Heart Manual Facilitator Training

Day 2
Cardiac Rehabilitation: The Heart Manual and facilitation

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Before we start

Have open in the background or on another device:
- D-HM
- Training Workbook

Pen and paper

If you have problems with your signal try-switching off camera during presentations (back on during discussions)
Keep mic on mute and raise hand for comment during presentations
Raise hand option

HM Office no: 0131 537 9137

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Aim

- Overview of:
  - Cardiac rehabilitation in the UK
  - Guidelines and theory into practice
  - CAD and its management
- Promote a facilitative approach by sharing skills, knowledge and competence
- Discuss facilitation of the Digital Heart Manual in relation to patient pathways, patient needs, risk factors and lifestyle change

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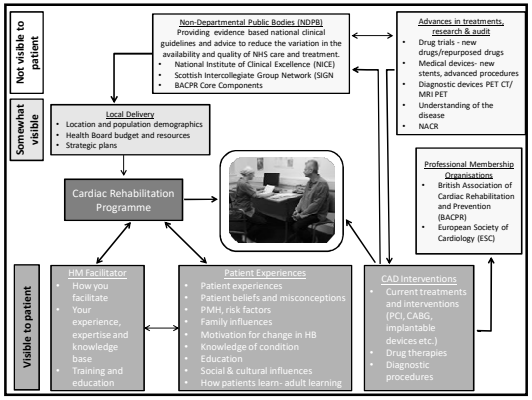
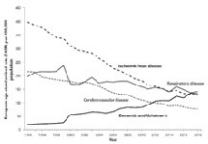


Coronary Heart Disease in the UK

- Coronary Heart Disease is one of the leading causes of death in the UK
- CHD kills twice as many women as breast cancer
- Approximately 63,000 deaths per year in the UK (1in 8 M, 1 in 13 F)
- Most CHD deaths are due to MI
  - 50 years ago >7 out of 10 MI's were fatal, today at least 7 out of 10 people survive
- CHD death rates in the UK remain highest in Scotland and North England

Cardiovascular Disease Statistics, BHF, Jan 2021
Bhf.org.uk/statistics

Figure 3.2b: Age-standardised death rates in Scotland, by selected cause, 1994-2018



Scotland's Population 2018-The Registrar General's Annual Review of Demographic Trends (164th edition)

Basis for CR

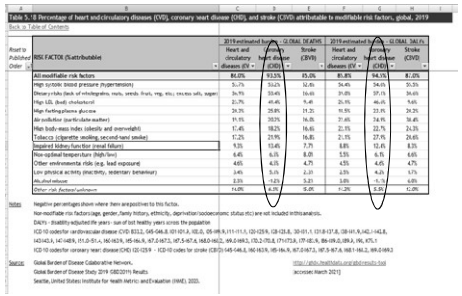


Table 5.1 Percentage of heart and circulatory diseases (CVD), coronary heart disease (CHD), and stroke (CVD) attributable to modifiable risk factors, global, 2019

Back to Table of Contents

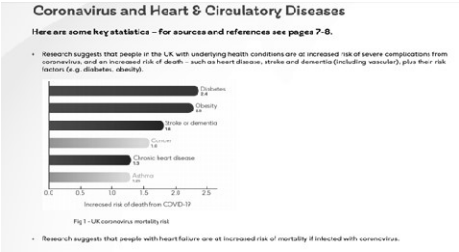
Row # in Published Order	RISK FACTOR (%attributable	2019 estimated burden - GLOBAL DEATHS - Heart and circulatory diseases (CV)	Coronary heart disease (CHD)	Stroke (CBVD)	2019 estimated burden - GLOBAL DALYs - Heart and circulatory diseases (CV)	Coronary heart disease (CHD)	Stroke (CBVD)
	All modifiable risk factors	82.0%	83.5%	85.0%	81.8%	84.5%	85.0%
	High systolic blood pressure (hypertension)	51.7%	50.2%	52.4%	54.4%	54.0%	55.3%
	Dietary risks (lack of wholegrains, nuts, seeds; fruit; veg; etc.; excess salt; sugar;	26.7%	30.4%	16.6%	25.8%	27.1%	16.6%
	High LDL (bad) cholesterol	21.7%	20.4%	9.4%	25.1%	26.4%	9.6%
	High fasting plasma glucose	24.3%	25.8%	19.2%	21.5%	23.3%	19.2%
	Air pollution (particulate matter)	19.1%	19.1%	16.3%	17.4%	18.1%	16.4%
	High body-mass index (obesity and overweight)	17.4%	18.2%	16.6%	22.1%	22.7%	24.3%
	Tobacco (cigarette smoking, second-hand smoke)	17.2%	21.9%	16.8%	21.1%	27.1%	26.6%
	Impaired kidney function (renal failure)	9.3%	10.4%	7.7%	8.8%	12.4%	8.3%
	Non-optimal temperature (high/low)	6.4%	6.1%	8.0%	5.5%	6.1%	6.6%
	Other environmental risks (e.g. lead exposure)	4.6%	4.1%	4.7%	4.5%	4.4%	4.7%
	Low physical activity (inactivity, sedentary behaviour)	3.4%	3.1%	2.3%	4.3%	4.2%	3.7%
	Alcohol misuse	2.5%	3.1%	3.2%	3.8%	5.1%	6.8%
	Other risk factors/unknown	14.0%	12.2%	9.4%	11.2%	8.8%	12.4%

Notes: Negative percentages shown where item are protective to this factor.
Non-modifiable risk factors (age, gender, family history, ethnicity, deprivation/socioeconomic status etc) are not included in this analysis.
DALYs - Disability-adjusted life years - sum of lost healthy years across the population
ICD-10 codes for cardiovascular disease CVD: I111.1, I20-I25.9, I28-I28.8, I30-I51.1, I31.0-I37.8, I38-I41.9, I42.1-I42.8, I42+I43.8, I47-I48.9, I51.0-I51.1, I60-I62.9, I65-I66.9, I67.0-I67.2, I67.5-I67.6, I68.0-I82.2, I69.0-I69.2, I71-I72.8, I77-I78.9, I86-I99.0,I99.2, I99, K75.1
ICD-10 codes for coronary heart disease (CHD) I20-I25.9 - ICD-10 codes for stroke (CBD) I60-I69, I45-I46.8, I61-I63.9, I65-I66.9, I67.0-I67.2, I67.5-I67.6, I68.1-I82.2, I69.0-I69.2

Source: Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2019 (GBD2019) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2020. http://ghdx.healthdata.org/gbd-results-tool (accessed March 2021)

BHF Heart and circulatory disease statistics 2021- Compendium

Impact of COVID-19



Coronavirus and Heart & Circulatory Diseases

Here are some key statistics – for sources and references see pages 7-8.

- Research suggests that people in the UK with underlying health conditions are at increased risk of severe complications from coronavirus, and an increased risk of death – such as heart disease, stroke and dementia (including vascular), plus their risk factors (e.g. diabetes, obesity).

Diabetes 2.6
Obesity 2.4
Stroke or dementia 1.8
Cancer 1.4
Chronic heart disease 1.3
Asthma 1.0
0.0 0.5 1.0 1.5 2.0 2.5
Increased risk of death from COVID-19

Fig 1 - UK coronavirus mortality risk

- Research suggests that people with heart failure are at increased risk of mortality if infected with coronavirus.

BHF-coronavirus-and-heart-and-circulatory-disease-factsheet.pdf (2020)

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Cardiac Rehabilitation

'The co-ordinated sum of activities required to influence favourably the underlying cause of cardiovascular disease, as well as to provide the best possible physical, mental and social conditions, so that the patients may, preserve or resume optimal functioning in their community and through improved health behaviour, slow or reverse progression of disease.'

