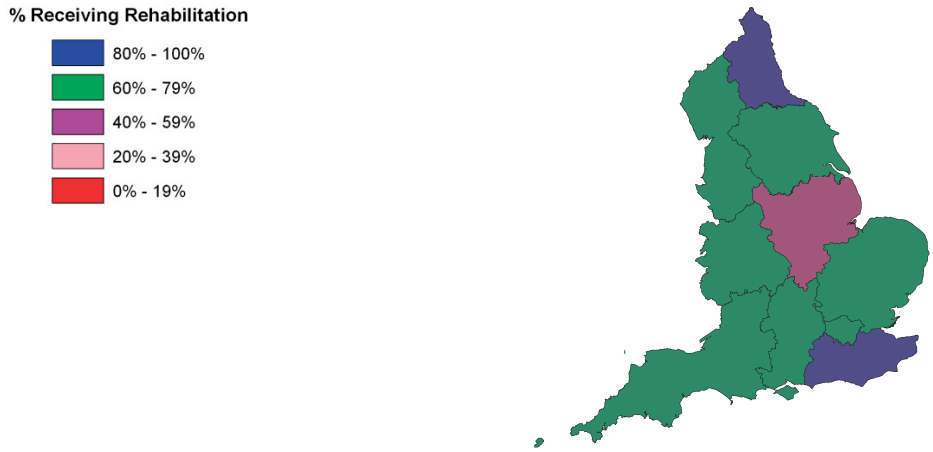


Table 21. The number and percentage of people who have had a CABG and took part in CR by SHA in England

			2010-2011			2011-2012		
SHA	*N*	*Estimated* N (%)*	*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North East	23	9 (39)	750	463	62	966	846	88
North West	39	4 (10)	1,897	1,587	84	2,415	1,609	67
Yorkshire and the Humber	30	3 (10)	1,053	911	87	1,313	1,005	77
East Midlands	23	1 (4)	996	561	56	989	472	48
West Midlands	28	4 (14)	1,522	1,100	72	1,722	1,208	70
East of England	26	2 (8)	1,697	1,211	71	1,494	1,052	70
London	37	3 (8)	1,660	1,154	70	1,660***	1,051	63
South East Coast	23	0 (0)	1,133	797	70	1,133***	984	87
South Central	14	2 (14)	814	741	91	1,078	747	69
South West	28	2 (7)	1,443	1,113	77	1,460	1,041	71
TOTAL	271	30 (11)	12,965	9,638	74	14,230	10,015	70

*the number and % of programmes where data had to be estimated, ** patients taken from national statistical sources, *** data on number of eligible patients taken forward from last year due to HES data error for these two SHAs.

Northern Ireland

Table 22. The number and percentage of people who had an MI, PCI or CABG who took part in CR in Northern Ireland

MI

	N	*Estimated* N (%)*	*N Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
NI	15	0 (0)	2,300	1,268	55	2,221	1,109	50

PCI

	N	*Estimated* N (%)*	*N Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
NI	15	0 (0)	2,375	464	20	2,309	428	19

CABG

	N	*Estimated* N (%)*	*N Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
NI	15	0 (0)	663	431	65	598	405	68

*the number and % of programmes where data had to be estimated

Wales

Figure 4. The number and percentage of people who had an MI who took part in CR by Cardiac Network in Wales

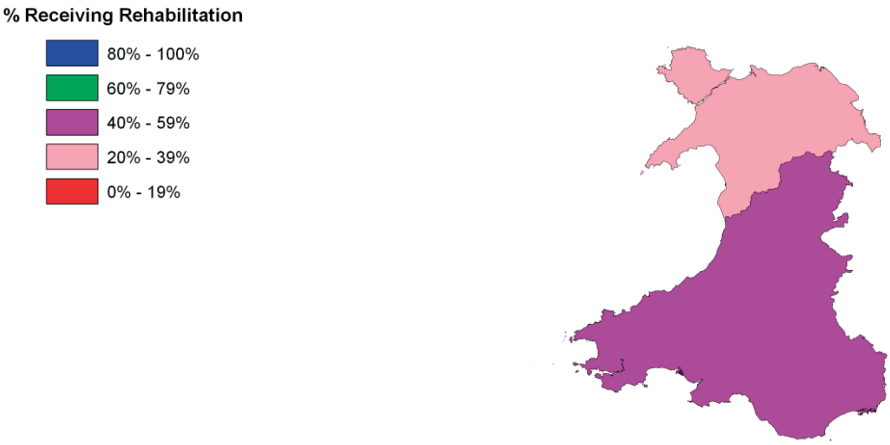


Table 23. The number and percentage of people who had an MI who took part in CR by Cardiac Network in Wales

