IQWiG Reports – Commission No. V16-03

Guideline synopsis for the DMP "coronary heart disease"[1]

Extract

[1] Translation of Chapters 1 to 6 of the final report V16-03 *Leitliniensynopse für das DMP Koronare Herzkrankheit* (Version 1.0; Status: 29 January 2018). Please note: This document was translated by external translators and is provided as a service by IQWiG to English-language readers. However, solely the German original text is absolutely authoritative and legally binding.

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This report was prepared in collaboration with external experts.

IQWiG alone is responsible for the contents of the report.

This report was prepared in collaboration with external experts. According to § 139b (3) No. 2 of Social Code Book (SGB) V, Statutory Health Insurance, external experts who are involved in the Institute’s research commissions must disclose “all connections to interest groups and contract organizations, particularly in the pharmaceutical and medical devices industries, including details on the type and amount of any remuneration received.” The Institute received the completed form “Disclosure of conflicts of interest” from each external expert. The information provided was reviewed by a Committee of the Institute specifically established to assess conflicts of interests. The information on conflicts of interest provided by the external experts and external reviewers is presented in Chapter A11 of the full report. No conflicts of interest were detected that could endanger professional independence with regard to the work on the present commission.

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Overview

Research question

The aim of the present investigation was to undertake a thorough, systematic, wide-ranging search to identify current evidence-based guidelines, extract their recommendations and summarize them as key statements, and specify those key statements that might justify a need to update the existing DMP for coronary heart disease.

Answers to the following questions were to be obtained:

- What need to update is there for individual aspects of health care?
- For which other aspects of health care can key statements be identified?

Key results

The guideline synopsis is based on the analysis of 44 guidelines that included a total of 1959 recommendations. Table 1 provides an overview of the aspects of health care covered in the respective guidelines.

A need for updating was identified for 3 aspects of health care. Table 2 lists the number of key statements for the individual aspects of health care, for which a (potential) need to update exists, a further appraisal is proposed, estimation of the need for updating is not possible or no need to update was identified.

Table 1: Overview of the health care aspects for which the guidelines contain recommendations

Guideline	Health care aspect (corresponding to DMP-A-RL and additionally identified in guidelines)											
	Diagnostics	Treatment goals[a]	Therapy planning	Therapeutic measures (general)	Non-drug, risk factors, co-morbidities	Drug treatment	Coronary angiography, coronary revascularization	Monitoring and follow-up	Rehabilitation	Cooperation between health care sectors	Education of the insured	Specific forms of angina
AACE 2017	X	-	X	-	X	X	-	-	-	-	-	-
ACC 2016	-	-	-	-	-	X	X	-	-	-	-	-
ACC 2014	-	-	-	-	X	-	X	-	-	-	-	X
ACC 2013	-	-	-	-	X	X	-	-	-	-	-	-
ACCF 2013	X	-	X	-	X	X	X	X	X	X	-	-
ACCF 2012 stable	X	-	X	-	X	X	X	X	X	-	X	X
ACCF 2012 unstable	X	-	-	-	-	X	X	-	-	-	-	-
ACCF 2011 CABG[b]	-	-	-	-	X	X	X	-	X	X	-	-
ACCF 2011 PCI[b]	-	-	-	-	-	X	X	X	X	X	-	-
ACCP 2012[b]	-	-	-	-	-	X	-	-	-	-	-	-
ACP 2013	-	-	-	-	-	X	-	-	-	-	-	-
ACP 2012 diagnosis	X	-	X	-	-	-	X	X	-	-	-	-
ACP 2012 stable	-	-	X	-	X	X	X	X	X	-	X	X
AHA 2014	X	-	X	X	X	X	X	-	X	X	X	X
AkdÄ 2012	-	-	-	-	X	X	-	-	-	-	-	-
Baker 2015	-	-	X	-	X	X	-	-	-	-	-	-
CCS 2016	-	-	-	-	X	X	-	-	-	-	-	-
CCS 2014[c]	X	-	X	-	X	X	X	X	X	-	-	-
CCS 2012 antiplatelet	-	-	-	-	-	X	-	-	-	-	-	-

(continued)

Table 1: Overview of the health care aspects for which the guidelines contain recommendations (continued)

Guideline	Health care aspect (corresponding to DMP-A-RL and additionally identified in guidelines)											
	Diagnostics	Treatment goals[a]	Therapy planning	Therapeutic measures (general)	Non-drug, risk factors, co-morbidities	Drug treatment	Coronary angiography, coronary revascularization	Monitoring und follow-up	Rehabilitation	Cooperation between health care sectors	Education of the insured	Specific forms of angina
CCS 2012 refractory	-	-	-	-	-	-	-	-	-	X	X	X
DEGAM 2016	-	-	-	-	-	X	-	-	-	-	-	-
ESC 2017 DAPT	-	-	-	-	-	X	X	-	-	-	-	-
ESC 2017 MI	X	-	-	X	X	X	X	X	X	X	-	-
ESC 2016 dyslipid	X	-	-	-	-	X	-	-	-	-	-	-
ESC 2016 prevention	X	-	-	X	X	X	-	X	X	-	-	-
ESC 2015	X	-	X	-	X	X	X	-	X	X	-	X
ESC 2014	X	-	-	-	X	X	X	X	X	X	-	-
ESC 2013 CAD	X	-	X	-	-	X	X	X	-	-	X	X
ESC 2013 diabetes	X	-	-	-	X	X	X	-	-	-	-	-
ESC 2011[b]	-	-	-	-	X	-	X	-	-	X	-	-
ICSI 2013	-	-	X	-	X	X	-	-	-	-	-	-
ICSI 2012[d]	X	-	-	-	-	X	X	-	-	-	-	-
NCGC 2013	-	-	-	-	X	X	X	-	-	-	-	-
NHFA 2016	X	-	X	-	-	X	X	-	X	-	-	-
NHFA 2013[c]	-	-	-	-	X	-	-	-	-	-	-	-
NICE 2016	-	-	-	-	X	X	-	-	-	X	-	-
NICE 2016 chest	X	-	-	-	-	-	X	-	-	-	-	-
NICE 2013	-	-	X	X	X	X	-	X	X	X	-	-

(continued)

Table 1: Overview of the health care aspects for which the guidelines contain recommendations (continued)

Guideline	Health care aspect (corresponding to DMP-A-RL and additionally identified in guidelines)											
	Diagnostics	Treatment goals[a]	Therapy planning	Therapeutic measures (general)	Non-drug, risk factors, co-morbidities	Drug therapy	Coronary angiography, coronary revascularization	Monitoring and follow-up	Rehabilitation	Cooperation between health care sectors	Education of the insured	Specific forms of angina
NVL 2016	X	-	X	X	X	X	X	X	X	X	-	-
SIGN 2017 prevention	-	-	X	-	X	X	-	-	-	-	-	-
SIGN 2017 reha	-	-	-	-	X	-	-	-	X	-	-	-
SIGN 2016	X	-	X	-	X	X	X	X	X	X	X	-
SIGN 2013	-	-	-	-	-	X	-	-	-	-	-	-
VADoD 2014	-	-	-	-	X	X	-	X	-	-	-	-
Total of guidelines	19	0	16	5	28	37	24	14	16	13	6	7

X: The guideline contains recommendations for the respective aspect of health care.

-: The guideline does not contain recommendations for the respective aspect of health care.

a: No statement possible, because no recommendations were identified on this item of the DMP-A-RL in the included guidelines.
b: The guideline is more than 5 years old at the time of publication of the final report.
c: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
d: The validity of the guideline had expired at the time the final report was prepared.

AACE: American Association of Clinical Endocrinologists; ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; ACP: American College of Physicians; AHA: American Heart Association; AkdÄ: Drug Commission of the German Medical Association; CCS: Canadian Cardiovascular Society; DEGAM: German Society for General Medicine and Family Medicine; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; VADoD: Department of Veterans Affairs and Department of Defense

Table 2: Number of assessments of the key statements on the health care aspects

Health care aspect	**Number of assessments of the key statement**				
	Need to update	**Potential need to update**	**Proposal for further appraisal**	**No assessment possible**	**No need to update**
Diagnostics	0	8	2	0	35
Treatment goals	–[a]	–[a]	–[a]	–[a]	–[a]
Therapy planning	4	3	0	0	9
Therapeutic measures (general)	0	1	0	0	4
Non-drug methods, risk factors, co-morbidities	1	6	0	0	35
Drug methods	3	7	2	0	93
Coronary angiography, coronary revascularization	0	1	1	0	71
Monitoring and follow-up	0	7	1	0	11
Rehabilitation	0	0	0	0	13
Cooperation between health care sectors	0	1	0	0	8
Education of the insured	0	2	0	0	0
Specific forms of angina	0	0	0	0	13
a: No statement possible, because no recommendations were identified on this item of the DMP-A-RL in the included guidelines.					

Conclusions

The recommendations from current evidence-based guidelines were summarized into key statements. Based on the grade of recommendation of the recommendations underlying the key statements, a need to update or a potential need to update could be identified for some of the health care aspects of the DMP Requirements Directive (DMP-A-RL). No (potential) need to update could be identified for the health care aspect “Rehabilitation”. No recommendations in the included guidelines could be identified for the health care aspect “Treatment goals”, so that no statement regarding a need for updating could be made with regard to this aspect.

In addition, recommendations about other aspects/topics of health care were identified that have hitherto not been addressed in the DMP-A-RL:

- Monitoring and follow-up
- Specific forms of angina
  - microvascular angina
  - refractory angina
  - vasospastic angina

Comparison with the current guidelines showed that none of the items used so far in the DMP-A-RL have become outdated.

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Abbreviation	Meaning
ACE	angiotensin converting enzyme
ACS	acute coronary syndrome
AGREE	Appraisal of Guidelines for Research & Evaluation
AT1-receptor antagonists	angiotensin1 receptor antagonists
BMS	bare metal stent
CABG	coronary artery bypass graft
CCS	Canadian Cardiovascular Society
CHD	coronary heart disease
COPD	chronic obstructive pulmonary disease
CT	computed tomography
DAPT	dual antiplatelet therapy
DES	drug-eluting stent
DMP	disease management programme
DMP-A-RL	Disease Management Programme Requirements directive
ECG	electrocardiography
ESC	European Society of Cardiology
FFR	fractional flow reserve
G-BA	Federal Joint Committee
GoR	Grade of Recommendation
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HCQI	Health Care Quality Indicator
ICD-10	International statistical classification of diseases and related health problems, 10th revision
IOM	Institute of Medicine
IQWiG	Institute for Quality and Efficiency in Health Care
LoE	Level of Evidence
NSTEMI	Non-ST-elevation myocardial infarction
NVL	(German) National Health Care Guideline
OECD	Organization for Economic Cooperation and Development
PCI	percutaneous coronary intervention
PTCA	percutaneous coronary angioplasty
RAAS	renin-angiotensin-aldosterone system
RCT	randomized controlled trial

Abbreviation	Meaning
RKI	Robert Koch Institute
SSRI	selective serotonin reuptake inhibitor

1 Background

Disease management programmes

Disease management programmes (DMPs) are structured treatment programmes for chronically ill people that are based on the findings of evidence-based medicine. Within these programmes, treatment methods are primarily used that correspond to the current state of scientific knowledge [1]. Patients thus receive health care that aims to prevent as far as possible the risk of late complications and acute deterioration of the disease and increase their quality of life. The goals of DMPs are, among other things, to optimize treatment, promote collaboration with service providers and thus better link diagnostic and therapeutic procedures [2].