British Association of Cardiovascular Prevention and Rehabilitation(2017)

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Traditional Patient Pathway

Phase 1: Acute Event , Hospital stay
Manual Introduced, HAD score

Phase 2: Immediate discharge period
Manual educational content, goal setting & pacing
Week 1, 3 & 6, HAD score

Phase 3: Community or hospital based programme
Week 6 – 18

Phase 4: Long term maintenance of lifestyle change

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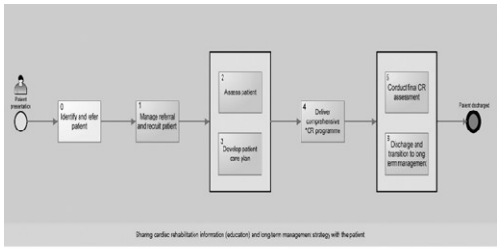
DOH Cardiac Rehabilitation Pathway



*CR = cardiac rehabilitation

DoH Cardiac Rehabilitation Commissioning Pack 2010

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Current UK Key Guidance

SIGN

NICE National Institute for Health and Care Excellence

- SIGN Guideline 150 - Cardiac Rehabilitation
- NICE Guideline (NG 185)- Acute coronary syndromes (ACS) *(Nov 2020 change -includes early and longer-term (rehabilitation) management of acute coronary syndromes.)*

"Begin cardiac rehabilitation as soon as possible after admission and before discharge from hospital. Invite the person to a cardiac rehabilitation session which should start within 10 days of their discharge from hospital". (2013)

"Offer cardiac rehabilitation programmes in a choice of venues (including at the person's home, in hospital and in the community) and at a choice of times of day, for example, sessions outside of working hours. Explain the options available." (2013)

"A home-based programme validated for people who have had an MI (such as NHS Lothian's heart manual) that incorporates education, exercise and stress management components with follow ups by a trained facilitator may be used to provide comprehensive cardiac rehabilitation". (2007).

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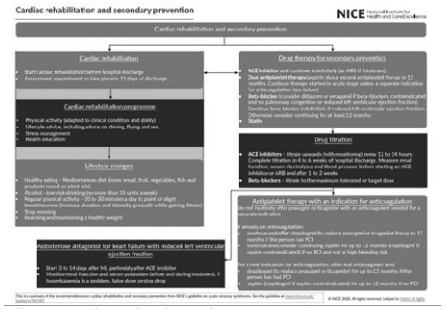
NICE Clinical Guideline (CG) 185- Acute coronary syndromes: Secondary prevention summary



https://www.nice.org.uk/guidance/ng185/resources/visual-summary-secondary-prevention-pdf-8900620813

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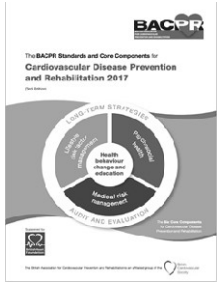
Promoting Excellence in Cardiovascular Disease Prevention and Rehabilitation



The BACPR Standards and Core Components for Cardiovascular Prevention and Rehabilitation 3rd edition

- To provide a blueprint upon which all effective prevention and rehabilitation services are designed
- To provide a template to monitor and assess any variation in quality provision
- Aligned to DOH commissioning pack/ cardiac rehab pathway

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Six Standards for Cardiovascular Prevention and Rehabilitation Service

1. Delivery of 6 core components by a qualified and competent MDT, led by a clinical coordinator
2. Prompt identification, referral and recruitment of eligible patient populations
3. Early initial assessment of individual patient needs which informs agreed personalised goals that are reviewed regularly
4. Early provision of structured cardiovascular prevention and rehabilitation programme (CPRP) with defined pathway of care. Which meets individual's goals and aligned to patient choice
5. On programme completion, a final assessment of individual patient needs and demonstration of sustainable health outcomes
6. Registration/submission of data to National Audit of Cardiac Rehabilitation (NACR)

BACPR/BCS/BHF Statement on Cardiac rehabilitation services (June 2020)
https://bjcardio.co.uk/2020/06/covid-19-and-cardiac-rehabilitation/

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NACR Recommendations

PRE-PANDEMIC

- Optimise recruitment for post-MI patients
- Recruit more female patients and ensure programmes are better tailored to their needs
- Consider co-morbidities as part of recruitment, assessment and intervention
- Complete a comprehensive CR assessment prior to, and on completion of CR
- Offer facilitated home-based modes of CR delivery for all patients
- Deliver quality evidenced by 'certified ' status

2021

- Take steps to recruit underrepresented ethnic groups and those from socially deprived areas
- Ensure that ALL modes of CR delivery are offered to pts (e.g. home-based, group-based, hybrid) supporting patient choice
- All modes should meet BACPR national standards with staff given appropriate support and training to deliver this.
- Auditable patient assessments

7 KPIs for accreditation under the National Certification Programme
http://www.cardiacrehabilitation.org.uk/NCP-CR.htm

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The co-ordinated sum of activities required to influence favourably the underlying cause of cardiovascular disease, as well as to provide the best possible physical, mental and social conditions, so that the patients may, preserve or resume optimal functioning in their community and through improved health behaviour, slow or reverse progression of disease.'

British Association of Cardiovascular Prevention and Rehabilitation(2017)

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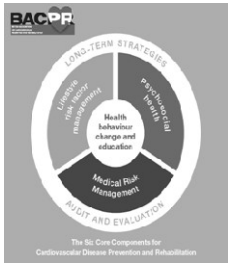
Six Core (Programme) Components

1. Health behaviour change and education
2. Lifestyle risk factor management
   - Physical activity and exercise
   - Diet
   - Smoking cessation
3. Psychosocial health
4. Medical risk management
5. Long-term management
6. Audit and evaluation



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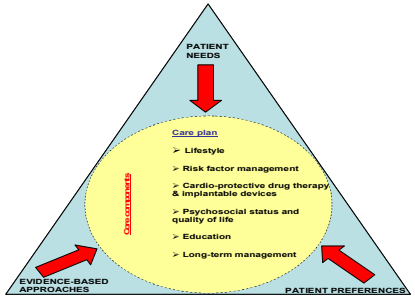
Assessment – Care Planning



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Who should be offered CR?

High Priority:

- ACS - STEACS, NSTEACS and unstable angina
- All those undergoing reperfusion - CABG, PCI or PPCI
- CHF of new diagnosis or with a step change in clinical presentation
- ICD or CRT or heart valve replacement and have a primary diagnosis of ACS or heart failure

Extend to:

- Those following heart transplant and ventricular assist devices
- People with ICD or CRT for reasons other than ACS or heart failure
- People with heart valve replacement for reasons other than ACS or heart failure
- People with a confirmed diagnosis of exertional angina

Assess suitability for either Post MI or Revascularisation HM

BACPR/BCS/BHF Statement on Cardiac rehabilitation services (June 2020)
https://bjcardio.co.uk/2020/06/covid-19-and-cardiac-rehabilitation/

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Today - Cardiac Rehabilitation Uptake

- MI + PCI – 57%
- MI med – 33%
- PCI elective – 49%
- CABG – 71%
- Total – 50%

Programmes vary in length, content and the place of delivery. Increasingly, there is a drive to offer people a choice such as home, community or hospital services.