			2010-2011			2011-2012		
Cardiac Network	*N*	*Estimated* N (%)*	*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North Wales	5	1 (20)	1,217	343	28	1,272	421	33
South Wales	19	4 (21)	3,758	1,637	44	3,491	1,498	43
Total	24	5 (21)	4,975	1,980	40	4,763	1,919	40

*the number and % of programmes where data had to be estimated

** patients taken from national statistical sources

Figure 5. The number and percentage of people who had a PCI who took part in CR by Cardiac Network in Wales

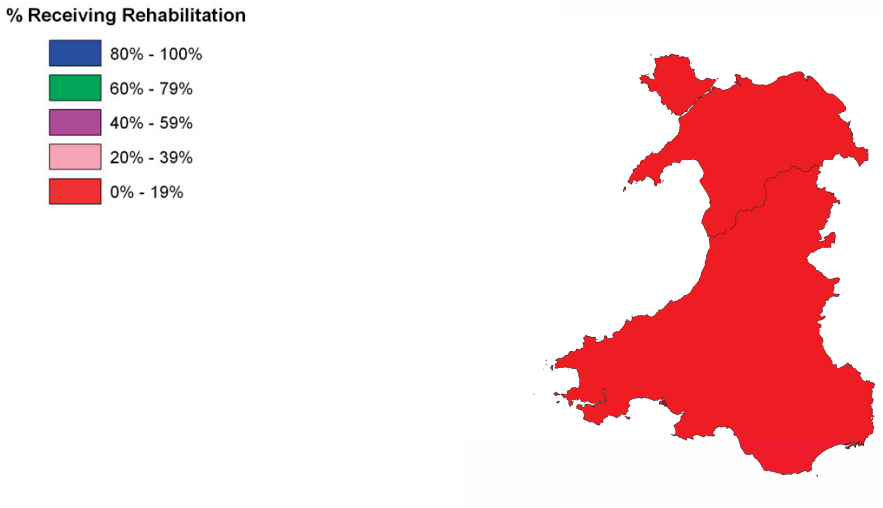


Table 24. The number and percentage of people who have had a PCI who took part in CR by Cardiac Network in Wales

				2010-2011			2011-2012	
Cardiac Network	*N*	*Estimated* N (%)*	*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North Wales	5	1 (20)	502	59	12	472	61	13
South Wales	19	4 (21)	1,557	241	15	1,240	196	16
Total	24	5 (21)	2,059	300	15	1,712	257	15

*the number and % of programmes where data had to be estimated

** patients taken from national statistical sources

Figure 6. The number and percentage of people who had a CABG who took part in CR by Cardiac Network in Wales