Relevant disorders

Coronary heart disease (CHD) is the manifestation of arteriosclerosis (also known as atherosclerosis) in the arteries of the heart [3,4]. The starting point of the disease is damage to endothelial function that leads to pathological lipid deposits in the vessel wall and the development of atherosclerotic plaques. In the early stage of the disease, clinical symptoms are generally still absent, but in the advanced stage - as the vessels become increasingly narrowed - there is an mismatch between oxygen demand and delivery in the heart muscle with resulting myocardial ischaemia. This is often expressed clinically as angina, which is a sudden onset of pain lasting from seconds to minutes radiating into the chest, jaw, arm or other regions [5]. The result of CHD can be the development of cardiac insufficiency, myocardial infarction or even sudden heart death [6]. CHD is a chronic disease. Stable angina is a clinical form of CHD that occurs reproducibly on physical exertion or psychological stress and which remains constant for months. On the other hand, the term acute coronary syndrome summarizes the acute phases of CHD that are immediately life-threatening or fatal. It includes the unstable angina that occurs even with slight or no exertion, myocardial infarction with or without ST-elevations and sudden heart death [6,7]. Risk factors for the occurrence of CHD include increasing age, male sex, smoking, being overweight, high blood pressure, hypercholesterolaemia, diabetes and psychosocial factors (including exhaustion, occupation-related overload) [7-10]. The severity of the disease is measured on the basis of the grades of angina of the Canadian Cardiovascular Society [11] (see Table 3).

In Germany 445,489 men and 216,822 women were treated in hospital for ischaemic heart diseases (ICD-10 I20 to I25) in 2014 [12]. The health care cost of these diseases in 2008 was already 6.2 billion Euros [13]. In 2015, the German statutory pension insurance scheme stated that cardiovascular diseases were the second most common indication for medical rehabilitation [14]; 11,417 men and 4729 women received an early pension because of cardiovascular disease (reduced earning capacity pension) [14]. Chronic ischaemic heart disease (ICD-10 I25) and acute myocardial infarction (ICD-10 I21) were the most common cause of death in 2014 (35,399 men and 34,491 women and 27,188 men and 20,993 women respectively) [15].

Table 3: Grades of angina according to the Canadian Cardiovascular Society [6,11]

Severity	**Exercise tolerance**
Grade I	No angina on ordinary physical activity (walking, climbing stairs), but on sudden or prolonged physical exertion
Grade II	Angina on greater effort (walking rapidly, mountain walking, climbing stairs after eating, in cold, wind or psychological stress)
Grade III	Angina on gentle physical exertion (normal walking, dressing)
Grade IV	Symptoms at rest or on the slightest physical exertion

Guidelines

For the present report, the term "guidelines" is used according to the definition of the Institute of Medicine (IOM): guidelines are systematically developed decision-making aids for service providers and patients about appropriate health care for specific health care problems. Their aim is to improve patient health care. Their recommendations are based on a systematic appraisal of the evidence and assessment of the benefits and harms of the alternative treatment options [16,17].

Guideline authors are expected to issue a Grade of Recommendation (GoR) and Level of Evidence (LoE). The GoR reflects the strength of a recommendation and is usually based on a weighing of the benefits and harms of a (medical) intervention in each specific health care contact, as well as on the strength of the underlying evidence of the LoE. The LoE represents an assessment of the certainty of results of the studies underlying the recommendations; in this context, systematic reviews of randomized controlled trials (RCT) are generally awarded the highest LoE. Guideline groups often use different systems to determine GoR and LoE.

2 Research question

The aim of the present investigation was to undertake a thorough, systematic, wide-ranging search to identify current evidence-based guidelines, extract their recommendations and summarize them as key statements and specify those key statements that might justify a need to update the existing DMP for coronary heart disease.

Answers to the following questions were to be obtained:

- What need to update is there for individual aspects of health care?
- For which other aspects of health care can key statements be identified?

3 Methods

Guidelines developed specifically for patients with CHD were included in the investigation. The target population of the guideline synopsis were men and women with CHD.

A systematic internet search in guideline databases as well as in interdisciplinary and discipline-specific guidelines was carried out.

Only evidence-based guidelines applicable to the German health care system and published from December 2011 onwards that were marked as valid and/or had not exceeded the stated revision date were included. The recommendations had to be clearly designated as such.

The guideline recommendations relevant to the research question were extracted into tables, together with the related Grade of Recommendation (GoR) and Level of Evidence (LoE). In order to achieve a comparability of the largely different systems of recommendation and evidence grading in the guidelines, the GoR and LoE used in the guidelines were allocated to the categories of high, not high and unclear.

For the synthesis, the extracted recommendations were summarized as key statements.

The contents of the key statements were compared with the guidance in the DMP Requirements Directive (DMP-A-RL) [18] and assessed with regard to their relevance to establishing the need to update. In each case, the assessment was conducted on the basis of the GoR of the recommendations underlying the key statements. Only in cases where only recommendations with unclear GoR were available for a key statement was the LoE used in addition.

Either a need to update or a potential need to update was established, a further appraisal of the updating need was proposed, no need to update was found or an estimation of the need to update was not possible.

4 Results

4.1 Results of the information retrieval

The systematic search according to screening of title and abstract produced 109 potentially relevant documents, the full text of which was then inspected. After checking the criteria for guideline inclusion, 43 relevant guidelines could be included. The last search took place in September 2017. In addition, one relevant guideline was mentioned during the consultation on the preliminary report, so that a total of 44 guidelines were included.

4.2 Synthesis of the recommendations

The key statements summarized from the individual recommendations, classified according to health care aspects, are presented in the following tables (Table 4 to Table 54) together with their assessment with regard to the need for updating.

The first column contains the designation of the corresponding key statement, which also represents the name of the corresponding extraction table in Section A3.4 of the full final report, where the underlying recommendations can be found.

The second column shows the key statements synthesized from the extracted recommendations.

The third column shows the abbreviations of the guidelines that contain recommendations underlying the corresponding key statement.

The fourth column presents the ratio of the number of recommendations with high GoR underlying the corresponding key statement to the total number of recommendations regarding this key statement.

In addition, the fifth column shows a comparison for each key statement with the text of the DMP-A-RL. This comparison can vary as follows: “The key statement agrees”, “is differentiated”, “deviates from the DMP-A-RL”, “is not in the current DMP-A-RL” or in the case of inconsistent recommendations “The key statement is addressed by the DMP-A-RL” or “is not addressed by the DMP-A-RL”. Based on the method described in Chapter 3, the fifth column also gives an assessment of the key statement in terms of its importance for an updating of the DMP (need to update, a potential need to update a further appraisal is proposed, no estimation of the need for updating possible, no need to update).

Further notes on individual key statements can be found in the sixth column.

In the case of one key statement from which a potential need to update was derived, discrepancies were identified between its statements on drugs, the German approval status and the indication-specific prescribability. The discrepancy concerned the drugs clopidogrel and ticagrelor. The affected places are shown in the relevant tables with a corresponding note. In the case of classes of drugs, these were randomly checked for German approval status and indication-specific prescribability.

No contradicting IQWiG assessments were identified.

Since no guideline recommendations could be identified for the health care aspect “Treatment goals” and the subsection “Special measures with multimedication” of the health care aspect “Therapeutic measures – general measures, risk factor management and handling of co-/multimorbidity”, these aspects were not listed in the synthesis of the recommendations to key statements.

In the headings of the following sections, the numbering of the DMP-A-RL is stated after the respective designation of the health care aspect. If there is no corresponding health care aspect in the DMP-A-RL the numbering is supplemented by variables (e.g. X, Y).

4.2.1 Definition of coronary heart disease (V1.1)

Text of the current DMP-A-RL on the definition of coronary heart disease

“Coronary heart disease is the manifestation of arteriosclerosis of the coronary arteries. It frequently leads to a mismatch between oxygen demand and delivery in the heart muscle”.

The definitions given in the guidelines are shown in Tabelle 59 of the full final report. They do not deviate from the definition used in DMP-A-RL.

4.2.2 Adequate diagnostics for inclusion into a structured treatment programme (V1.2)

Text of the current DMP-A-RL on the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme"

"1.2.1 Chronic CHD

The diagnosis of coronary heart disease can be made with adequately high probability under the following conditions:

- An acute coronary syndrome, also a history thereof;
- If, from symptoms, clinical examination, history, concomitant diseases and exercise ECG a high probability (at least 90%) can be proved for the presence of coronary heart disease. Other non-invasive investigations to confirm diagnosis (echocardiographic or scintigraphic methods) can only be used for patients in whom the physician has established that an exercise ECG cannot be performed for health reasons or in whom an interpretable result of the exercise ECG is not achievable (in particular patients with left bundle branch block, cardiac pacemakers or patients who are unable to undertake physical exercise);
- Through direct demonstration by coronary angiography (according to indications under Section 1.5.3.1).

With the agreement of the patient, the physician has to check whether the patient can benefit from a certain intervention with respect to the named treatment goals.

1.2.2 Acute coronary syndrome

The acute coronary syndrome comprises the courses of coronary heart disease considered as emergency situations: ST-elevation myocardial infarction, non-ST-elevation myocardial infarction, unstable angina. Diagnosis is made through pain history, the ECG and laboratory tests (e.g. marker proteins). The treatment of acute coronary syndrome is not the subject of the recommendations".

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme"

Designation of the extraction table in Section A3.4.2 of the full final report	**Key statement**	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.2 – K1 (Chest pain)	In patients with chest pain, a thorough history should first be taken and a physical examination performed to clarify the causes and determine the cardiac risk. Fixation on somatic causes should be avoided and psychological, somatic and social information recorded right from the outset.	ACP 2012 diagnosis, CCS 2014[a], ESC 2016 prevention (ADD), NVL 2016	6 / 8	The key statement agrees. No need to update	
V1.2 – K2 (Classification)	Patients with acute angina should be classified as patients with stable or unstable angina and those with unstable angina should undergo further workup according to their risk.	ACCF 2012 stable, ACP 2012 diagnosis	2 / 2	The key statement is differentiated. No need to update	
V1.2 – K3 (Marburg score)	The Marburg Heart Score should be used to determine the probability that the chest pain is based on a stenosing CHD.	NVL 2016	2 / 2	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.2 – K4 (Co-morbidities)	To optimize the drug therapy and for individual risk assessment, patients with CHD should be investigated for diabetes, chronic kidney disease, lipid metabolism disorder and thyroid dysfunction. In addition, a blood count with measurement of haemoglobin and number of white blood cells should be performed.	AACE 2017, CCS 2014[a], ESC 2016 dyslipid, ESC 2016 prevention, ESC 2015, ESC 2013 CAD, ESC 2013 diabetes	11 / 16	The key statement is not in the current DMP-A-RL. Potential need to update	

(continued)

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme" (continued)

Designation of the extraction table in Section A3.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.2 – K5 (NSTEMI)	In patients with unstable angina or NSTEMI, renal function should be checked and the medication adjusted if necessary.	ACCF 2012 unstable, AHA 2014 ESC 2015	3 / 3	The key statement is differentiated. No need to update	
V1.2 – K6 (Troponin)	Measurement of serum troponin concentration is routinely recommended in patients with suspected acute coronary syndrome. In the process, sex-specific threshold values for men and women should be used for the diagnosis of acute coronary syndrome. If the first troponin test is positive, then a second highly sensitive troponin test should be conducted in patients with a low risk of myocardial infarction. However, the measurement of troponin should not delay the start of a reperfusion therapy.	ESC 2017 MI, ESC 2015, ESC 2013 CAD, NICE 2016 chest, SIGN 2016	9 / 11	The key statement is differentiated. No need to update	
V1.2 – K7 (Information)	Patients should be informed that the measured value of troponin in a first, highly sensitive test does not necessarily indicate a myocardial infarction. Other factors such as the resting ECG or the time since onset of symptoms should also be considered when interpreting the test.	NICE 2016 chest	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme" (continued)

Designation of the extraction table in Section A3.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.2 – K8 (Lipid levels)	Lipid levels should be measured as early as possible in all patients with myocardial infarction and ST-elevation.	ESC 2017 MI	1 / 1	The key statement is differentiated. No need to update	
V1.2 – K9 (BNP measurement)	Natriuretic peptides (BNP, NT-proBNP) can be measured if heart failure is suspected.	ESC 2013 CAD	0 / 1	The key statement is differentiated. No need to update	
V1.2 – K10 (Risk stratification)	In patients with suspected acute coronary syndrome, the diagnosis and initial risk stratification are based on history, symptoms, vital signs, other physical findings, ECG and laboratory results. The suitable treatment is then decided based on the determined risk and the assessment of heart function.	AHA 2014, ESC 2015, ICSI 2012[b], NHFA 2016, NICE 2016 chest, SIGN 2016	11 / 12	The key statement is differentiated. No need to update	
V1.2 – K11 (Rhythm check)	Continuous monitoring of heart rhythm is recommended until the diagnosis of NSTEMI is confirmed or excluded.	ESC 2015	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme" (continued)