NACR Annual Report 2018

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Addressing Engagement Issues

- Lack of interest or fear of exercise
- Transport difficulties
- Cost
- Dislike of group activities
- Physical co-morbidities
- Age
- Cultural issues
- Language problems
- Social deprivation
- Gender- Women
- Lack of personal support

Consider how the HM can help to address these issues in your area?

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DISCUSS

- What are the challenges/ what do you think you can do better in your service?
- How can you make your services more accessible to patients?

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The Heart Manual: a facilitated self management tool

- Gain an understanding and acceptance of the condition
- Learn to prioritise and plan
- Set short, medium and long term goals
- Learn to pace appropriately and effectively
- Promote exercise and activity in a realistic manner
- Self-monitor one's own progress and condition changes
- Recognise and deal with common psychological responses
- Maintain behaviour change & deal with setbacks appropriately

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Your role as facilitator

- Engage patient in HM programme- help them to understand the resources
- Encourage patient and carer/family involvement
- Assessing patient needs and understanding
- Educate and address misconceptions
- Assist patients to identify their needs, motivators and areas for change
- Promote positive self management behaviours using HM as reference
- Assist patients to set realistic goals, and identify and address barriers to progress
- Assess progress and address areas of concern
- Introduce long term behaviour change & support patients to manage setbacks appropriately

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Exclusion Criteria for HM

- The Heart Manual is not suitable for patients with a very poor prognosis (cardiac or other) or those who have unstable conditions.
- The judgement as to who receives the manual is a clinical one.
- Patient safety should always be considered by the practitioner who prescribes and those who facilitate the manual.
- Additional considerations; communication barriers such as language or literacy and catchment area.

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Facilitation options

Initial referral, introductions & HM options:

Specialist assessment of patient need/ suitability for HM

- HM Post MI/ Revasc
- Paper / Digital

Facilitation:

- Community led
- Hospital led

- Facilitation team:
  - Registered Nurse, AHP's
  - Non-registered- Exercise specialist, HCSW

Intervention pathway:

- Initial assessment
- Follow up x2-3(average)
- Final assessment
- Refer onwards at discharge

- Intervention delivery:
- Face to face- home, clinic
- Phone call
- Video call

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Remote consultations

Options:

- Phone, video, text, e-mail (benefits of each)
- Supporting materials -Apps, web-based platforms, videos, fitness trackers etc.

Be aware:

- Do your homework-PMH, index event, social circumstances
- Can/ is a partner/relative/other be there for consultation-e.g. for safety during exercise

Remote assessment and review

- Information pulled from medical records, referral info
- Careful history and simple questioning of patient
- Focus on change- progress, setbacks deteriorations, any physical symptoms, ease and comfort of speech or exercise
- Other validated tools- Rating of Perceived Exertion Scale (RPE) Duke Activity Status Index, TAM2, HAD, PHQ9

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The Heart Manual Content

- **Part 1:** Your Heart Condition: the facts
  Read during hospital stay, relaxation and FAQ CD's
- **Part 2:** The 6 weekly programme, community facilitated

  Week 1 Getting home - getting better
  Week 2 Feeling better, smoking
  Week 3 Making progress, diet
  Week 4 Getting better all the time, weight
  Week 5 Feeling more like yourself, exercise
  Week 6 The end…and the beginning, blood pressure

  Daily – Relaxation, Walking, Exercise and Activity record
- **Part 3:** Facts and advice to aid recovery

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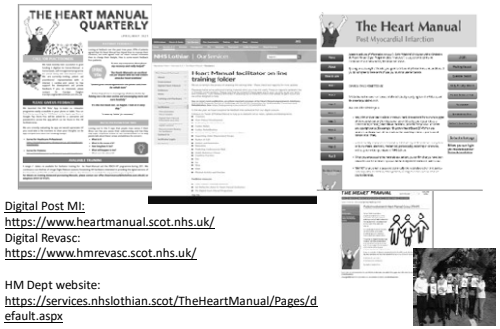
HM Facilitator Resources



Digital Post MI:
https://www.heartmanual.scot.nhs.uk/
Digital Revasc:
https://www.hmrevasc.scot.nhs.uk/

HM Dept website:
https://services.nhslothian.scot/TheHeartManual/Pages/default.aspx

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Interactive pages

- **Wk1 P24: Exercise-** what would you like to do longer term
- **Wk2 P45: Worry quiz-** helps patients identify worry related behaviours
- **Wk 2 P59: General understanding- what do you know about heart attacks?** Help address misconceptions and assess understanding
- **Wk3 P74: Feeling down**-questions on symptoms
- **Wk5 P106: Anti stress tactics questionnaires:**
  - **P106 Speeding, P109 overworking, P111 driven behaviour**
- **Wk6 P131 What are you doing to protect yourself ? Quiz**
- **Part3 P141 Medicines chart**
- **P167: End of programme questionnaire to HM Dept**

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Facilitating the HM: 5 Steps to Success

- Step 1 • Build a rapport
- Step 2 • Think about CAD
- Step 3 • Think about the risk factors
- Step 4 • Set goals & pace
- Step 5 • Sum it up

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Step 1
Build a Rapport

- Engage with the patient & partner
- Discuss your role as a facilitator
- Provide your/service contact details
- Review the patient's & partner's experience
- Normalise the recovery process or reaction to condition
- Outline the use of the HM (part 1, 2 & 3, CD)

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What questions will you ask?

What information will you give?

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Early Intervention using the HM Issues to consider

- Encouraging feelings of control over illness
- Deal with denial or rejection of the HM
- How to help partners, carers and families
- Marriage and relationship issues
- Dealing with overprotection
- Family demands or demanding families
- Guiding physical activity
- Returning to work

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Theory to Adult Learning

- Adults have a need to know why they should learn.
  - Learning needs to be relevant and important.
- Adults prefer to be self-directed.
  - Deciding for themselves what they want to learn.
- Adults have a broad range of life and learning experiences.
  - This may influence new learning in both a positive and negative way.
- Adults can become ready to learn when they experience a life situation where they want to or need to develop understanding.
- Adults enter into the learning process with a task orientated aspect to learning.
- Adults are inspired by both intrinsic and extrinsic motivators.

Atherton J S. Learning and Teaching; Knowles' androgogy: an angle on adult learning. http://learningandteaching.info/learning/knowlesa.htm

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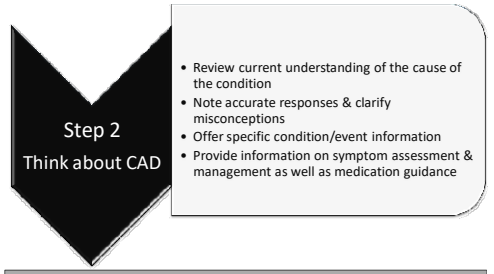

HM signpost-
Part 1- Your Heart Attack- the facts (Pg7)

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Hints for first session

Patient issues	Section to signpost	HM
What has happened to me?	You and your heart attack	Part 1 (P11)
Will I get better and how will this affect my life?	Will my heart recover/ general information	Part 1 (p14-15)
Early recovery- establish what to do now	Getting home -getting better	Wk 1 (p21)
	Do I don't I	Wk1 (P23)
Feeling anxious and down	I'm feeling upset and unsettled	Wk 1 (p21)
	Feeling worried, fed-up....	Wk1 (P32)
	Tension and worry-Relaxation CD/audio/App	Wk1 (P29-31)
How to introduce exercise as part of recovery	Why exercise is important	Wk1 (P24+)
	Walking and exercise record	Wk1 (P26-29)
Additional facilitator agenda		
How to manage future symptoms-safety	If you think you may be having another heart attack (emergency page)	Wk 1 (P35)
	Chest pain (and others as appropriate)	Part 3 (P143+)
Help them understand their risk	CAD	Wk 2 (P47)
	Risk factors are bad news	Wk 2 (p49)
	Jim McGuire's story	Wk 2 (p51)
Medication	Medicines chart	Part 3 (P141)
	Specific medicines information	Part 3

Case study 1: Dorothy Peacock 84 years of age

Increasing breathlessness and shoulder ache when walking the dog, recently diagnosed as angina
(Training workbook P21)

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DOROTHY PEACOCK – 85 YEARS

Reason for referral: Angina prior approximately 12 months, but more troublesome recently. Unable to do ETT but taken for elective PCI where she had DES x2 to RCA and LAD.