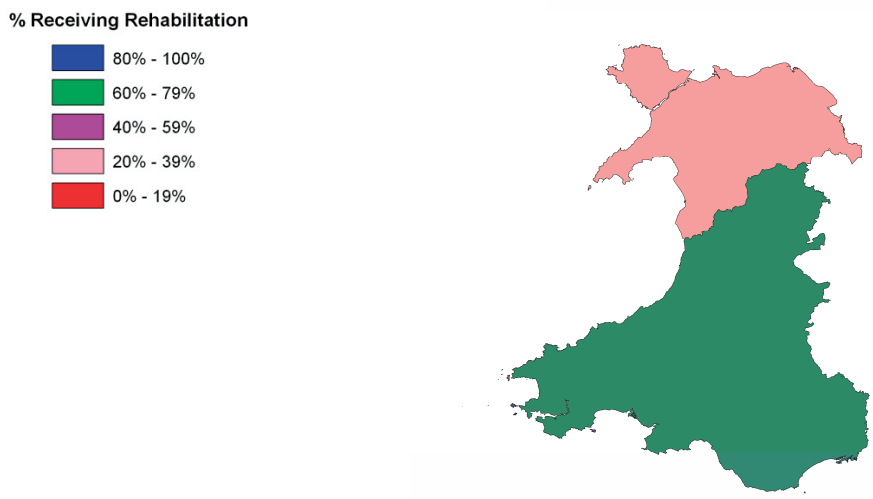


Table 25. The number and percentage of people who have had a CABG who took part in CR by Cardiac Network in Wales

			2010-2011			2011-2012		
Cardiac Network	*N*	*Estimated* N (%)*	*N** Patients 10-11*	*N Receiving CR 10-11*	*% Uptake*	*N** Patients 11-12*	*N Receiving CR 11-12*	*% Uptake*
North Wales	5	1 (20)	251	68	27	215	74	34
South Wales	19	4 (21)	566	522	92	683	539	79
Total	24	5 (21)	817	590	72	898	613	68

*the number and % of programmes where data had to be estimated

** patients taken from national statistical sources

Descriptors and demographics of those referred to CR

Table 26. Age and gender of patients referred to CR who have had an MI, PCI or CABG as recorded in NACR

Reason for referral	*Gender*	*2009-10*		*2010-11*		*2011-12*	
		Average age	*%*	*Average age*	*%*	*Average age*	*%*
MI	Male	65	69	65	69	65	69
	Female	72	31	72	31	72	31
CABG	Male	67	80	67	80	67	80
	Female	69	20	70	20	69	20
PCI	Male	64	74	64	74	64	75
	Female	67	26	67	26	68	25
Other	Male	65	65	65	64	66	64
	Female	68	35	68	36	68	36
All	Male	65	70	65	70	65	70
	Female	70	30	70	30	70	30

(N for each year, 100,380, 102,994, 107,131)

Table 27. Marital status of patients referred to CR as recorded in NACR

Status	*2009-10*	*2010-11*	*2011-12*
	% of patients	*% of patients*	*% of patients*
Married	70	70	70
Widowed	12	12	12
Single	8	8	8
Divorced	5	5	5
Permanent partnership	4	4	4
Separated	1	1	1

(N for each year, 88,841, 73,451, 74,093)

Table 28. Ethnicity of patients referred to CR as recorded in NACR

Ethnicity	*2009-10*	*2010-11*	*2011-12*
	% of patients	*% of patients*	*% of patients*
White (British)	74	77	78
White (Irish)	2	2	2
White (Other)	3	3	3
Mixed White/Black Caribbean	<1	<1	<1
Mixed White/Black African	<1	<1	<1
Mixed White/Asian	<1	<1	<1
Mixed Other	<1	<1	<1
Indian	2	2	2
Pakistani	2	2	2
Bangladeshi	1	1	1
Other Asian	1	1	1
Black Caribbean	<1	<1	<1
Black African	<1	<1	<1
Black Other	<1	<1	<1
Chinese	<1	<1	<1
Other Ethnic Group	1	1	1
Not stated	14	11	9

(N for each year, 90,545, 90,014, 95,069)

Table 29. Employment status of patients referred to CR as recorded in NACR

Status	*2009-10*	*2010-11*	*2011-12*
	% of patients	*% of patients*	*% of patients*
Employed: full-time	17	17	17
Employed: part-time	4	4	4
Self-employed: full-time	4	4	4
Self-employed: part-time	2	2	2
Unemployed: looking for work	2	2	2
Government training scheme	0	<1	0
Looking after family/home	2	2	2
Retired	58	58	58
Permanently sick/disabled	4	4	4
Temporarily sick or injured	6	7	7
Student	<1	<1	<1
Other reasons for not working	1	<1	1

(N for each year, 37,252, 36,364, 34,557)

The medical status of people referred to CR

The number of patients with co-morbidities has gone up from 17,753 in 2006 to over 60,000 for each of the last three years. This represents a huge change in the nature of patients CR programmes now manage. CR programmes managed over 43,000 more patients with co-morbidities in 2012 than 2006.