Designation of the extraction table in Section A3.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.2 – K12 (Pretest probability)	A non-invasive diagnostic technique should be used for further clarification in the case of a pretest probability of 15 – 85% for the presence of a stenosing CHD based on symptoms, age and sex of the patient or if test results are inconclusive. On the other hand, with a lower pretest probability, other causes of the symptoms should be investigated and with a higher pretest probability, therapy planning should be started without further workup.	CCS 2014[a], ESC 2014, NICE 2016 chest, NVL 2016	6 / 11	The key statement is differentiated. No need to update	
V1.2 – K13 (Choice of procedure)	The choice of non-invasive procedure should be made depending on the pretest probability, suitability of the patient for the corresponding test, the test-related risk, the technical possibilities available on site and the local expertise. Non-invasive imaging techniques or an exercise ECG should not be routinely used for the first assessment of acute cardiac chest pain. Further workup in patients with non-anginal chest pain should only be undertaken if the resting ECG shows abnormalities.	NICE 2016 chest, NVL 2016	3 / 3	The key statement is differentiated. No need to update	

(continued)

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme" (continued)

Designation of the extraction table in Section A3.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.2 – K14 (Conservative strategy)	An early conservative treatment strategy can be considered for patients with unstable angina/NSTEMI if there are no significant co-morbidities or contraindications or there is an increased risk of clinical events. The decision should take account of preferences of the physician and of the patient.	ACCF 2012 unstable	0 / 1	The key statement is differentiated. No need to update	
V1.2 – K15 (Invasive strategy)	An early invasive treatment strategy should be chosen for patients with unstable angina/NSTEMI who have refractory angina or show haemodynamic or electrical instability. Likewise, patients with STEMI, who were resuscitated after cardiac arrest, should immediately be treated invasively.	ACCF 2012 unstable, ESC 2017 MI	3 / 4	The key statement is differentiated. No need to update	
V1.2 – K16 (Contraindication)	An early invasive strategy should not be adopted if significant comorbidities such as liver failure or respiratory insufficiency or cancer are present or if, independent of the results of the investigation, the patient does not agree to a revascularization.	ACCF 2012 unstable	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 4: Summarizing assessment of the health care aspect "Adequate diagnostics for inclusion into a structured treatment programme" (continued)

Designation of the extraction table in Section A3.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.2 – K17 (Functional diagnostics)	Patients with CHD in whom stable angina cannot be excluded on the basis of the clinical assessment alone, should undergo functional diagnostic investigations. If the diagnostics using CT angiography show CHD with unclear significance for cardiac function or no diagnostic result, then a non-invasive imaging technique should be used for diagnosis. Myocardial perfusion scintigraphy with single photon emission computed tomography, stress echocardiography, first-pass contrast-enhanced MR perfusion or MR imaging for stress-induced wall motion abnormalities are suitable techniques.	NICE 2016 chest	3 / 3	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

AACE: American Association of Clinical Endocrinologists; ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; ACP: American College of Physicians; ADD: addendum; AHA: American Heart Association; AkdÄ: Drug Commission of the German Medical Association; BNP: B-type natriuretic peptide; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; CT: computed tomography; DEGAM: German Society for General Medicine and Family Medicine; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NSTEMI: myocardial infarction without ST-elevation; NT-pro BNP: N-terminal propeptide of BNP; NVL: German National Health Care Guideline; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; STEMI: ST-elevation myocardial infarction; T: topic; V: healthcare aspect VADoD: Department of Veterans Affairs and Department of Defense

4.2.2.1 Electrocardiography (T1)

Table 5: Summarizing assessment of the partial aspect "Electrocardiography"

Designation of the extraction table in Section A3.4.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Resting ECG					
V1.2/T1 – K1 (Resting ECG)	Patients with chest pain without apparent cardiac causes or other symptoms indicative of an acute coronary syndrome should undergo a resting 12-lead ECG within the first 10 minutes. If the result is inconclusive, further leads should be used (V3R, V4R, V7–V9).	ACCF 2013, ACP 2012 diagnosis, AHA 2014, ESC 2017 MI, ESC 2016 prevention (ADD), ESC 2015, ESC 2013 CAD, NHFA 2016, NICE 2016 chest; NVL 2016, SIGN 2016	15 / 15	The key statement is differentiated. No need to update	
V1.2/T1 – K2 (Further leads)	The lead from V7 to V9 should be considered if the original ECG is inconclusive, the ischaemic symptoms persist and ACS is suspected.	AHA 2014, ESC 2017 MI, ESC 2015	1 / 3	The key statement is differentiated. No need to update	
V1.2/T1 – K3 (Right ventricle)	In the case of an inferior infarction, the right pre-cordial leads (V3R and V4R) can be considered to demonstrate an involvement of the right ventricle.	ESC 2017 MI	0 / 1	The key statement is differentiated. No need to update	
V1.2/T1 – K4 (Series ECG)	Further ECGs can be recorded for clarification if the first ECG is inconclusive, the patient continues to show symptoms and there is a high probability of an acute coronary syndrome.	AHA 2014, ICSI 2012[b], SIGN 2016	2 / 3	The key statement is differentiated. No need to update	

(continued)

Table 5: Summarizing assessment of the partial aspect "Electrocardiography" (continued)

Designation of the extraction table in Section A3.4.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Resting ECG (continued)					
V1.2/T1 – K5 (Documentation)	Patients with a bundle branch block or ST-segment changes should receive a copy of the ECG, which they can show at future clinical treatments or if an acute coronary syndrome is suspected at a subsequent presentation.	SIGN 2016	0 / 1	The key statement is differentiated. No need to update	Hitherto, no documents are mentioned in the DMP-A-RL that should be given to the patient.
V1.2/T1 – K6 (Long-term ECG)	A 24-hour ECG should be carried out in patients with suspected arrhythmias.	ESC 2013 CAD	1 / 1	The key statement is differentiated. No need to update	
Exercise ECG					
V1.2/T1 – K7 (Exercise ECG)	An exercise ECG is recommended for first diagnosis of CHD in patients with a moderate pretest probability, an interpretable result of the resting ECG and at least moderate physical exercise capacity or no disabling comorbidity.	ACCF 2012 stable, ACP 2012 diagnosis, CCS 2014[a], ESC 2013 CAD	6 / 9	The key statement agrees. No need to update	The specific limitations of this investigative procedure must be taken into account. Guideline NVL 2016 adds a statement about this topic without methodological explanation.

(continued)

Table 5: Summarizing assessment of the partial aspect “Electrocardiography” (continued)

Designation of the extraction table in Section A3.4.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Exercise ECG (continued)					
V1.2/T1 – K8 (NSTEMI)	An exercise test should be conducted in patients with unstable angina/NSTEMI in whom a conservative strategy is planned and who show no additional abnormalities that require diagnostic angiography.	ACCF 2012 unstable	1 / 1	The key statement is differentiated. No need to update	
V1.2/T1 – K9 (Contraindication)	The exercise ECG is not recommended in the diagnostics if an ST-depression of 0.1 mV or more was measured in the resting ECG or the patient is taking digitalis.	ESC 2013 CAD	1 / 1	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ACS: acute coronary syndrome ; ADD: addendum; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; NSTEMI: myocardial infarction without ST-elevation; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic; V: health care aspect

4.2.2.2 Non-invasive imaging techniques (T2)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques"

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Without stress					
V1.2/T2 – K1 (Acute phase)	Echocardiography is recommended in the acute phase if the diagnosis is uncertain. But this should not delay angiography.	ESC 2017 MI	2 / 3	The key statement is differentiated. No need to update	
V1.2/T2 – K2 (Resting echocardiography)	Resting echocardiography is recommended for all patients with known or suspected CHD: ▪ To exclude alternative causes of angina ▪ To demonstrate regional wall motion abnormalities indicative of CHD ▪ To measure the left ventricular ejection fraction for the purposes of risk stratification ▪ To estimate diastolic function	ACCF 2012 stable ACP 2012 diagnosis CCS 2014[a], ESC 2016 prevention (ADD), ESC 2013 CAD, NVL 2016	6 / 7	The key statement is not in the current DMP-A-RL. Potential need to update	In the DMP-A-RL, echocardiography is mentioned for the diagnosis of chronic CHD only for the case that no interpretable result of the exercise ECG can be obtained.

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Without stress (continued)					
V1.2/T2 – K3 (Routine assessment)	Diagnostics using echocardiography, nuclear medicine imaging, cardiac MR imaging or CT are not recommended for the routine assessment of left ventricular function in patients with normal ECG who have no history of myocardial infarction, show no clinical symptoms or signs of cardiac insufficiency and no complex ventricular arrhythmias.	ACCF 2012 stable, ACP 2012 diagnosis, ESC 2014	10 / 10	The key statement agrees. No need to update	
V1.2/T2 – K4 (Cardiac structure)	Investigation of heart structure and function using echocardiography can be considered for CHD patients with hypertension, diabetes or abnormal ECG.	ACCF 2012 stable	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.2/T2 – K5 (Carotid arteries)	Ultrasound scan of the carotid arteries by an experienced physician can be considered for patients with suspected CHD.	ESC 2013 CAD	0 / 1	The key statement is differentiated. No need to update	
V1.2/T2 – K6 (Myocardial scintigraphy)	Measurement of left ventricular function using nuclear medicine imaging can be considered for patients with previous myocardial infarction or pathological Q-waves.	ACCF 2012 stable	0 / 1	The key statement is differentiated. No need to update	

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Without stress (continued)					
V1.2/T2 – K7 (Stress test)	A cardiac stress test combined with an imaging technique is recommended/should be considered for various situations: ▪ With a high probability of the presence of CHD and a non-interpretable ECG ▪ With stenosing CHD in patients capable of undergoing a stress test with interpretable ECG ▪ In stable CHD patients prior to revascularization of a known stenosis of unclear physiological significance ▪ In symptomatic patients with a moderate pretest probability ▪ In patients without anginal symptoms, whose LVEF is below 50% ▪ In patients with pacemakers	ACCF 2012 stable, ACP 2012 diagnosis, CCS 2014[a], ESC 2016 prevention (ADD), ESC 2013 CAD, ESC 2014	10 / 15	The key statement is not in the current DMP-A-RL. Potential need to update	Simultaneous use of a stress test and an imaging technique is not mentioned in the DMP-A-RL.
Stress test					
V1.2/T2 – K8 (Ergometric/ pharmacological)	The stress test in combination with an imaging technique should preferably be ergometric and not pharmacological.	ESC 2013 CAD	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Stress test (continued)					
V1.2/T2 – K9 (Pharmacologically-induced)	A pharmacological stress test in combination with an imaging technique (diagnostic nuclear medicine myocardial perfusion or echocardiography) is recommended for patients with a moderate to high pretest probability of ischaemic heart disease, if the patient cannot be adequately tested by physical exercise, has a cardiac pacemaker or disabling comorbidities.	ACCF 2012 stable, ACP 2012 diagnosis, CCS 2014[a]	3 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	Simultaneous use of a pharmacological stress test and an imaging technique is not mentioned in the DMP-A-RL.
V1.2/T2 – K10 (Left bundle branch block)	A pharmacological stress test in combination with echocardiography or single photon emission computed tomography can be considered in patients with left bundle branch block.	ACCF 2012 stable, ESC 2013 CAD	1 / 2	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.2/T2 – K11 (Contraindication)	A pharmacological stress test in combination with an imaging technique (diagnostic nuclear medicine myocardial perfusion, echocardiography, cardiac magnetic resonance imaging) is not recommended for patients capable of adequate physical exercise testing and with an interpretable ECG.	ACCF 2012 stable ACP 2012 diagnosis	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Stress test (continued)					
V1.2/T2 – K12 (Magnetic resonance imaging)	A pharmacological stress test in combination with cardiac magnetic resonance imaging as an imaging technique can be considered in patients whose ECG is uninterpretable or who are incapable of adequate physical exercise testing or with disabling comorbidities.	ACCF 2012 stable	0 / 2	The key statement is not in the current DMP-A-RL. No need to update	
V1.2/T2 – K13 (Diagnostic myocardial perfusion)	Diagnostic myocardial perfusion under vasodilator-induced stress or CT angiography is recommended for the first diagnosis of patients with left bundle branch block or with a cardiac pacemaker.	CCS 2014[a]	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	Assessment of the need to update is based on a guideline of low methodological quality.
V1.2/T2 – K14 (Combination)	The simultaneous performance of two imaging techniques is not generally recommended.	ESC 2014	3 / 4	The key statement is differentiated. No need to update	
V1.2/T2 – K15 (X-ray)	A chest x-ray can be carried out if heart failure is suspected.	ESC 2013 CAD	0 / 1	The key statement is differentiated. No need to update	

(continued)

Table 6: Summarizing assessment of the partial aspect “Non-invasive imaging techniques” (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Stress test (continued)					
V1.2/T2 – K16 (Coronary calcium measurement)	Measurement of coronary calcium by CT is not recommended to detect patients with coronary stenosis. **Inconsistency of content:** Cardiac calcium detection can be considered in patients with a low to moderate pretest probability of obstructive ischaemic heart disease.	ESC 2013 CAD ACCF 2012 stable	1 / 1 0 / 1	The key statement is not addressed in the current DMP-A-RL. Further appraisal is proposed	The diagnostic possibilities of coronary diagnosis by CT have developed further in recent years.