PMH: Previous MI 4 year ago, AF, Osteoporosis ,Arthritis in knees/hips

Physical activity: BMI 28 Smoker 10/day Diet Chlo 6.2,BP on discharge: 130/84 Pulse 76 irregular. No HADS score. On all appropriate meds.

Social: Walked every day to local paper shop and back. Stick for outdoors. Approximately 15mins in total. Has to stop sometimes.

Care-giver: Daughter visits most days and takes shopping. Sees this as a warning and wants her mum to take it easy from now on.

First visit: Dorothy admits to feeling anxious about being home alone in case she takes unwell. She feels quite weepy sometimes. She's not sure but she thinks she has had another heart attack but has had an operation to repair it? She is not sure about what happens to the stent when she moves and is understandably cautious about overdoing it. She feels tired all the time and is still a bit breathless. She's reluctant to go out until she feels a bit stronger. Her medication has been changed and she's unsure it's all necessary at her age.

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Case Study Work Sheets A/B

Worksheet A (P24)

- Can you identify any educational needs?
- What are the key physical and psychological needs of your patient and can you come up with potential solutions?
- Identify areas in the Heart Manual and resources which may be able to help.
- Identify possible support needs e.g. activities of living, social work, return to work etc.? (Including caregiver)

- Worksheet B (p25)
- How would you encourage self-management with regards to HBC/risk factor modification?
- How would you assist in setting activity goals with your patient and what factors would you consider?
- How would you monitor progress?
- How would you deal with a set-back?

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Case study 2: Scott Graham, 53 years of age

Admitted with central chest pain radiating to his jaw and left arm, diagnosed as STE-ACS

(Training Workbook p22)

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SCOTT GRAHAM – 53 YEARS

Reason for referral: Admitted to hospital by ambulance with central chest pain, radiating to jaw and arm. Diagnosed by SAS as acute STEMI and taken for primary PCI. BMS x2 to LAD and OM1. One episode of self-terminating VT in CCU. Troponin 3.2. BP on discharge: 110/60 Pulse 60 regular. Waist circumference 87 cm.

PMH: Normally well. Had a few episodes of "indigestion" and feeling quite tired a few weeks prior to admission.

Risk factors for CAD: Chol 7.4 • Family history (father died of MI 52y) • Smoker 20-30/day • Reduced activity. On all appropriate medication. HAD Anxiety: 14 Depression: 9

Physical activity: Sedentary job. He went swimming with his son on his day off. 15-20 lengths.

Social: Self-employed taxi driver. Working long hours. Requesting urgent cardiology review to get permission to go back to work.

Care-giver: Wife witnessed the MI and called the ambulance. Very worried about Scott going back to work too soon. 7 year old son.

First visit

Scott is very anxious about his finances and young family. He thinks stress was the main factor in his MI. he doesn't see how he will have time to work through the HM as he is planning to go back to work soon, but he will try to read some of it. He is not sure about the relaxation CD. He says he is not happy about taking a beta blocker as he is worried about the side effects.

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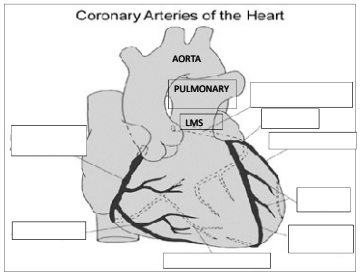

Right coronary artery | Acute marginal | Posterior descending | Left anterior descending | Diagonals
Left coronary artery | Circumflex | Left main stem | Oblique marginal

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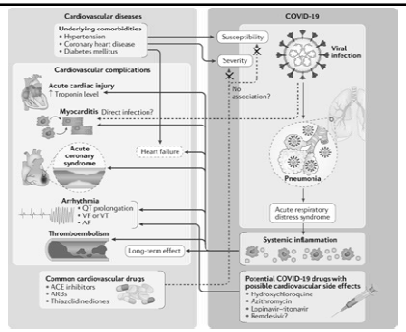

Bidirectional interaction between cardiovascular diseases and COVID-19

Nature Reviews Cardiology **volume 17**, pages543–558(2020)
https://www.nature.com/articles/s41569-020-0413-9

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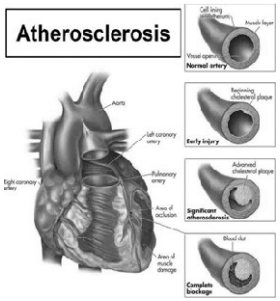
What causes CAD?

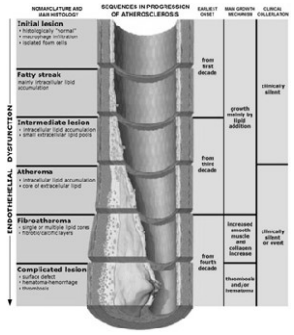
Atherosclerosis: is a condition in which cellular and fatty materials collect along the walls of the arteries. This causes the vessel to narrow, harden and develop a fibrous cap. In some cases the atheroma may occlude the vessel completely, or the plaque may rupture causing a clot to form

HM signpost-
Part 2 Week 2- CAD (P46-48)



45

- Inflammation / Injury
- Penetration of cholesterol and macrophages
- Immune response – macrophages devour cholesterol (foam cells)
- Build up of foam cells, lipids & necrotic debris
- Smooth muscle proliferation -fibrous cap



46

Angina Pectoris

Angina is a symptom which may be described as a transient discomfort, tightness, pressure or heaviness in the chest. It may radiate to the arms, jaw, shoulders, back, upper abdomen or neck, and may be accompanied by shortness of breath

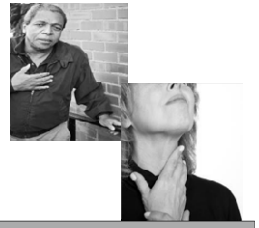
HM signpost-
Part 3- Chest pains
What causes angina (P143-144)

47

Signs and Symptoms

Stable angina tends to Occur:

- During physical activity
- During cold or windy weather
- After a meal
- Under emotional stress.