Table 30. Percentage of patients referred to CR with co-morbidities as recorded in NACR

Co-morbidity category	*2009-10*	*2010-11*	*2011-12*
	% of patients	*% of patients*	*% of patients*
Angina	29	28	28
Arthritis	16	16	18
Diabetes	22	22	23
Rheumatism	4	4	4
Stroke	6	7	7
Osteoporosis	3	3	3
Chronic bronchitis	2	3	3
Emphysema	2	2	2
Asthma	10	10	11
Claudication	5	5	5
Chronic back	11	11	11
Hypertension	49	49	50
Cancer	6	7	8
Other complaint	30	30	32

(N for each year, 64,074, 63,633, 61,943)

Table 31. Percentage of patients referred to CR who have had previous cardiac events as recorded in NACR

Cardiac events or procedures	*2009-10*	*2010-11*	*2011-12*
	% of patients	*% of patients*	*% of patients*
MI	15	14	13
ACS	1	1	1
CABG	5	4	4
PCI	7	7	7
Cardiac arrest	2	2	1
Angina	13	12	11
Other surgery	2	1	1
Heart failure	2	2	2
Pacemaker	1	1	1
ICD	<1	<1	<1
CHD	<1	<1	<1
Transplant	<1	<1	<1
Left Ventricular Assist Device	<1	<1	<1
Other	4	5	5
Unknown	3	2	1

(N for each year, 100,380, 102,994, 108,531)

Reasons for referral to CR

Table 32. Reasons for referral to CR by year as recorded in NACR

Reason	*2009-10* *% of patients*	*2010-11* *% of patients*	*2011-12* *% of patients*
TOTAL MI	52	52	52
Unknown	*8*	*5*	*4*
NSTEMI	*19*	*19*	*18*
STEMI	*6*	*5*	*5*
MI with PCI or recent PCI	*19*	*23*	*25*
ACS	3	3	2
Revascularisation			
PCI	13	15	15
CABG	12	12	12
Other surgery	1	<1	<1
Transplant	<1	<1	<1
Valve Surgery	-	2	5
Cardiac arrest	<1	<1	<1
Pacemaker	<1	<1	<1
ICD	<1	<1	<1
Left Ventricular Assist Device	<1	<1	<1
Angina	4	4	5
Heart failure	1	2	2
CHD	<1	<1	-
Medical Management	-	1	2
Prehab	-	<1	-
Other	8	2	1
Unknown	1	1	1

(N for each year, 100,380, 102,994, 108,531)

Staffing

Table 33. The number and percentage of CR programmes (all phases) across each country with access to different professionals in 2011-12

	England		Wales		NI		Total	
	N	%	N	%	N	%	N	%
Nurse	207	88	19	100	13	87	239	89
Physiotherapist	140	60	16	84	12	80	168	63
Dietician	99	42	12	63	6	40	117	44
Psychologist	22	9	2	11	1	7	25	9
Social Worker	0	0	0	0	0	0	0	0
Counsellor	6	3	0	0	0	0	6	2
Doctor	18	8	0	0	2	13	20	7
Healthcare Assistant	24	10	0	0	2	13	26	10
Clerical	143	61	17	89	8	53	168	63
Administrator	18	8	0	0	0	0	18	7
Exercise Specialist	109	47	8	42	0	0	117	44
Occupational Therapist	52	22	8	42	4	27	64	24
Pharmacist	85	36	14	74	9	60	108	40

(N for each country, 234, 19, 15, 268) Total excludes Isle of Man and Channel Islands

For a full profile of staffing, for each programme, please refer to the PDF version of this report on our web page: www.cardiacrehabilitation.org.uk/nacr

Patient outcomes as recorded in NACR

Table 34. Patient outcomes twelve weeks after completing CR against NSF health behaviour aims as recorded in NACR