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Stress test (continued)					
V1.2/T2 – K17 (Computed tomography angiography)	A CT coronary angiography can be carried out if: ▪ The patient with a moderate pretest probability shows no disabling comorbidities, ▪ Previous functional tests have been inconclusive, ▪ The patient cannot undergo a stress test, ▪ Function tests led to a moderate or high risk assessment and no angiographic knowledge of the coronary anatomy is available as an alternative to invasive angiography. **Inconsistency of content:** In contrast, NICE recommends CT angiography if the clinical assessment indicates the presence of typical or atypical angina or the resting ECG shows abnormalities with non-anginal chest pain.	ACCF 2012 stable, ESC 2014 NICE 2016 chest	0 / 4 1 / 1	The key statement is not addressed in the DMP-A-RL. Further investigation is proposed	CT coronary angiography is not mentioned in the DMP-A-RL.
V1.2/T2 – K18 (Contraindication CT angiography)	It is recommended not to undertake CT coronary angiography if the patient is likely to undergo invasive angiography/revascularization or, for important reasons, should not be exposed to any radiation or receive a contrast agent.	CCS 2014[a], ESC 2017 MI, ESC 2014, ESC 2013 CAD	3 / 4	The key statement is differentiated. No need to update	

(continued)

Table 6: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Stress test (continued)					
V1.2/T2 – K19 (Confirmation)	If CT coronary angiography shows significant CHD or reversible ischaemia of the myocardium has been diagnosed by non-invasive imaging of the heart function, diagnosis of stable angina should be confirmed and treatment given according to the relevant guidelines for patients with angina.	NICE 2016 chest	1 / 1	The key statement deviates from the DMP-A-RL. Potential need to update	CT coronary angiography is not mentioned in the DMP-A-RL.

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ADD: addendum; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; CT: computed tomography; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; K: key statement; LVEF: left ventricular ejection fraction; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; STEMI: ST-elevation myocardial infarction; T: topic; V: health care aspect

4.2.3 Differentiated therapy planning based on an individual assessment of risk (V1.4)

Text of the current DMP-A-RL on the health care aspect “Differentiated therapy planning based on an individual assessment of risk”

“Differentiated therapy planning based on an individual assessment of risk is to be jointly undertaken with the patient.

Patients with coronary heart disease have a high risk of suffering or dying from a myocardial infarction. This risk depends both on disease severity and also on patient risk indicators (for example age and sex, being overweight, diabetes, lipid metabolism disorder, hypertension, left ventricular dysfunction, smoking, familial predisposition). Provided the disease course does not require a different procedure, the physician should therefore characterize this risk once a year individually for these patients. If risk indicators are present, these are to receive special attention in the individual therapy planning and implementation.

In agreement with the patient, the physician has to check whether the patient can benefit from a particular intervention with respect to the treatment goals mentioned in Section 1.3.

On the basis of the individual risk assessment and general treatment goals, the physician and patient should together agree individual treatment goals, for example for blood pressure, lifestyle modification (e.g. giving up smoking), metabolic parameters”.

Table 7: Summarizing assessment of the health care aspect "Differentiated therapy planning based on an individual assessment of risk"

Designation of the extraction table in Section A3.4.3 of the full final report	**Key statement**	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.4 – K1 (Treatment plan)	It is recommended that patients with CHD are given a detailed and evidence-based treatment plan that describes medication-taking, the times of follow-up, suitable measures of physical activity and diet as well as the observance of secondary prevention measures.	ACCF 2013, AHA 2014, NICE 2013	3 / 3	The key statement is not in the current DMP-A-RL. Need to update	
V1.4 – K2 (Therapy adherence)	Strategies to promote treatment adherence with medication and the adoption of a healthy lifestyle should be considered.	Baker 2015	0 / 2	The key statement is not in the current DMP-A-RL. No need to update	
V1.4 – K3 (Decision-making)	The choice of a diagnostic or therapeutic option should be made through the process of shared decision-making. The patient should be given information about the risks, benefits and costs.	ACCF 2012 stable, ACP 2012 diagnosis, ACP 2012 stable, SIGN 2016	3 / 4	The key statement is differentiated. No need to update	
V1.4 – K4 (Elderly people)	Drug therapy should be individualized in elderly patients. Therapy planning should take account of patient preferences, comorbidities, functional and cognitive status and life expectancy.	AHA 2014	2 / 2	The key statement is not in the current DMP-A-RL. Potential need to update	The importance of cognitive status in the treatment of elderly patients has not previously been mentioned.

(continued)

Table 7: Summarizing assessment of the health care aspect "Differentiated therapy planning based on an individual assessment of risk" (continued)

Designation of the extraction table in Section A3.4.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.4 – K5 (Comorbidities)	It is recommended that cardiovascular comorbidities are thoroughly documented.	CCS 2014[a]	1 / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline of low methodological quality.
V1.4 – K6 (Risk stratification)	A risk stratification using risk models/risk scores should be undertaken to estimate the prognosis for patients with stable CHD or acute coronary syndrome.	AACE 2017, ACP 2012 stable, AHA 2014, ESC 2015, ESC 2013 CAD, ICSI 2013, NHFA 2016, SIGN 2017 prevention, SIGN 2016	7 / 13	The key statement is not in the current DMP-A-RL. Potential need to update	The use of a risk score for individual risk assessment has not been mentioned before. Different risk factors are named in the guideline recommendations.
V1.4 – K7 (Exercise ECG)	For risk assessment, an exercise ECG should be recorded in patients with stable CHD capable of adequate exercise with interpretable ECG.	ACCF 2012 stable, ACP 2012 diagnosis	2 / 2	The key statement is not in the current DMP-A-RL. Need to update	The specific limitations of this investigation must be considered.

(continued)

Table 7: Summarizing assessment of the health care aspect "Differentiated therapy planning based on an individual assessment of risk" (continued)

Designation of the extraction table in Section A3.4.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.4 – K8 (Imaging techniques)	In addition to the exercise ECG, nuclear medicine myocardial perfusion or echocardiography is recommended to assess risk in patients capable of adequate exercise with stable CHD, whose ECG is uninterpretable. (Left bundle branch block or ventricular pacing must not be the reason that the ECG cannot be used in this case.)	ACCF 2012 stable, ACP 2012 diagnosis	2 / 2	The key statement is not in the current DMP-A-RL. Need to update	
V1.4 – K9 (Interpretable ECG)	Nuclear medicine myocardial perfusion or echocardiography can be considered for risk assessment in patients with stable CHD, whose ECG is interpretable.	ACCF 2012 stable	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.4 – K10 (Pharmacologically-induced)	A pharmacological stress test in combination with nuclear medicine myocardial perfusion or echocardiography is recommended for risk assessment in patients with stable CHD physically incapable of exercise.	ACP 2012 diagnosis	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.4 – K11 (Contraindication pharmacologically-induced)	A pharmacological stress test in combination with an imaging technique and CT coronary angiography is not recommended for risk assessment in patients with stable CHD physically capable of adequate exercise and with an interpretable ECG.	ACCF 2012 stable, ACP 2012 diagnosis	2 / 2	The key statement is not in the current DMP-A-RL. Need to update	

(continued)

Table 7: Summarizing assessment of the health care aspect "Differentiated therapy planning based on an individual assessment of risk" (continued)

Designation of the extraction table in Section A3.4.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.4 – K12 (Magnetic resonance imaging)	Magnetic resonance imaging in combination with a pharmacological stress test can be considered to assess risk in patients with CHD if they either have no interpretable ECG or are physically incapable of adequate exercise.	ACCF 2012 stable, ACP 2012 diagnosis	0 / 2	The key statement is not in the current DMP-A-RL. No need to update	
V1.4 – K13 (Progression of CHD)	If progression of CHD is suspected, patients should undergo non-invasive functional imaging for further diagnosis.	NVL 2016	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.4 – K14 (Contraindication imaging techniques)	For risk assessment of patients with stable angina the undertaking of ▪ More than one stress test in combination with imaging techniques ▪ An imaging stress test and simultaneous CT angiography is not recommended.	ACCF 2012 stable	1 / 1	The key statement is differentiated. No need to update	
V1.4 – K15 (CT coronary angiography)	CT coronary angiography can be considered for risk assessment of patients if they ▪ Have no interpretable ECG or ▪ Are incapable of adequate physical exercise or ▪ Show an inconclusive result in the function test.	ACCF 2012 stable	0 / 4	The key statement is differentiated. No need to update	

(continued)

Table 7: Summarizing assessment of the health care aspect "Differentiated therapy planning based on an individual assessment of risk" (continued)

Designation of the extraction table in Section A3.4.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.4 – K16 (Contraindication CT coronary angiography)	CT coronary angiography should not be carried out to assess native coronary arteries with known moderate or severe calcification or coronary stents less than 3 mm in diameter in patients with stable CHD, who show new or worsening symptoms that are not consistent with unstable angina	ACP 2012 stable	1 / 1	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

AACE: American Association of Clinical Endocrinologists; ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; ACP: American College of Physicians; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; CT: computed tomography; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4 Therapeutic measures (V1.5)

Text of the current DMP-A-RL on general aspects of the health care aspect “Therapeutic measures”

The DMP Requirements Directive contains no statements on the general aspects of therapeutic measures.

Table 8: Summarizing assessment of general aspects of the health care aspect "Therapeutic measures"

Designation of the extraction table in Section A3.4.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5 – K1 (Multimodal therapy)	Patients with CHD should receive a multimodal therapy that includes education about a healthy lifestyle and the management of risk factors, in addition to drug treatment.	ESC 2016 prevention, ESC 2016 prevention (ADD)	4 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.5 – K2 (Visits to physician)	If the nature and intensity of anginal symptoms change, a physician should be consulted immediately.	AHA 2014	1 / 1	The key statement is differentiated. No need to update	
V1.5 – K3 (Therapy adherence)	Adherence to medication and a change in lifestyle should be regularly checked and barriers to adherence reacted to.	NVL 2016	1 / 3	The key statement is differentiated. No need to update	
V1.5 – K4 (Combination preparations)	The use of combination preparations can be considered in order to increase adherence to medication.	ESC 2017 MI	0 / 1	The key statement is differentiated. No need to update	
V1.5 – K5 (Air travel)	Patients should seek advice about planned air travel after a myocardial infarction.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	

ADD: addendum; AHA: American Heart Association; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; T: topic aspect; V: health care aspect

4.2.4.1 General measures, management of risk factors and handling of co-/multimorbidity (V1.5.1)

Text of the current DMP-A-RL on general aspects of this health care aspect:

The DMP Requirements Directive contains no summarizing statements on general aspects of general measures, management of risk factors or handling of co-/multimorbidity.