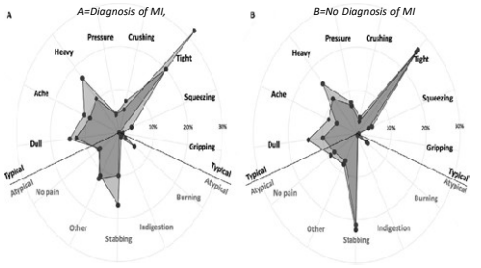


HM signpost-
Part 3- Chest pains (P143)
What brings on angina (P145-146)

48

Symptoms and Sex Specific Diagnosis of MI

A/E attendance -Typical and atypical chest pain stratified by sex . M=Blue, F=Red



https://www.ahajournals.org/doi/full/10.1161/JAHA.119.012307

Ferry et al (2019)

49

Diagnosis of Angina

- Clinical History– Canadian Cardiovascular Society Angina Classification I -IV
- Risk factors
- ECG
- Exercise tolerance test
- Myocardial perfusion scan
- Coronary angiography

Canadian Cardiovascular Society grading of angina pectoris

Grade	Description
Grade I	Ordinary physical activity does not cause angina, such as walking and climbing stairs. Angina with strenuous or rapid or prolonged exertion at work or recreation
Grade II	Slight limitation of ordinary activity. Walking or climbing stairs rapidly, walking uphill, walking or stair climbing after meals, or in cold, or in wind, or under emotional stress, or only during the few hours after awakening. Walking more than two blocks on the level and climbing more than one flight of ordinary stairs at a normal pace and in normal conditions
Grade III	Marked limitation of ordinary physical activity. Walking one or two blocks on the level and climbing one flight of stairs in normal conditions and at normal pace
Grade IV	Inability to carry on any physical activity without discomfort, anginal syndrome may be present at rest

HM signpost-
Part 3- Hospital tests (P149)

Angina Management

- Aspirin
- Sublingual Glycerl Trinitrate for immediate relief of symptoms or before performing an activity which may induce symptoms
- Beta blockers or rate limiting calcium channel blockers or long acting nitrate or nicorandil
- Statin & ACE inhibitor
- Revascularisation

HM signpost-
Part 3- Medicines (P135-142)

* Patients with unstable symptoms should not receive the HM

51

Revascularisation: Stent or Surgery?

- Symptoms & overall heart function
- Severity & extent of the disease
- Size & place of vessels involved
- Triple vessel disease
- Other co-morbidities
- Calcification of the vessel
- Availability of grafts to harvest
- Other cardiac conditions requiring surgery

HM signpost-
Part 3- Treatments
Angioplasty (P150) CABG (P151)

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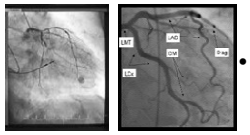
Percutaneous Coronary Intervention



- PCI may include; angioplasty, stent, thromboectomy
- The catheter is positioned next to the lesion and the balloon tip inflated for approximately 30-90 seconds at high pressure
- A residual stenosis of around 20% is considered an optimal result
- The balloon may need to be inflated and deflated several times to obtain a good result.

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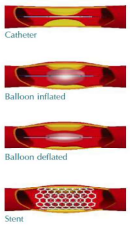
Angioplasty and Stent



- Two main forms of stent used; bare metal stents and drug eluting stents
- Bio-absorbable stents –new treatment option
- Stent thrombosis acute (first 24 hours)
- Re-stenosis 3-12 months, or sub-acute phases (first 30 days)

- Sheath removal complication; haematoma, bleeding, arteriovenous fistula and pseudoaneurysm
- Insertion site; small lump, eccyhymosis, infection, avoid flexion (48hrs), strenuous activity (at least 1 wk), pallor or sensation change
- Closure device – collagen plugs, 6 weeks -90 days to fully absorb, T -band

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Case study 2:
Scott Graham,
53 years of age

Admitted with central chest pain radiating to his jaw and left arm, diagnosed as STE-ACS
(Training Workbook p22)

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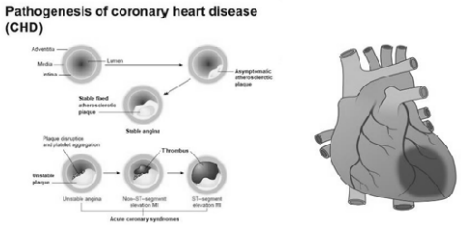
Acute Coronary Syndrome



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Acute Coronary Syndrome Definitions

- ACS encompasses the spectrum of unstable CAD from unstable angina to transmural myocardial infarction
- Unstable angina, N-STEMI or STEMI
- The definition of ACS depends on specific characteristics relating to:
  - Clinical presentation- commonly severe chest pain often radiating to jaw/neck/back/arm, sweating, nausea, SOB,
  - ECG changes: presence or absence of ST segment elevation or Q waves
  - Biochemical cardiac markers- cardiac troponin (hs-cTnI /T)

SIGN 148 (2016)

https://www.nice.org.uk/guidance/ng171/chapter/3-Diagnosing-acute-myocardial-injury-in-patients-with-suspected-or-confirmed-COVID-19

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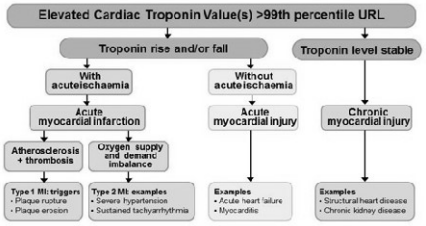
Raised Troponin: Myocardial injury or MI

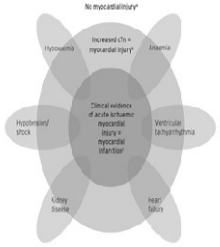


https://www.acc.org/latest-in-cardiology/articles/2018/11/16/09/06/fourth-universal-definition-of-mi
Accessed 24/11/2021

Universal Definition Of MI

Criteria for acute MI (Type1, 2, 3)

- Evidence of myocardial injury* with evidence of myocardial ischemia with the detection of rise and/or fall of cTn (cardiac Troponin) values above the URL and at least 1 of the following:
- Symptoms of ischaemia
- New ischeamic ECG changes
- Development of pathological Q waves on ECG
- Imaging evidence of new loss of myocardium



*Myocardial injury=evidence of myocardial injury confirmed by elevated cTN- not specifically as a result of ischeamia)
(4th Universal Definition of Myocardial Infarction Consensus Document)

Classification of MI

- 5 categories of MI

Type 1: Spontaneous MI related to ischaemia due to a primary coronary event e.g. plaque rupture

Type 2: Secondary to ischaemia due to either increased oxygen demand or decreased supply e.g. coronary spasm, coronary embolism, anaemia, arrhythmias, hyper or hypotension, respiratory failure

Type 3: Coronary thrombus on angiography or autopsy (type 3)

Type 4: PCI related MI

Type 5: CABG related MI

https://academic.oup.com/eurheartj/article/40/3/237/5079081#190638259

Initial ACS Management

- ECG & Cardiac monitoring
- Analgesia, Anti-emetic, GTN, Aspirin & Clopidogrel (other P2Y antagonist, LMWH or Fondaparinux (pentasacchirides)
- Bloods :Troponin, admission & 12 hrs post symptoms
- Oxygen therapy: only if SpO2 < 94%. (Aim 88-92% if COPD)

STEMI:PPCI < 120 mins from diagnostic ECG or within 12hours of symptoms or >12hours if ongoing pain and evidence of ischaemia

If not meeting criteria, thrombolysis should be offered with option of rescue PCI if failure to reperfuse

N-STEMI : Medical mx and early PCI with glycoprotein 2b/3a inhibitors in mod to high risk patients

SIGN 148 ACS (2016), NICE 167 (2013)/NICE 95 (2016)

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Secondary Prevention Medication

- **Dual antiplatelet therapy (DAPT)-** Aspirin 75mg & Ticagrelor or Prasugrel or Clopidogrel. (Clopidogrel where bleeding risk)
- **Beta-Blocker**- Titrated up to MTD (contraindicated in asthmatics, COPD, heart block, bradycardia, hypotension etc, caution with DM)
- **ACE inhibitor-**(Ramipril, Lisinopril) **or ARBs** (Losatran, Candesartan) **if intolerant of ACE**
- **Statin** (Atorvastatin, Simvastatin etc)- **Fibrates used if intolerant to statin** (Fenofibrate, Bezafibrate)
- **Mineralo-corticoid receptor antagonist-**(Spironolactone /Elperenone) if LVSD/clinical HF in context of MI

SIGN 148 (2016) / NICE CG172

HM signpost- Part 3
Medicines P135-142 (Chart on P141)

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Here is a summary of the main medicines and what they can be used for.