	2010-11			2011-12		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
BMI <30	72	73	+1	72	72	0
Exercise:						
5 x 30 minutes	32	54	+22	33	56	+23
Exercise						
Often	16	27	+11	12	23	+11
Sometimes	31	49	+18	32	52	+20
Rarely/Never	53	24	-29	56	25	-31
Non smoker	87	93	+6	88	93	+5
BP Systolic <140 and diastolic <90	67	70	+3	67	70	+3
Total Cholesterol<4	29	51	+22	33	54	+21
Cholesterol LDL <2	31	49	+18	32	50	+18
Waist < 102cm (men) or <88cm (women)	60	63	+3	58	60	+2

(N for each year 17,540, 15,967)

Table 35. Patient outcomes twelve months after completing CR against NSF health behaviour aims as recorded in NACR

	2010-11			2011-12		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
BMI <30	74	73	-1	73	72	-1
Exercise:						
5 x 30 minutes	33	49	+16	34	48	+14
Exercise						
Often	16	24	+8	12	21	+9
Sometimes	31	46	+15	32	47	+15
Rarely/Never	53	31	-22	55	32	-23
Non smoker	88	92	+4	90	94	+4
BP Systolic <140 and diastolic <90	66	68	+2	67	65	-2
Total Cholesterol<4	27	54	+27	33	59	+26
Cholesterol LDL <2	25	52	+27	27	49	+22
Waist < 102cm (men) or <88cm (women)	65	69	+4	66	71	+5

(N for each year, 4,680, 3,780)

Table 36. Hospital Anxiety and Depression Scale (HADS): twelve week outcomes as recorded in NACR

	2010-11			2011-12		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
HADS Anxiety						
Normal	70	77	+7	70	76	+6
Borderline	17	14	-3	17	15	-2
Clinically anxious	13	9	-4	13	9	-4
HADS Depression						
Normal	83	87	+4	81	86	+5
Borderline	11	9	-2	12	9	-3
Clinically depressed	6	4	-2	7	5	-2

(N for each year, 13,833, 13,771)

Table 37. Hospital Anxiety and Depression Scale (HADS): twelve month outcomes as recorded in NACR

	2010-11			2011-12		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
HADS Anxiety						
Normal	72	76	+4	72	75	+3
Borderline	16	15	-1	16	14	-2
Clinically anxious	12	10	-2	12	11	-1
HADS Depression						
Normal	84	84	0	81	83	+2
Borderline	11	10	-1	12	11	-1
Clinically depressed	5	6	+1	7	6	-1

(N for each year 3,802, 3,149)

Table 38. Dartmouth COOP: twelve week outcomes: percentage of patients with a Normal Score as recorded in NACR

	2010-11			2011-12		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
Physical fitness	42	72	+30	40	70	+30
Feelings	84	89	+5	83	89	+6
Daily activities	85	95	+10	84	94	+10
Social activities	82	93	+11	81	93	+12
Social support	88	85	-3	88	85	-3
Pain	77	83	+6	76	82	+6
Overall health	66	79	+13	65	78	+13
Quality of life	95	97	+2	95	97	+2

(N for each year, 12,360, 12,135)

Table 39. Dartmouth COOP: twelve month outcomes: percentage of patients with a Normal Score as recorded in NACR

	2010-11			*2011-12*		
	Before %	*After %*	*Change (% point)*	*Before %*	*After %*	*Change % point*
Physical fitness	39	67	+28	39	66	+27
Feelings	85	87	+2	84	87	+3
Daily activities	83	92	+9	83	91	+8
Social activities	80	90	+10	80	90	+10
Social support	90	83	-7	87	82	-5
Pain	76	78	+2	74	78	+4
Overall health	66	73	+7	64	72	+8
Quality of life	94	96	+2	94	95	+1

N for each year, 3,950, 2,973)

Table 40. Medication record: Aspirin and ACE Inhibitor: twelve week outcomes as recorded in NACR

	Aspirin			*ACE Inhibitor*		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
No	5	7	+2	22	22	0
Yes	92	90	-2	71	72	+1
Contra-indicated	<1	<1	0	1	1	0
Patient declined	<1	<1	0	<1	<1	0
Not indicated	2	1	-1	4	3	-1
Unknown	1	1	0	2	2	0

(N, 16,999, 16,476)

Table 41. Medication record: Beta blocker and Statin: twelve week outcomes as recorded in NACR

	Beta blocker			*Statin*		
	Before %	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
No	13	15	+2	8	9	+1
Yes	80	79	-1	89	88	-1
Contra-indicated	2	1	-1	<1	<1	0
Patient declined	<1	<1	0	<1	<1	0
Not indicated	3	2	-1	2	2	0
Unknown	2	2	0	2	2	0

(N, 16,719, 16,864)

Patient outcomes by number of co-morbidities

Method

Patient outcomes as collected in NACR were used in the analyses.