Table 9: Summarizing assessment of the health care aspect "Therapeutic measures – general measures, management of risk factors and handling of co-/multimorbidity"

Designation of the extraction table in Section A3.4.4.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1 – K1 (Lifestyle changes)	All patients with stable CHD should be encouraged to change their lifestyle, such as controlling their weight, undertaking regular physical activity, giving up smoking and given appropriate advice and information.	ACCF 2012 stable, ESC 2016 prevention, ESC 2015, ESC 2014, NCGC 2013, VADoD 2014	8 / 8	The key statement agrees. No need to update	

ACCF: American College of Cardiology Foundation; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; T: topic aspect; V: health care aspect; VADoD: Department of Veterans Affairs and Department of Defense

4.2.4.1.1 Diet (V1.5.1.1)

Text of the current DMP-A-RL on the health care aspect “Diet”:

“As part of treatment and in accordance with the respective treatment goals, the treating physician advises patients about a risk factor-oriented balanced diet and weight loss for patients who are overweight”.

Table 10: Summarizing assessment of the health care aspect "Diet"

Designation of the extraction table in Section A3.4.4.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.1 – K1 (Dietary advice)	Bearing in mind the individual circumstances, patients should be informed and advised about a balanced diet.	NICE 2016, VADoD 2014	2 / 3	The key statement agrees. No need to update	
V1.5.1.1 – K2 (Balanced diet)	A balanced diet, consisting of fruit and vegetables, wholegrain products, seeds, pulses and unsalted nuts or olive oil is recommended, with a reduced intake of sugar.	AACE 2017, NICE 2016, SIGN 2017 prevention VADoD 2014	4 / 5	The key statement is differentiated. No need to update	
V1.5.1.1 – K3 (Saturated fatty acids)	The proportional intake of saturated fats, trans-fats and cholesterol in the diet should be reduced. If possible saturated fats should be replaced by mono- or polyunsaturated fats.	AACE 2017, ACCF 2012 stable, ACP 2012 stable, NICE 2016, ESC 2016 prevention (ADD), ESC 2013 diabetes	6 / 7	The key statement is differentiated. No need to update	
V1.5.1.1 – K4 (Elevated triglycerides)	If triglycerides are elevated, possible other causes should be considered such as non-observance of dietary advice, alcohol consumption, hypothyroidism or hyperglycaemia.	VADoD 2014	1 / 2	The key statement is differentiated. No need to update	
V1.5.1.1 – K5 (Omega-3 fatty acids)	The ingestion of omega-3 fatty acids for the prevention of cardiovascular events is not recommended.	CCS 2016, NICE 2016, NICE 2013	5 / 5	The key statement is differentiated. No need to update	

(continued)

Table 10: Summarizing assessment of the health care aspect "Diet" (continued)

Designation of the extraction table in Section A3.4.4.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.1 – K6 (Safety of omega-3 fatty acids)	Patients should be investigated with respect to gastrointestinal disorders, skin changes and bleeding if omega-3 fatty acids are taken to treat severe hypertriglyceridaemia.	ACC 2013	0 / 1	The key statement is differentiated. No need to update	
V1.5.1.1 – K7 (Food supplements)	Plant sterols, coenzyme Q10, selenium and chromium as food supplements, herbal medicines and vitamin supplementation or chelator therapy are not recommended for the treatment of CHD.	ACC 2014, ACCF 2012 stable, ACP 2012 stable, AHA 2014, AkdÄ 2012, CCS 2014[a], NICE 2016, NVL 2016 SIGN 2017 prevention	13 / 18	The key statement is differentiated. No need to update	
V1.5.1.1 – K8 (Weight)	Overweight patients should be encouraged to reduce their weight through a balanced ratio of physical activity and calorific intake. Weight should be checked at each visit to the physician.	ACCF 2012 stable, ACP 2012 stable, ESC 2016 prevention (ADD), ESC 2013 diabetes	4 / 5	The key statement agrees. No need to update	
V1.5.1.1 – K9 (Alcohol)	Patients with stable CHD may, if they wish and there is no contraindication (for example liver disease or alcohol dependency), drink moderate amounts of alcohol. They should, however, be warned that even low or moderate alcohol consumption can increase the cardiovascular risk.	ACCF 2012 stable, SIGN 2017 prevention	1 / 3	The key statement is differentiated. No need to update	

(continued)

Table 10: Summarizing assessment of the health care aspect “Diet” (continued)

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

AACE: American Association of Clinical Endocrinologists; ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ADD: addendum; AHA: American Heart Association; AkdÄ: Drug Commission of the German Medical Association; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect; VADoD: Department of Veterans Affairs and Department of Defense

4.2.4.1.2 Advice to smokers (V1.5.1.2)

Text of the current DMP-A-RL on the health care aspect “Advice to smokers”:

“As part of treatment, the physician explains to patients the particular risks of smoking and passive smoking for patients with CHD, combined with the following specific advice strategies and the urgent recommendation to stop smoking.

- The smoking status should be enquired about with every patient at every consultation.
- Smokers should be motivated to give up smoking in a clear, strong and personal form.
- It should be established whether smokers are prepared to start an attempt to stop at this time.
- Smokers prepared to change their habit should be offered non-drug measures to give up smoking. If necessary, advice should also be given about their combination with drug measures.
- Follow-up contact should be agreed, if possible in the first week after the date of giving up”.

Table 11: Summarizing assessment of the health care aspect "Advice to smokers"

Designation of the extraction table in Section A3.4.4.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.2 – K1 (Smoking cessation)	Patients should be encouraged to give up smoking and avoid passive smoking. A step-wise strategy to stop smoking should be followed. For example, follow-up contact should be agreed and special cessation programmes or drug treatments offered. Support should be provided via telephone contact, information material about self-help and assistance in implementing the necessary patterns of behaviour. In CHD patients with accompanying depression, the depression should be treated to increase the readiness to stop smoking.	AACE 2017, ACCF 2013, ACCF 2012 stable, ACP 2012 stable, ESC 2017 MI ESC 2016 prevention (ADD) ESC 2013 diabetes, SIGN 2017 prevention SIGN 2017 reha	9 / 10	The key statement is differentiated. No need to update	
V1.5.1.2 – K2 (Air pollution)	Patients with stable CHD should avoid exposing themselves to high air pollution.	ACCF 2012 stable	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	

AACE: American Association of Clinical Endocrinologists; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ADD: addendum; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect ;V: health care aspect

4.2.4.1.3 Physical activity (V1.5.1.3)

Text of the current DMP-A-RL on the health care aspect “Physical activity”:

“The physician should check at least once a year whether the patient benefits from an increase in physical activity. Possible interventions should be directed at motivating the patient to become independently responsible for permanently integrating the desired positive exercise behaviour into their lifestyle.

The aim should be physical activity of at least 30 minutes (e.g. fast walking) each day if possible. Intensity of the physical activity is to be adapted to the individual exercise capacity. Patients at high risk (e.g. after ACS, revascularization, with heart failure) in particular, are recommended to participate in medically supervised group sport (exercise) programmes for heart patients, taking the overall situation into account”.

Table 12: Summarizing assessment of the health care aspect “Physical activity”

Designation of the extraction table in Section A3.4.4.1.3 of the full final report	**Key statement**	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.5.1.3 – K1 (Limitations)	Patients who are unable to undertake moderate to intensive physical training because of concomitant diseases, state of health or personal circumstances, should be encouraged to do relevant exercises at their maximum, safe capacity.	NICE 2016	1 / 1	The key statement agrees. No need to update	
V1.5.1.3 – K2 (Individual adaptation)	A risk assessment should be undertaken for all patients, based on their previous physical activity and/or an exercise test and the instruction for physical activity adapted accordingly.	ACCF 2012 stable, ESC 2016 prevention (ADD)	3 / 4	The key statement is differentiated. No need to update	
V1.5.1.3 – K3 (Scope of training)	Moderate to intensive aerobic training is recommended for all patients with stable CHD. The stated frequency varies: 30–60 minutes daily where possible but at least 5 times a week, to 4 to 6 times a week. In order to increase observance of physical fitness programmes, weekly moderate to intensive physical activity for a total of 150 minutes, in several blocks each of shorter duration (at least 10 minutes) can also be recommended.	AACE 2017, ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2013 diabetes, NICE 2016	5 / 7	The key statement is differentiated. No need to update	

(continued)

Table 12: Summarizing assessment of the health care aspect “Physical activity” (continued)

Designation of the extraction table in Section A3.4.4.1.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.3 – K4 (Strength training)	In addition to aerobic training, strength training is recommended on at least 2 days a week.	AACE 2017, ACCF 2012 stable, NICE 2016	2 / 3	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.5.1.3 – K5 (Ambulatory heart group)	Patients with stable CHD, especially after an acute coronary syndrome and/or bypass surgery, are recommended to join an ambulatory group of heart patients to promote regular physical training and other risk-reducing lifestyle changes.	NVL 2016	0[b] / 1	The key statement agrees. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: GoR and LoE of the underlying recommendation were categorized as unclear.

AACE: American Association of Clinical Endocrinologists; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ADD: addendum; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; T: topic aspect: V: health care aspect

4.2.4.1.4 Arterial hypertension (V1.5.1.4)

Text of the current DMP-A-RL on the health care aspect “Arterial hypertension”:

“Blood pressure should be regularly checked in all patients with coronary heart disease. Existing arterial hypertension should be consistently treated. Generally, the aim is to reduce systolic blood pressure to between 130 mmHg and 139 mmHg and diastolic to 80 mmHg to 89 mmHg. Individual deviations can be required, depending on the overall situation of the patient (e.g. age, other concomitant diseases).

Bearing in mind existing related and concomitant diseases, the physician checks whether the patient can benefit from participation in a structured, evaluated and published hypertension education and treatment programme”.

Table 13: Summarizing assessment of the health care aspect "Arterial hypertension"

Designation of the extraction table in Section A3.4.4.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.4 – K1 (Target blood pressures)	The target blood pressures in patients with CHD should be < 140 mm Hg systolic and < 90 mm Hg diastolic. Blood pressure should be reduced below these levels for patients with diabetes and/or renal disease. The targets are general guide values and can be adjusted, especially if there is intolerance to the drugs or in fragile and elderly patients who are more susceptible to adverse events.	Baker 2015, ESC 2015, ESC 2014, ESC 2013 diabetes SIGN 2017 prevention	3 / 9	The key statement is differentiated. No need to update	
V1.5.1.4 – K2 (General aspects)	CHD patients with a blood pressure of 140/80 mm Hg or higher should be given antihypertensive medication and be advised about their lifestyle.	ACCF 2012 stable, ACP 2012 stable, ESC 2016 prevention, NICE 2013	5 / 5	The key statement is differentiated. No need to update	
V1.5.1.4 – K3 (Diabetes)	Antihypertensive therapy is recommended for all CHD patients with diabetes, provided this is not contraindicated or clinically unsuitable.	Baker 2015	0 / 2	The key statement is differentiated. No need to update	
V1.5.1.4 – K4 (Drug treatment)	CHD patients should be given ACE inhibitors and/or beta-blockers to reduce blood pressure. If the target blood pressure value is not reached, then thiazide diuretics or calcium channel blockers should be given.	ACCF 2012 stable, ACP 2012 stable	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 13: Summarizing assessment of the health care aspect "Arterial hypertension" (continued)

Designation of the extraction table in Section A3.4.4.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.4 – K5 (Therapy in diabetes)	CHD patients with diabetes should first receive monotherapy with ACE inhibitors, thiazide diuretics, calcium channel blockers or AT1 receptor antagonists. If blood pressure reduction is inadequate, then ACE inhibitors plus calcium channel blockers or ACE inhibitors plus thiazide diuretics can be given	Baker 2015	0 / 4	The key statement is differentiated. No need to update	

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ACE: angiotensin converting enzyme; AT: angiotensin; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.1.5 Diabetes (V1.5.1.5)

Text of the current DMP-A-RL on the health care aspect “Diabetes”:

“Diabetes is a main risk factor for the occurrence of cardio- and cerebrovascular complications. Patients with chronic CHD should be investigated for diabetes and its precursors. Patients with chronic CHD and diabetes represent a special risk group and therefore intensive management of other prognostic factors (e.g. arterial hypertension, lipid metabolism disorders) is required and efforts must be made to achieve good metabolic control.