	Reduce risk	Treat risk factors	Treat angina	Improve heart as a pump	Treat the heart rhythm
Antiplatelet agents	✔				
Beta-blockers	✔		✔	✔	✔
Statins	✔	Cholesterol			
ACE inhibitors or ARB's	✔	Blood pressure		✔	
Nitrates			✔		
Calcium-channel blockers		Blood pressure	✔		✔
Potassium channel activators			✔		
Diuretics		Blood pressure		✔	
Anti-arrhythmics					✔
Anticoagulants	✔				

If you think it would be helpful, fill in the following table with the names of your medicines, the type of medicine, why you are on it, how long for, and any questions. Then ask your doctor or healthcare to help you fill in the blanks!

Name of medicine
Type of medicine
Why am I on it?
How long for?
Questions:

Print option for the medicine form in Part 3 to allow recording of progress and questions

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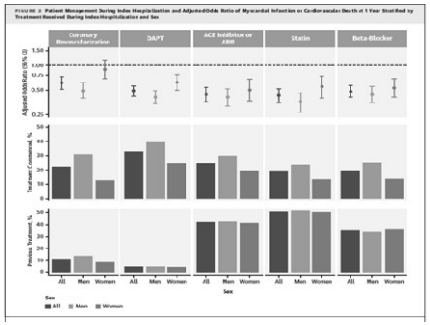

Lee et al (2019), Sex Specific Thresholds of High –Sensitivity Troponin in Patients With Suspected ACS, JACC Vol.74 No.16,2019 October 22 , 2019: 2032-43

64

Case study 3:
Navene Singh,
48 years of age

Diagnosed with angina 3 years ago, symptoms worsening for 6 months, recently discharged following bypass surgery (CABG)
(Training workbook P23)

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Coronary Artery Bypass Grafting

Coronary Artery Bypass Graft: (CABG) is a surgical procedure which is done to bypass a narrowing or blockage within the artery/arteries. The saphenous vein from the leg, radial artery from the arm, or the internal mammary arteries from the chest are used to carry blood as a bridge around the narrowing

HM signpost- Revasc HM
Part 1- Your Procedure CABG (P17)

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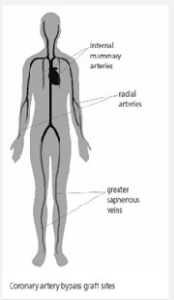
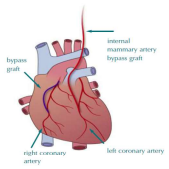
Coronary Artery Bypass Graft



- Heart-Lung perfusion pump (On-pump)
- Port Access Surgery –avoids cutting open the breast bone
- Off Pump Surgery-beating heart surgery



Surgical Issues

- Pain: (Internal Mammary Arteries (IMA) & Thoracotomy) Paracetamol, Dihydrocodeine, avoid NSAIDs, Physiotherapy techniques & relaxation
- Wound care: avoid lotions or potions, fluid often at sternal notch, monitor for infection (early management), consider patients with impaired healing; IMA, legs, co-morbidities, medication, etc.
- Sternal healing – take 8-10 weeks to heal, chest support (heart huggers, bras), monitor for ↑pain and disassociated breathing patterns – urgent referral to surgeons if on going issues

HM signpost- Revasc HM
Part 1- How will I feel afterwards (P18)
Some common concerns (P19-21)

- Oedema or swelling, numbness – hands, legs and left breast
- TEDs for 6 weeks if prescribed, leg elevation, remove at night or as directed
- Arrhythmias, palpitations
- Chest – Pleural effusions, chest infections, Shortness of breath
- Visual disturbance (eye testing 3 months)
- Impaired cognitive function
- Altered taste and smell
- Mood swings
- Sleep disturbance – vivid dreams
- Altered body image

HM signpost- Revasc HM
Part 1-Some common concerns (P19-21)

CABG General Information

- Short ITU stay, discharged after 5-7 days if no complications
- Discharge medication/ letter, Follow-up appointments
- Under the care of the GP, review 2-3 weeks or as requested, Bloods, BP & P check, other symptoms
- Wound care, Practice or District Nurse
- Avoid any form of heavy lifting
- Avoid large arm movements e.g. hoovering, golfing or swimming
- Avoid pushing up with the arms

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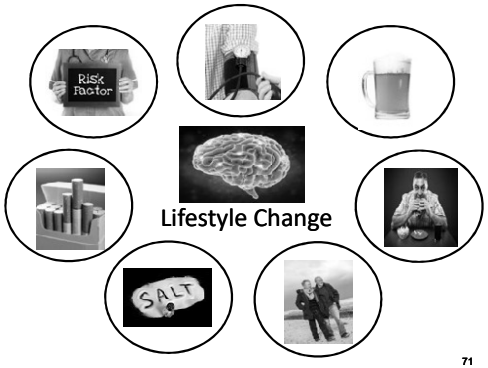

Lifestyle Change

71

The only way to keep your health is to eat what you don't want, drink what you don't like, and do what you'd rather not

Mark Twain

Benjamin Franklin

"An ounce of prevention is worth a pound of cure."

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Step 3

Think about the risk factors

- Review the patient & partners understanding of the modifiable & non-modifiable risk factors
- Note accurate responses & reinforce the benefits of changes already made
- Ask if the patient has any risk factors that they would like to address
- Offer risk factor information utilising the manual content
- Consider motivation or readiness to change

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Risk Factors

Non-modifiable

- Advancing age
- Male
- Ethnicity
- Family history
- Socio-economic group

Modifiable bio-medical

- Hypertension
- Dyslipidaemia
- Diabetes mellitus

Modifiable lifestyle

- Smoking
- Alcohol
- Diet
- Stress
- Sedentary /Exercise

HM signpost-
Part 2- Week 2 : CAD/You can fight back by reducing your risk factors (P47-53)

What do the guidelines say

Clinical Objectives	NICE (CG 181) CVD: risk assessment and reduction, including lipid modification 2019	SIGN 149 Risk estimation and prevention in CVD 2017
BMI	< 25kg/m2	< 25kg/m2
Waist Low risk target	Men/Women <94cm /<80cm	Men/Women <102cm/ < 88cm
BP	<140/90 (<80yrs) <135/85 if CVD	<140/90 < 135/85 if CKD + CVD
Total Chol	<5mmol/L (norm)/ 4mmol/L (CVD) Primary prev: intervene at 10% 10 yr CVD risk -Atorva 20mg	1prev: intervene at 10% 10 yr CVD risk/ Atorva 20mg
Non-HDL STATIN-High (40%) Mod risk (31-39%) Low (20-30% reduction)	Secondary prev: Aim 40% reduction in non HDL, (high intensity statin) e.g up to Atorva 80mg	2 prev: Aim 40% reduction in non HDL, high intensity statin/Atorva 80 mg
HbA1c	If have DM: 48-53mmol/mol (< 6.5%-7%) At risk of T2DM: (6% or 42mmol/mol)	48mmol/mol (< 6.5%)

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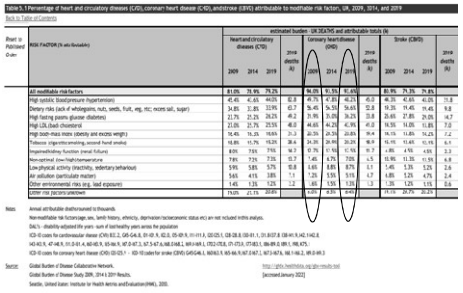
The Lifestyle Challenge



BHF Heart and circulatory disease statistics 2022- Compendium

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Prevalence by nation

	Scotland	Wales	NI	England
Physical inactivity	34%	47%	45% *(2016/17 data)*	39%
Obesity/ Overweight	66%	61%	65%	64%
Raised cholesterol				43%
Diabetes	7%			7%
Hypertension	28%			31%
Less than 5-a-day fruit & veg	78%	75%	56%	72%
Alcohol excess	24%	19%	17%	23%
Smoking *(cigarettes)*	17%	18%	17%	16%

BHF Heart and circulatory disease statistics 2022- Compendium

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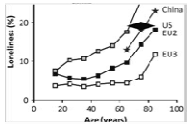
Why is Lifestyle change difficult?