Logistic regression was used to investigate whether the number of co-morbidities was significant in predicting outcomes. Four models were produced for exercise, smoking status, HADS anxiety and HADS depression. Each model was adjusted for the baseline level of the outcome variables, age group and gender. Age was split into 4 groups, ≤50, 51-65, 66-80 and 81+. The number of co-morbidities was also split, into none, one, two, three, four and five or more.

Table 42. Age and gender of patients by number of co-morbidities

Number of co-morbidities	*Male*		*Female*		*Total*	
	Mean	*%*	*Mean*	*%*	*Mean*	*%*
None	61	25	65	19	62	23
One	64	30	68	27	65	29
Two	67	24	71	24	68	24
Three	68	13	72	16	69	14
Four	70	6	73	8	71	7
Five or more	70	3	72	5	71	4

(Male N, 34,568, Female N, 13,949, Total N, 48,673)

Table 43. Percentage of patients exercising at least 5 x 30 mins per week: twelve week outcomes as recorded in NACR

	2010-11			*2011-12*		
Number of co-morbidities	*Before %*	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
None	33	58	+25	37	62	+25
One	33	56	+23	37	61	+24
Two	31	54	+23	36	58	+22
Three	28	50	+22	33	54	+21
Four	28	47	+19	29	49	+20
Five or more	22	38	+16	22	43	+21

Table 44. Percentage of patients smoking: twelve week outcomes as recorded in NACR

	2010-11			2011-12		
Number of co-morbidities	*Before %*	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
None	18	9	-9	16	7	-9
One	13	7	-6	13	7	-6
Two	11	7	-4	9	5	-4
Three	8	6	-2	9	6	-3
Four	9	7	-2	7	5	-2
Five or more	10	8	-2	10	7	-3

Table 45. Percentage of patients with a normal HADS anxiety score: twelve week outcomes as recorded in NACR

	2010-11			2011-12		
Number of co-morbidities	*Before %*	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
None	71	80	+9	73	79	+6
One	72	78	+6	72	78	+6
Two	71	78	+7	70	77	+7
Three	68	73	+5	68	74	+6
Four	68	74	+6	67	72	+5
Five or more	61	64	+3	57	61	+4

Table 46. Percentage of patients with a normal HADS depression score: twelve week outcomes as recorded in NACR

	2010-11			2011-12		
Number of co-morbidities	*Before %*	*After %*	*Change % point*	*Before %*	*After %*	*Change % point*
None	86	91	+5	86	90	+4
One	84	90	+6	83	88	+5
Two	82	87	+5	81	87	+6
Three	81	85	+4	79	82	+3
Four	78	80	+2	81	83	+2
Five or more	71	74	+3	63	72	+9

NACR staff at the University of York

Professor Bob Lewin. *Project Lead*
Email: bob.lewin@york.ac.uk

Professor Patrick Doherty. *NACR Clinical Lead*
Email: patrick.doherty@york.ac.uk

Corinna Petre. *Project Manager*
Email: corinna.petre@york.ac.uk
Day-to-day management of the project, training, data quality and annual survey
Tel: 01904 321336

Veronica Dale. *Statistician*
Email: veronica.dale@york.ac.uk
Data analysis and individual programme reports
Tel: 01904 321365

Caroline Fairhurst. *Statistician*
Email: caroline.fairhurst@york.ac.uk
Data analysis and individual programme reports
Tel: 01904 321513

Nerina Onion. *Information and Training Officer*
Email: nerina.onion@york.ac.uk
User support, recruitment of new members and training
Tel: 01904 321326

Karen Cardy. *Administrator*
Email: karen.cardy@york.ac.uk
Tel: 01904 321385

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