Consideration needs to be given to the question of whether patients with chronic CHD and diabetes should participate in a structured treatment programme for type 1 or type 2 diabetes. Irrespective of participation in the DMP for type 1 and type 2 diabetes, it should be examined whether the patient can benefit from participation in a structured, evaluated and published diabetes education and treatment programme”.

Table 14: Summarizing assessment of the health care aspect “Diabetes”

Designation of the extraction table in Section A3.4.4.1.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.5 – K1 (Screening)	Patients under statin therapy should be screened to see whether diabetes has newly developed.	ACC 2013	1 / 1	The key statement is differentiated. No need to update	
V1.5.1.5 – K2 (HbA1c target)	The target for HbA1c is stated as < 7.0 % and should be adapted individually.	ACCF 2012 stable, ESC 2013 diabetes	0 / 3	The key statement is differentiated. No need to update	
V1.5.1.5 – K3 (Drug treatment)	Drug treatment should be started to achieve the target HbA1c, with the target value adjusted to possible comorbidities.	ACCF 2012 stable, ESC 2016 prevention, ESC 2015, ESC 2014, ESC 2013 diabetes	1 / 8	The key statement is differentiated. No need to update	
V1.5.1.5 – K4 (Rosiglitazone)	Diabetics with stable CHD should not receive rosiglitazone.	ACCF 2012 stable, ACP 2012 stable	2 / 2	The key statement is differentiated. No need to update	Rosiglitazone is not prescribable in Germany

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; HbA1c: haemoglobin A1c; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; T: topic aspect; V: health care aspect

4.2.4.1.6 Psychosocial care (V1.5.1.6)

Text of the current DMP-A-RL on the health care aspect “Psychosocial care”:

“The care of patients with CHD should include consideration of their psychosocial situation. An inability to cope with the disease, lack of motivation or socioemotional support, or even problems in the workplace, are amongst the things to be considered.

Psychosocial care is to be adapted to the individual situation of the patient (phase of the disease, treatment procedures etc.)”.

Table 15: Summarizing assessment of the health care aspect “Psychosocial care”

Designation of the extraction table in Section A3.4.4.1.6 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.6 – K1 (Psychosocial risk factors)	Psychosocial risk factors should be regularly recorded in order to detect possible barriers to lifestyle changes or medication-taking and. if necessary, to discuss with the patient how to proceed.	ESC 2016 prevention, ESC 2016 prevention (ADD), NVL 2016, SIGN 2017 prevention, SIGN 2016	2 / 7	The key statement agrees. No need to update	

ADD: addendum; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.1.7 Psychological comorbidities (V1.5.1.7)

Text of the current DMP-A-RL on the health care aspect “Psychological comorbidities”:

“Due to the complex interaction of somatic, psychological and social factors, the presence of psychological comorbidities (e.g. adjustment disorders, anxiety disorders etc.) is to be taken into account. The physician should investigate the extent to which patients might benefit from psychotherapy or psychiatric treatment measures. Psychological diseases should be treated by appropriately qualified service providers.

As it is a frequent and important comorbidity, particular attention should be paid to depression. If - according to the guidelines - treatment with antidepressants is indicated, then a selective serotonin reuptake inhibitor (SSRI) is preferable to tricyclic antidepressants for patients who have had a myocardial infarction”.

Table 16: Summarizing assessment of the health care aspect "Psychological comorbidities"

Designation of the extraction table in Section A3.4.4.1.7 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.7 – K1 (Screening depression)	Patients with CHD should be investigated for the presence of a depressive disorder. This screening should be repeated during the rehabilitation measure.	ACCF 2012 stable, ICSI 2013, NHFA 2013[a], NVL 2016 SIGN 2017 prevention, SIGN 2017 reha	3 / 6	The key statement agrees. No need to update	
V1.5.1.7 – K2 (Psychological comorbidities)	Patients with CHD should be investigated for the presence of psychological comorbidities of prognostic relevance.	NVL 2016	0 / 1	The key statement agrees. No need to update	
V1.5.1.7 – K3 (Diagnostics)	If a psychological disorder is suspected, a clinical diagnosis should be made.	NVL 2016	1 / 1	The key statement is differentiated. No need to update	
V1.5.1.7 – K4 (Treatment of depression)	Treatment of depression in CHD patients can lead to an increase in therapy adherence to the CHD treatment and a change in the behaviour-related risk factors.	ACCF 2012 stable, NHFA 2013[a]	0 / 4	The key statement agrees. No need to update	

(continued)

Table 16: Summarizing assessment of the health care aspect "Psychological comorbidities" (continued)

Designation of the extraction table in Section A3.4.4.1.7 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.7 – K5 (Physical activity)	Physical activity is suitable for the treatment of depression in CHD patients.	NHFA 2013[a]	0 / 2	The key statement is differentiated. No need to update	DMP-A-RL focusses on the drug treatment of depression and the contra-indications. Physical activity is not explicitly mentioned, but reference is made to guideline-compliant treatment of depression. Assessment of the need to update is based on a guideline of low methodological quality.
V1.5.1.7 – K6 (Drug treatment)	Selective serotonin reuptake inhibitors (SSRI) may be used in the drug treatment of depression in CHD patients. The risk of interactions and adverse drug reactions must be considered.	NHFA 2013[a], SIGN 2017 prevention	0 / 3	The key statement agrees. No need to update	

(continued)

Table 16: Summarizing assessment of the health care aspect “Psychological comorbidities” (continued)

Designation of the extraction table in Section A3.4.4.1.7 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.7 – K7 (Other therapeutic options)	In addition, psychological interventions, cognitive behavioural therapy or collaborative care can be used in the treatment of depression in CHD patients. The psychological measures should be evidence-based and carried out by an appropriately qualified medical specialist.	ACCF 2011 CABG[a], NHFA 2013[b], SIGN 2017 prevention, SIGN 2017 reha	1 / 8	The key statement agrees. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.
b: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACCF: American College of Cardiology Foundation; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.1.8 Vaccinations (V1.5.1.X/T1)

Text of the current DMP-A-RL on the partial aspect “Vaccinations”:

The DMP Requirements Directive contains no statements about vaccinations in CHD patients.

Table 17: Summarizing assessment of the partial aspect “Vaccinations”

Designation of the extraction table in Section A3.4.4.1.8 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.X/T1 – K1 (Influenza protection)	The annual influenza vaccination is recommended for patients with stable CHD.	ACCF 2012 stable, ACP 2012 stable, AHA 2014, ESC 2016 prevention, NVL 2016	3 / 5	The key statement is not in the current DMP-A-RL. Potential need to update	See recommendations of STIKO
V1.5.1.X/T1 – K2 (Pneumococci)	Vaccination against pneumococci is recommended for patients over 65 years of age and high-risk patients with cardiovascular disease.	AHA 2014	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	See recommendations of STIKO

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; STIKO: Standing Committee on Vaccination; T: topic aspect; V: health care aspect

4.2.4.1.9 Pregnant CHD patients (V1.5.1.X/T2)

Text of the current DMP-A-RL on the partial aspect “Pregnant CHD patients”:

The DMP Requirements Directive contains no statements about pregnant CHD patients. According to the DMP evaluation, the mean age of patients on inclusion in the DMP CHD is 72.1 ± 11.0 years [19].

Table 18: Summarizing assessment of the partial aspect "Pregnant CHD patients"

Designation of the extraction table in Section A3.4.4.1.9 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.X/T2 – K1 (Risk advice)	Women of childbearing age with a cardiovascular disease should receive a risk assessment and advice after conception.	ESC 2011[a]	2 / 2	The key statement is not in the current DMP-A-RL. Potential need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.5.1.X/T2 – K2 (ACS diagnostics	For workup, pregnant CHD patients with chest pain should undergo an ECG and have their troponin levels measured.	ESC 2011[a]	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.5.1.X/T2 – K3 (Treatment strategy)	A non-invasive technique can be chosen for pregnant women with NSTEMI without risk criteria. An invasive strategy can be considered if risk factors are present or if an ischaemia-directed strategy fails.	AHA 2014, ESC 2011[a]	2 / 5	The key statement is not in the current DMP-A-RL. Potential need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

AHA: American Heart Association; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NSTEMI: myocardial infarction without ST-elevation; T: topic aspect; V: health care aspect

4.2.4.1.10 Heart failure (V1.5.1.X/T3)

Text of the current DMP-A-RL on the partial aspect “Heart failure”:

The DMP Requirements Directive contains no statements about the treatment of CHD patients with heart failure. This was previously contained in the module “Heart failure”.

Table 19: Summarizing assessment of the partial aspect "Heart failure"

Designation of the extraction table in Section A3.4.4.1.10 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.X/T3 – K1 (Drug treatment)	CHD patients with concomitant heart failure should receive beta-receptor blockers, ACE inhibitors and – in the case of ACE intolerance – AT1-receptor antagonists. Those who remain symptomatic under this combined treatment and who show a left ventricular ejection fraction of less than 35%, should also receive aldosterone antagonists.	ACP 2012 stable, ESC 2014	5 / 5	The key statement is not in the current DMP-A-RL. Need to update	
V1.5.1.X/T3 – K2 (Ivabradine)	Treatment with ivabradine can be considered for CHD patients with heart failure and sinus rhythm with a left ventricular ejection fraction of < 35%, a heart rate of > 70 beats/minute and persistent symptoms (NYHA II-IV) despite adequate medication with beta-blockers, ACE inhibitors (or AT1 antagonists) and aldosterone antagonists.	ESC 2014	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	

(continued)

Table 19: Summarizing assessment of the partial aspect “Heart failure” (continued)

Designation of the extraction table in Section A3.4.4.1.10 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.1.X/T3 – K3 (NSTEMI)	CHD patients with heart failure and NSTEMI should be treated according to the guideline for NSTEMI patients without heart failure. The extent of left ventricular dysfunction should also be considered when selecting the specific revascularization strategy.	AHA 2014	2 / 2	The key statement is differentiated. No need to update	

ACE: angiotensin converting enzyme; ACP: American College of Physicians; AHA: American Heart Association; AT: angiotensin; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NSTEMI: myocardial infarction without ST-elevation; NYHA: New York Heart Association; T: topic aspect; V: health care aspect

4.2.4.2 Drug treatment (V1.5.2)

Text of the current DMP-A-RL on general aspects of this aspect of health care:

“The aim of drug treatment for CHD is to reduce cardiovascular morbidity and all-cause mortality (especially to avoid progression of CHD, myocardial infarction and the development of heart failure) through prognosis-improving therapy. Symptomatic treatment should also improve the quality of life. This includes greater physical capacity as well as a relief of disease-induced symptoms such as angina and dyspnoea.

Taking into account contraindications, comorbidities and patient preferences, the priority is to use drugs to treat the CHD whose positive effect and safety with respect to achieving the treatment goals mentioned in Section 1.3 have been demonstrated in randomized controlled trials (RCT).

If, as part of the individual therapy planning, drugs from classes other than those mentioned in this appendix are to be prescribed, then the patient is to be informed whether there is proof of efficacy for these drugs in terms of the risk reduction in clinical endpoints.

Questions should be asked about the drugs actually taken, including self-medication and possible side effects of the drug treatment, to enable changes in treatment or dose adjustments to be made as early as possible.

It may be necessary to adjust the dose of the drug in the case of elimination disorders (especially impairment of renal function)”.