ONS: Addictive Behaviour 2019

- Socio-economic factors
- Social isolation
- Stress
- Negative emotions
- Complex or confusing advice



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5831910/

78

Top Tips to support lifestyle change

- Be sympathetic to the individuals situation
- Ensure an understanding of the relationship between the lifestyle and the disease
- Gain commitment to change
- Allow the individual to identify the risk factor to change
- Plan
- Explore the possible barriers
- Be realistic and encourage
- Recognise any effort to change
- Monitor progress and follow up
- Involve others- family, health team

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Step 4

Set goals & pace

- Assess readiness to change (importance & confidence) focus on building confidence
  - Identify goals & prioritise
  - Identify targets by utilising the SMART goal setting principles
  - Outline the principles of pacing – scaling 1 – 10, "too easy – too hard"
  - Discuss a normal day, encourage the patient to identify pacing strategies (discuss exercises, walking, relaxation & activity record)

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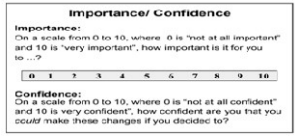
Scales

Effort scale: Pacing

Too Easy	Fairly Easy	Fairly Hard	Too Hard

Importance / Confidence scale: Behaviour change



https://motivationalinterviewing.org/sites/default/files/myc_values_scale_cards.pdf

81

Smoking Cessation – The five R's & A's

To increase motivation to quit:

- Relevance-to health
- Risks- if continue
- Rewards- if stop
- Roadblocks-to stopping
- Repetition-reassess readiness

For those ready to quit

- Ask- smoking habit
- Assess-ready to change
- Advise- impact on health
- Assist-facilitate
- Arrange- ongoing support

Relapse prevention: problem solving, anticipate threat, practice scenarios

WHO 2014

HM signpost-
Week 2- This weeks risk factor: Smoking (p54-58)

https://world-heart-federation.org/wp-content/uploads/E-cigarettes-Policy-Brief.pdf82

UK Govt Alcohol Guidance

- No "safe" limit.
- Recommended 14 units max/week for men and women.
- If you regularly drink more than 14 units/week best to spread evenly over 3 or more days.
- The risk of developing a range of health problems, including stroke and some cancers, increases the more you drink regularly.
- If you wish to cut down, try to have several alcohol free days in the week, and limit intake on any one occasion.

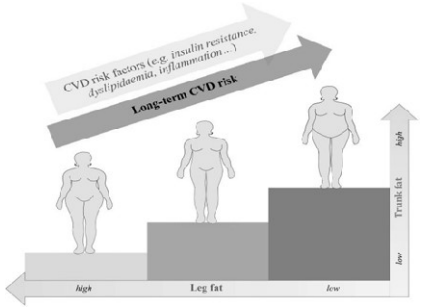
Healthy Food Choices

- Reduce saturated and trans-fatty acids
- Reduce salt
- Reduce sugar
- Mediterranean diet
- Variety
- Energy balance

Diet change	I do it all the time	I do it sometimes	I want to change	I don't want to change
Eating 5 portions of fruit and vegetables per day	❑	❑	❑	❑
Trimming fat off meat	❑	❑	❑	❑
Avoid fatty and sugary snacks e.g. biscuits, cakes	❑	❑	❑	❑
Choosing semi skimmed milk	❑	❑	❑	❑
Not adding salt at the table	❑	❑	❑	❑
Keeping within the recommended alcohol units	❑	❑	❑	❑

http://www.bacpr.com/resources/Optimum_nutritional_strategies_for_CVD_Prevention_and_Rehabilitation.pdf

HM signpost-
Week 2- CAD- What upsets the repair work (P47-48)
Week 3- This weeks risk factor: Diet (p75-79)



G.C Chen *et al (2019)*

85

Sedentary behaviour

- Increasing evidence that sedentary behaviour is strongly associated with poor health and indicative of overall physical activity levels
- More individuals meeting physical activity recommendations, but many spend most of their day sedentary
- 30% of men and 40% of women state their main activity at work is sitting down or standing up (SHS 2010)
- 13% of UK adults are sedentary for > 8.5 hrs/day. The EU average is 11%

HM signpost-
Part 2- Week 5 : This weeks risk factor –Lack of exercise (P114-116)

Why include PA in the HM?

- **Lack of physical activity is a risk factor**
- **The patient is in control**
- **Helps learn the principles of pacing**
- **Combats the misconception that rest is good**

- Prevents feelings of weakness
- Helps promote cardiac function
- Gets the family involved
- CR programme completers more likely to meet PA recommendations and maintain up to 12 mths

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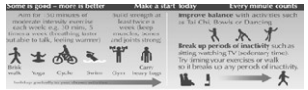
Activity: what do the guidelines say?

- Aim for 150 minutes (2.5 hours) of moderate intensity activity per week
- Approximately 30 minutes of activity most days of the week (5 out of 7 days)
- *Or* 75 minutes of vigorous activity across the week
- Bouts of activity any length and can be 1-2 sessions per week will still have a beneficial effect
- Strength exercises 2 or more days per week that work the major muscles (legs/hips, back, abdomen, chest shoulders and arms)

UK Chief Medical Officers' Physical Activity Guidelines (Sept 2019)

HM signpost-
Week 3- Exercise/ Activity Plan- Gradually building up your plan (p64)



Exercise and the HM

Clinical considerations for exercise pacing and the HM:

- Index event –un/complicated MI, CABG or angioplasty
- Any left ventricular dysfunction (below 50%)
- PMH- co-morbidities, unstable patient arrhythmias, BP management
- How long since index event
- Starting level for exercise - Functional capacity (7 MET's for most centre based exercise -HM aims to work at 2-3 METS initially)

http://www.bacpr.com/resources/BACPR_EPG_Guidance_Doc_CV19_FINAL_FINAL.pdf

Use clinical judgement on the suitability of HM as an intervention. Keep this under review throughout facilitation and act on relevant clinical changes.

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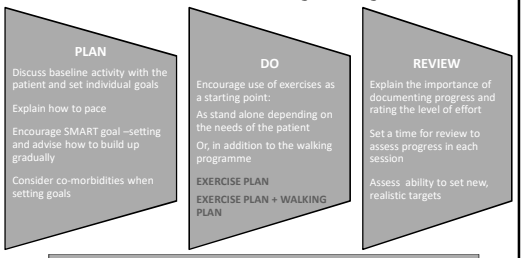
HM Exercise / Walking Programme



HM signpost-
Wk1-Why is exercise important (p24-28)
Wk1-6- Exercise /Activity Plan/Walking Record/ Daily Activity Record
Wk5- This weeks risk factor- Lack of Exercise (p114-118)
The Home Exercise Plan- (p169-173) and HM Home Exercise Plan video

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Driving and travel

- Allow time for recuperation- identify any vocational drivers
- Is a medical review/opinion needed?
- Car & Travel Insurance companies- specific cover needed?

Flying:

Medical Information -Fitness to fly for passengers with CVD (BCS 2010)

Assessing fitness to fly-Guidelines for medical professionals from the Aviation Health Unit, UK CAA (2011) See www.caa.co.uk

Driving:

DVLA-Assessing fitness to drive –a guide for medical professionals (March 2020)

The DVLA will require exercise evaluation at regular intervals not to exceed 3 years if there is established coronary heart disease for vocational drivers.

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Driving Standards

Acute Coronary Syndrome (Unstable angina, NSTE-ACS, STE-ACS)

Group 1 (Car and Motorcycle)	Group 2 (Vocational) (Bus/Lorry/)
If successfully treated by coronary intervention (PCI), driving may recommence after 1 week provided: • No other URGENT revascularisation is planned (within 4/52). • LVEF is at least 40% prior to hospital discharge If not successfully treated by coronary angioplasty, driving may recommence after 4 weeks **In both cases: there must be no other disqualifying condition.** **DVLA need not be notified.**	All ACS's must not drive for at least 6 weeks. Re-license if: • Requirements for exercise or other functional tests met (incl LVEF of at least 40% • There is no other disqualifying condition. **Inform DVLA**

DVLA-Assessing fitness to drive –a guide for medical professionals (March 2020)

https://www.gov.uk/government/publications/assessing-fitness-to-drive-a-guide-for-medical-professionals

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Elective PCI (Angioplasty ± stent) elective

Group 1 (Car/Motorcycle)	Group 2 (Bus/Lorry/)
Driving must cease for at least 1week. Driving may resume after 1week providing no other disqualifying condition. **DVLA need not be notified.**	Disqualified at least 6weeks. Driving may resume after 6 weeks if: • Requirements for exercise / functional test met and no other disqualifying condition. **Inform DVLA.**

CABG

Group 1 (Car and Motorcycle)	Group 2 (Bus/Lorry/)
Driving must cease for at least 1month. Driving may resume after 1 month providing no other disqualifying condition. **DVLA need not be notified.**	Disqualified for at least 3 months. Driving may resume after 3 months if: • No evidence of significant LVF impairment $\geq$ 40% • Requirements for exercise / functional test met and no other disqualifying condition. **Inform DVLA.**

DVLA March 2020

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Fitness to Fly

Condition	Additional	Recommendations
Angina	CCS I & II CCS III CCS IV Chest pain at rest or change in symptoms and or medication	No restrictions Assistance, O2 as required Defer travel until stable or travel with medical escort and in-flight oxygen available
Post STE-ACS and NSTE-ACS	Low risk (EF >45%) age, reperfusion	3 days
	Medium risk (EF>40%) no symptoms or further investigations	10 days
	High risk (EF <40%) symptomatic, awaiting investigation/treatment	Defer until condition stable
Elective PCI Uncomplicated		2 days
Elective CABG uncomplicated	Allow for intra-thoracic gas to be absorbed	10 days

BCS, 2010

https://www.bcs.com/documents/BCS_FITNESS_TO_FLY_REPORT.pdf

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Vocational Issues

- How long depends on many factors- 4weeks +/-
- Returning to work should be discussed on an individual basis with phased return encouraged/ considered
- Individuals should also discuss this with their GP/ Cardiologist, employer & Occupational Health Services.
- Simulated work testing may be useful if vocational rehabilitation services are available.
- Options-work from home, phased return, reduce work hours, lighter duties, reduced workload, take more breaks

•Draw up a work plan and set goals/targets and revaluate

•Address anxieties, consider +/-ve thoughts on ability to return to work

•General workplace changes to promote wellbeing

HM signpost-
Wk6- Back to work (p129)

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Step 5

Sum it up

- Summarise the main points
- Identify daily objectives
- Reiterate the principles of pacing
- Highlight the importance of not sharing the manual with others with cardiac conditions
- Ensure the patient has had their concerns addressed
- Arrange a follow up

HM signpost-
Week 6- What has happened over the last 6 weeks (p130-132)

Taking the next step: further contacts


How many of these things are you doing to protect yourself?

- Continue to monitor signs and symptoms
- Review the goals and assess the targets
- Evaluate the pacing strategies – over activity & overprotection

•Tackle the tricky subjects – misconceptions & denial

•Returning to normal activity – social interaction, sex and vocational needs

•Think about the future – maintaining change

•Ongoing needs – referring on. Find out who to contact in your own area

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Facilitating the HM: Summary of steps

Step 1 • Build a rapport

Step 2 • Think about CAD

Step 3 • Think about the risk factors

Step 4 • Set goals & pace

Step 5 • Sum it up

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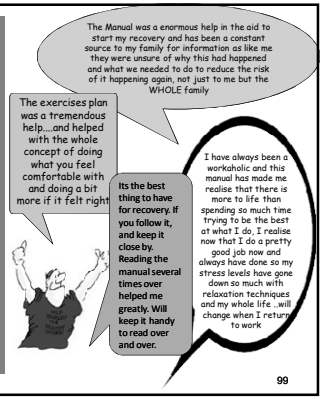
Digital HM 2020

"The manual is a very important part of the recovery. It has helped me a lot."

"I would advise anyone with a heart condition to take time to read it, and found the telephone appointments very supportive and helpful"

"I've become more aware of my heart and the need for healthy eating and regular exercise, even though I was exercising fairly regularly before"

"Because of medical issues awaiting surgery not able to do all exercises, but able to adapt some aerobic exercises"



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Questions?

Thank you

Psychology Day Evaluation Form:
https://nhslothiansurveys.onlinesurveys.ac.uk/heartmanual-psychology

Nurse Day Evaluation Form & Post Training Needs Questionnaire:
https://nhslothiansurveys.onlinesurveys.ac.uk/heartmanual-nurse-post-tna

www.theheartmanual.com

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FURTHER INFORMATION

Home-Based Cardiac Rehabilitation: A Scientific Statement From the American Association of Cardiovascular and Pulmonary Rehabilitation, the American Heart Association, and the American College of Cardiology
https://www.ahajournals.org/doi/10.1161/CIR.0000000000000663

HOPE study- Heart Outcomes Prevention Evaluation (2000)
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)72257-1/fulltext

FOURIER Trial-Evolucomab and clinical outcomes in patients with cardiovascular disease
https://www.nejm.org/doi/full/10.1056/NEJMoa1615664

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ASSOCIATIONS

ESC

- ACNAP-Association of Cardiovascular Nursing and Allied Health Professionals
  https://www.escardio.org/Sub-specialty-communities/Association-of-Cardiovascular-Nursing-&-Allied-Professions/Education
- EAPC-European association of Preventative Cardiology
  https://www.escardio.org/Sub-specialty-communities/European-Association-of-Preventive-Cardiology-%28EAPC%29
- BACPR-British Association of Cardiovascular Prevention and Rehabilitation
  www.bacpr.com
- NACR- National Audit of Cardiac Rehabilitation Audit programme is as a collaboration between BHF and NHS Digital and is run through the University of York
  http://www.cardiacrehabilitation.org.uk/
- ICCPR-International Council of Cardiovascular Prevention and Rehabilitation
  https://www.globalcardiacrehab.com

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