Table 20: Summarizing assessment of the health care aspect "Drug therapy"

Designation of the extraction table in Section A3.4.4.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2 – K1 (Treatment requirements)	Optimum pharmacological treatment of CHD comprises at least one drug for the symptomatic treatment and one with a prognosis-improving effect.	ESC 2013 CAD	1 / 1	The key statement agrees. No need to update	
V1.5.2 – K2 (Particular patient groups)	Special caution is required in elderly patients and in cases where multiple comorbidities exist. In order to avoid side effects, the doses of beta-receptor blockers, ACE inhibitors, angiotensin receptor blockers and statins should be adjusted.	Baker 2015, ESC 2015	0 / 2	The key statement agrees. No need to update	
V1.5.2 – K3 (Optimization)	Soon after it is started, the drug treatment should be checked in terms of symptom control and quality of life, and optimized if necessary.	CCS 2014[a], ESC 2013 CAD	2 / 2	The key statement agrees. No need to update	
V1.5.2 – K4 (Medication adherence)	Before treatment is changed due to inadequate efficacy, the adherence to medication should be questioned and if necessary, measures taken to increase it.	NVL 2016	0 / 1	The key statement agrees. No need to update	
V1.5.2 – K5 (Drug treatment)	Patients with acute STEMI, who are not suitable for reperfusion therapy and patients with a low ischaemic risk should receive pharmacological treatment.	ESC 2013 CAD, NCGC 2013	2 / 2	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACE: angiotensin converting enzyme; CAD: coronary artery disease; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guidelines Centre; NVL: German National Health Care Guideline; RL: directive; STEMI: ST-elevation myocardial infarction; T: topic aspect; V: health care aspect

4.2.4.2.1 Prognosis-improving therapy (V1.5.2.1)

Text of the current DMP-A-RL on general aspects of this aspect of health care:

“A prognosis-improving effect has been demonstrated for the following groups of drug:

1. Platelet aggregation inhibitors (antiplatelet drugs)

2. Statins

3. Inhibitors of the renin-angiotensin-aldosterone system

4. Beta-receptor blockers”.

Table 21: Summarizing assessment of the health care aspect “Drug treatment – prognosis-improving therapy”

Designation of the extraction table in Section A3.4.4.2.1 of the full final report	**Key statement**	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.5.2.1 – K1 (General)	After an acute myocardial infarction, patients should receive ACE-inhibitors, dual antiplatelet therapy, beta-receptor blockers and statins.	NICE 2013	1 / 1	The key statement agrees. No need to update	
ACE: angiotensin converting enzyme; DMP: Disease Management Programme; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; RL: directive; T: topic aspect; V: health care aspect					

4.2.4.2.1.1 Antiplatelet therapy (V1.5.2.1.1)

Text of the current DMP-A-RL on the health care aspect “Antiplatelet therapy”:

“In principle, taking contraindications and/or intolerances into account, inhibition of platelet aggregation (antiplatelet therapy) should be carried out for all patients with chronic CHD.

Combination treatment of aspirin and a P2Y12 receptor antagonist is indicated for up to one year after acute coronary syndrome, followed by long-term treatment with aspirin.

The required antiplatelet therapy depends on the nature of any interventional coronary procedure (e.g. coronary angioplasty [PTCA], bare metal stent [BMS], drug-eluting stent [DES]). The cardiologist undertaking the intervention is to inform the subsequent treating physician about the intervention performed and the resulting nature and duration of antiplatelet therapy.

Additional antiplatelet therapy is not worthwhile in patients with chronic stable CHD in whom oral anticoagulation is indicated. Exceptions arise from coronary interventions and/or acute coronary syndrome. In these cases, a combination of oral anticoagulation with an antiplatelet drug is indicated, with the cardiologist weighing up the individual benefits and risks”.

Table 22: Summarizing assessment of the health care aspect "Antiplatelet therapy"

Designation of the extraction table in Section A3.4.4.2.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
General aspects of antiplatelet therapy					
V1.5.2.1.1 – K1 (Treatment adjustment)	Where possible, the treatment with anticoagulants and/or antiplatelet drugs should be weight-based and must be adjusted in the case of chronic kidney disease or in the elderly. No adjustment is generally necessary for diabetics and women.	AHA 2014, ESC 2017 DAPT, ESC 2015	6 / 7	The key statement agrees. No need to update	
V1.5.2.1.1 – K2 (Diabetes)	CHD patients with type 2 diabetes should receive long-term treatment with antiplatelet drugs.	Baker 2015	1[a] / 1	The key statement agrees. No need to update	
V1.5.2.1.1 – K3 (Medication adherence)	The antiplatelet drug treatment should not be discontinued within the recommended duration of treatment. Patients should be informed of the importance of adherence to the treatment with antiplatelet drugs.	ACCF 2011 PCI[b], ESC 2014	3 / 3	The key statement is not in the current DMP-A-RL. Need to update	

(continued)

Table 22: Summarizing assessment of the health care aspect "Antiplatelet therapy" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
General aspects of antiplatelet therapy (continued)					
V1.5.2.1.1 – K4 (Aspirin intolerance)	In the case of intolerance, allergy or contraindication to aspirin, clopidogrel should be used as the second-choice drug.	AHA 2014, ACCF 2012 stable, ACCF 2012 unstable, ACCF 2011 CABG[b], ACP 2012 stable, Baker 2015, CCS 2014[c], DEGAM 2016, ESC 2014, ESC 2013 CAD, ESC 2013 diabetes, NHFA 2016, NVL 2016 SIGN 2017 prevention	11 / 15	The key statement is differentiated. No need to update	The guideline DEGAM 2016 adds a statement to this topic, without methodological explanation.
V1.5.2.1.1 – K5 (Clopidogrel)	Patients with another clinically significant vascular disease should receive clopidogrel instead of aspirin if they have had a myocardial infarction and the dual antiplatelet therapy was ended or the infarction occurred more than 12 months earlier.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 22: Summarizing assessment of the health care aspect "Antiplatelet therapy" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
General aspects of antiplatelet therapy (continued)					
V1.5.2.1.1 – K6 (Proton pump inhibitors)	Patients with gastrointestinal symptoms should receive proton pump inhibitors in addition to aspirin, DAPT or triple therapy. However, this should not be routine for patients with a low risk of gastrointestinal bleeding.	ACCF 2011 PCI[b], AHA 2014, CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT ESC 2017 MI ESC 2015, ESC 2014, NICE 2013, SIGN 2013	8 / 15	The key statement is differentiated. No need to update	
V1.5.2.1.1 – K7 (PPI alternative)	H2-receptor antagonists can be used as an alternative to proton pump inhibitors.	SIGN 2013	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1 – K8 (Switch to antiplatelet drugs)	A switch from a P2Y12-receptor antagonist to another should not be made without clinical need. Strategies for the switch are proposed.	ACCF 2011 PCI[b], CCS 2012 antiplatelet, DEGAM 2016 ESC 2017 DAPT	1 / 4	The key statement is differentiated. No need to update	The guideline DEGAM 2016 adds four additional statements to this topic, without methodological explanation.

(continued)

Table 22: Summarizing assessment of the health care aspect "Antiplatelet therapy" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
General aspects of antiplatelet therapy (continued)					
V1.5.2.1.1 – K9 (Contraindication prasugrel)	Prasugrel should not be used in patients who have a history of stroke or transitory ischaemic attacks or in patients with unknown anatomy of the coronary vessels. A dose adjustment should be made in elderly patients and those with a body weight below 60 kg.	ACC 2016, ACCF 2013, ACCF 2011 PCI[b], AHA 2014, CCS 2012 antiplatelet, DEGAM 2016, ESC 2015, ESC 2014	9 / 10	The key statement is differentiated. No need to update	
V1.5.2.1.1 – K10 (Platelet function test)	A platelet function or a genetic test should not be routinely conducted. However, they can be used in specific high-risk situations such as a history of stent thrombosis or a high risk of bleeding, if the result can lead to a change in treatment strategy.	ACCF 2012 unstable, ACCF 2011 PCI[b], DEGAM 2016, ESC 2017 DAPT, ESC 2014, ESC 2013 CAD	6 / 15	The key statement is differentiated. No need to update	
V1.5.2.1.1 – K11 (Cardiology)	The advice of a cardiologist should be sought before clopidogrel that has been taken within the last 12 months after implantation of a stent is stopped.	SIGN 2013	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1 – K12 (Continuing therapy)	The interventional cardiologist should inform the patient and the primary care physician of the details of the drug treatment to be continued.	ACCF 2012 unstable, AHA 2014, NICE 2013	3 / 3	The key statement agrees. No need to update	

(continued)

Table 22: Summarizing assessment of the health care aspect “Antiplatelet therapy” (continued)

a: The recommendation is based on a GoR categorized as unclear and a high LoE.
b: The guideline is more than 5 years old at the time of publication of the final report.
c: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; ASA: acetylsalicylic acid (aspirin); CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DEGAM: German Society for General Medicine and Family Medicine; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.2.1.1.1 Dual antiplatelet therapy (T1)

Table 23: Summarizing assessment of the partial aspect "Dual antiplatelet therapy"

Designation of the extraction table in Section A3.4.4.2.1.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T1 – K1 (ASA dosage)	In the case of DAPT, the dose of aspirin should be 81 mg (range 75–100 mg).	ACC 2016 ESC 2017 DAPT	3 / 3	The key statement is differentiated. No need to update	
V1.5.2.1.1/T1 – K2 (Shortened/extended DAPT)	The duration of DAPT can be individually extended or shortened, depending on the ratio of ischaemic risk to risk of bleeding.	ACC 2016, ACCF 2013, ACCF 2012 unstable, ACCF 2011 PCI[a], AHA 2014, CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT, ESC 2017 MI, ESC 2016 prevention, ESC 2015, ESC 2014, ESC 2013 CAD, NHFA 2016	5 / 48	The key statement is differentiated. No need to update	

(continued)

Table 23: Summarizing assessment of the partial aspect "Dual antiplatelet therapy" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T1 – K3 (Bleeding)	If clinically significant bleeding occurs during DAPT, the combination of drugs, the dosage and duration of DAPT should be reviewed.	ESC 2017 DAPT	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1/T1 – K4 (Risk scores)	Risk scores such as the DAPT and PRECISE-DAPT score can be used to estimate the benefits and risks of the chosen duration of DAPT treatment.	ESC 2017 DAPT	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1/T1 – K5 (Interruption of DAPT)	Where possible, the ingestion of clopidogrel and ticagrelor should be stopped 5 days and prasugrel 7 days before elective surgery, whereas discontinuation of aspirin is generally not necessary. However, the ESC 2017 DAPT and ESC 2017 MI state that ticagrelor should be stopped for at least 3 days beforehand. It is recommended that a multidisciplinary team assesses the individual risk of bleeding and the ischaemic risk before an operation and when the date is set and supports the antithrombotic treatment. Treatment with the P2Y12 inhibitors should be continued after surgery as soon as it appears safe.	ACC 2016, ACCF 2011 PCI[a], AHA 2014, CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT ESC 2015, ESC 2014, SIGN 2013	12 / 31	The key statement is not in the current DMP-A-RL. Potential need to update	According to the Information for Healthcare Professionals and the Package Leaflet, clopidogrel and ticagrelor should be stopped 7 days before surgery.

(continued)

Table 23: Summarizing assessment of the partial aspect "Dual antiplatelet therapy" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T1 – K6 (Elective surgery)	If administration of aspirin can be continued, elective surgery that requires discontinuation of the P2Y12 inhibitor can be considered one month after stent implantation, irrespective of the type of stent. In the case of patients who require DAPT because of a myocardial infarction or other high ischaemic risks, elective surgery should be delayed for up to 6 months.	ESC 2017 DAPT	0 / 2	The key statement is not in the current DMP-A-RL. No need to update	
V1.5.2.1.1/T1 – K7 (Interruption)	DAPT should not be interrupted for the performance of an elective operation within the first month of treatment.	ESC 2017 DAPT	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.5.2.1.1/T1 – K8 (P2Y12 inhibitor)	If it is decided to undertake PCI, patients with known cardiac anatomy or stable CHD should be pretreated with a P2Y12 inhibitor.	ESC 2017 DAPT	2 / 4	The key statement is differentiated. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; DAPT: dual antiplatelet therapy; DEGAM: German Society for General Medicine and Family Medicine; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.2.1.1.2 Patients with stable CHD (T2)

Table 24: Summarizing assessment of the partial aspect "Patients with stable CHD"

Designation of the extraction table in Section A3.4.4.2.1.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T2 – K1 (ASA)	Patients with stable CHD are recommended to take aspirin as long-term, low-dose monotherapy.	ACCF 2012 stable, ACCP 2012[a], ACP 2012 stable, Baker 2015, CCS 2014[b], DEGAM 2016, ESC 2016 prevention, ESC 2014, ESC 2013 CAD, ESC 2013 diabetes, ICSI 2013, NICE 2013, NVL 2016, SIGN 2017 prevention; SIGN 2013	16 / 21	The key statement agrees. No need to update	
V1.5.2.1.1/T2 – K2 (Prasugrel and ticagrelor)	Unless acute coronary syndrome has previously occurred, prasugrel is not recommended for patients with stable CHD and ticagrelor not for patients with stable CHD.	ESC 2016 prevention	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 24: Summarizing assessment of the partial aspect "Patients with stable CHD" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T2 – K3 (Indication DAPT)	Dual antiplatelet treatment (DAPT) should not be routinely used in patients with stable CHD, but only in certain risk groups (for example with recent PTCA).	ACC 2016, ACCF 2012 stable, CCS 2014[b], ESC 2014	2 / 6	The key statement is differentiated. No need to update	In the IQWiG Dossier Assessment A16-15, a hint of a minor added benefit of DAPT with ticagrelor and aspirin in comparison with aspirin monotherapy for the prevention of atherothrombotic events could be shown in adult patients with a history of myocardial infarction and a high risk of developing an atherothrombotic event [20,21].

(continued)

Table 24: Summarizing assessment of the partial aspect "Patients with stable CHD" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T2 – K4 (After elective PCI)	Patients with stable CHD without acute coronary syndrome should receive DAPT following an elective PCI. If no stent or a BMS was used, DAPT should be given for at least 4 weeks. If a DES was used, then DAPT should be given for at least 6 months. Shorter or longer treatment times may be indicated depending on the risk of bleeding.	ACC 2016, ACCF 2011 PCI[a], ACCP 2012[a], DEGAM 2016, ESC 2017 DAPT; ESC 2014, ESC 2013 CAD	21 / 33	The key statement is differentiated. No need to update	Clopidogrel is not approved either in chronic stable CHD or after elective stent implantation; it therefore corresponds to off-label use. This is not intended according to the Drugs Directive VI [22].
V1.5.2.1.1/T2 – K5 (After intervention)	After bypass surgery or treatment with a bioresorbable stent, patients with stable CHD can receive DAPT for 12 months. After treatment with a drug-coated balloon catheter, DAPT for 6 months can be considered.	ACC 2016, ESC 2017 DAPT	0 / 4	The key statement is differentiated. No need to update	
V1.5.2.1.1/T2 – K6 (Dipyridamole)	Administration of dipyridamole as an antiplatelet drug is not recommended for patients with stable CHD.	ACCF 2012 stable, ACP 2012 stable	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 24: Summarizing assessment of the partial aspect "Patients with stable CHD" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T2 – K7 (Systolic LV dysfunction)	Patients with stable CHD and left ventricular dysfunction should receive antiplatelet therapy that corresponds to the treatment for stable CHD.	ACCP 2012[a]	0[c] / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.5.2.1.1/T2 – K8 (Planned PCI)	Treatment with ASA should be continued prior to a planned PCI or newly initiated if no ASA has previously been taken.	AHA 2014	2 / 2	The key statement is differentiated. No need to update	
V1.5.2.1.1/T2 – K9 (After revascularization)	Life-long ingestion of ASA is recommended after coronary revascularization.	DEGAM 2016	1 / 1	The key statement is differentiated. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.
b: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
c: GoR and LoE of the underlying recommendation were categorized as unclear.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; ACP: American College of Physicians; AHA: American Heart Association; ASA: acetylsalicylic acid (aspirin); BMS: bare metal stent; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DEGAM: German Society for General Medicine and Family Medicine; DES: drug-eluting stent; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; PCI: percutaneous coronary Intervention; PTCA: percutaneous transvascular coronary angioplasty; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.2.1.1.3 Patients after acute coronary syndrome (T3)

Table 25: Summarizing assessment of the partial aspect “Patients after acute coronary syndrome”

Designation of the extraction table in Section A3.4.4.2.1.1.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T3 – K1 (ASA)	Long-term, low-dose ASA is recommended after an acute coronary syndrome (unstable angina, NSTEMI or STEMI).	ACC 2016, ACCF 2013, ACCF 2012 unstable, ACCF 2011 PCI[a], ACCF 2011 CABG[a], ACCP 2012[a], AHA 2014, CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT; ESC 2017 MI; ESC 2015, ESC 2014, ICSI 2012[a], NHFA 2016, NICE 2013, SIGN 2016, SIGN 2013	31 / 41	The key statement agrees. No need to update	

(continued)

Table 25: Summarizing assessment of the partial aspect "Patients after acute coronary syndrome" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T3 – K2 (DAPT)	Dual antiplatelet therapy (ASA plus P2Y12) is recommended for up to 12 months after acute coronary syndrome (unstable angina, NSTEMI or STEMI) irrespective of the initial treatment (conservative, PCI or CABG).	ACC 2016, ACCF 2013, ACCF 2012 unstable, ACCF 2011 PCI[a], ACCP 2012[a], AHA 2014, Baker 2015, CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT, ESC 2017 MI; ESC 2016 prevention, ESC 2015, ESC 2014, ESC 2013 diabetes, ICSI 2012[a], NCGC 2013, NHFA 2016, NICE 2013, SIGN 2016	73 / 98	The key statement agrees. No need to update	
V1.5.2.1.1/T3 – K3 (Prasugrel)	Patients with NSTEMI and unknown cardiac anatomy as well as patients with a pharmacologically-treated acute coronary syndrome should not receive prasugrel.	ESC 2017 DAPT	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 25: Summarizing assessment of the partial aspect “Patients after acute coronary syndrome” (continued)

a: The validity of the guideline had expired at the time the final report was compiled.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; AHA: American Heart Association; ASA: acetylsalicylic acid (aspirin); CABG: coronary artery bypass graft; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DEGAM: German Society for General Medicine and Family Medicine; DES: drug-eluting stent; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NSTEMI: myocardial infarction without ST-elevation; PCI: percutaneous coronary intervention; PTCA: percutaneous transvascular coronary angioplasty; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; STEMI: ST-elevation myocardial infarction; T: topic aspect; V: health care aspect

4.2.4.2.1.1.4 Oral anticoagulants (T4)

Table 26: Summarizing assessment of the partial aspect “Oral anticoagulants”

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.1/T4 – K1 (General)	The risk of bleeding, the risk of thromboembolism and the cardiovascular risk should be considered in the treatment of patients who continue treatment with an anticoagulant and also receive an antiplatelet drug.	ESC 2014, NICE 2013	4 / 4	The key statement agrees. No need to update	
V1.5.2.1.1/T4 – K2 (Alternative)	Instead of 1-month triple therapy, patients in whom the risk of bleeding outweighs the thromboembolic risk can receive treatment with clopidogrel and an oral anticoagulant.	ESC 2017 DAPT	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1/T4 – K3 (Duration)	Antiplatelet therapy can be ended 12 months after PCI in patients given oral anticoagulants.	ESC 2017 DAPT	0 / 1	The key statement is differentiated. No need to update	
Patients with stable CHD					
V1.5.2.1.1/T4 – Additional statement (Stable CHD)	Additional statement without methodological explanation (NVL 2016)				

(continued)

Table 26: Summarizing assessment of the partial aspect "Oral anticoagulants" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Patients after acute coronary syndrome					
V1.5.2.1.1/T4 – K4 (Indication)	If an oral anticoagulant for 12 months is already indicated for patients in whom neither stent implantation nor an aortocoronary bypass operation was performed after acute coronary syndrome, they can also be given an antiplatelet drug or triple therapy (combination therapy ASA + P2Y12 + oral anticoagulant).	ACCF 2012 unstable, NVL 2016	1 / 2	The key statement agrees. No need to update	
V1.5.2.1.1/T4 – K5 (Warfarin)	Patients with unstable angina/NSTEMI and a low risk of bleeding can be given warfarin in monotherapy or in combination with low-dose ASA if they do not require P2Y12-receptor antagonists or do not tolerate them.	ACCF 2012 unstable	0 / 1	The key statement agrees. No need to update	
V1.5.2.1.1/T4 – K6 (Additional indication)	After a myocardial infarction, 1-12 months of a combination therapy of oral anticoagulant and ASA or triple therapy is recommended for patients with an additional indication for oral anticoagulants (e.g. history of anterior wall infarct, cardiac thrombus, mechanical heart valve, atrial fibrillation or thromboembolism).	ACCF 2013, ACCP 2012[a], ESC 2017 MI; ESC 2015, ESC 2014	5 / 21	The key statement is differentiated. No need to update	

(continued)

Table 26: Summarizing assessment of the partial aspect "Oral anticoagulants" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Patients after acute coronary syndrome (continued)					
V1.5.2.1.1/T4 – K7 (Triple therapy)	In patients with an additional indication for oral anticoagulation, triple antithrombotic therapy with ASA, clopidogrel and an oral anticoagulant is recommended after coronary stent implantation for up to 4 weeks with a BMS and for 3-6 months with a DES. DEGAM 2016 states that due to the need for longer triple therapy, DES should be avoided in stable CHD and atrial fibrillation. ESC 2014 states that DES of the new generation should be preferred to BMS for patients who require oral anticoagulation with a low risk of bleeding. Irrespective of the type of stent, ESC 2017 DAPT and ESC 2017 MI recommend a duration of treatment with ASA, clopidogrel and oral anti-coagulant of 1 to up to 6 months. The ESC recommends use of the PRECISE-DAPT score to decide the length of treatment. After the triple therapy, treatment with the anticoagulant alone (after BMS) or in combination with ASA or clopidogrel (after DES) is to be continued.	DEGAM 2016, ESC 2017 DAPT, ESC 2017 MI, ESC 2014, NVL 2016	0 / 12	The key statement is addressed in the DMP-A-RL. Further review is proposed.	
	Inconsistency of content: (continued)	NICE 2013	1 / 1		

(continued)

Table 26: Summarizing assessment of the partial aspect "Oral anticoagulants" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Patients after acute coronary syndrome (continued)					
V1.5.2.1.1/T4 – K7 (Triple therapy) (*continued*)	**Inconsistency of content:** (continued) NICE recommends treatment with an anticoagulant and a single antiplatelet drug for these patients, without however stating a time limit for this treatment.				
V1.5.2.1.1/T4 – K8 (Alternative)	Dual antiplatelet therapy with a new P2Y12-receptor antagonist can be considered as alternative to triple therapy in patients with NSTEMI and atrial fibrillation.	ESC 2015	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.1/T4 – K9 (After a bypass operation)	After aortocoronary bypass, patients in whom oral anticoagulation is indicated should continue treatment with the oral anticoagulant without the addition of an antiplatelet drug. **Inconsistency of content:** In contrast, NICE recommends that patients who undergo an aortocoronary bypass operation after myocardial infarction should then receive ASA in addition to the anticoagulant; with the proviso that there is not a high risk of bleeding.	DEGAM 2016, NVL 2016 NICE 2013	2 / 3 1 / 1	The key statement is addressed in the DMP-A-RL. Further review is proposed.	NICE identified no direct evidence for this population. The risk of bleeding due to the bypass operation was, however, estimated as high and the evidence for patients who were treated with drugs after myocardial infarction was extrapolated to the population in question.

(continued)

Table 26: Summarizing assessment of the partial aspect "Oral anticoagulants" (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Patients after acute coronary syndrome (continued)					
V1.5.2.1.1/T4 – K10 (Choice of drug)	The combination of warfarin with prasugrel or ticagrelor and the use of new oral anticoagulants (rivaroxaban, apixaban or dabigatran) in combination with DAPT are not recommended. In ASA intolerance, clopidogrel should be used in combination with warfarin.	CCS 2012 antiplatelet, DEGAM 2016, ESC 2017 DAPT, ESC 2017 MI, ESC 2015, ESC 2014, NICE 2013, SIGN 2016	9 / 11	The key statement is differentiated. No need to update	
V1.5.2.1.1/T4 – K11 (Rivaroxaban)	On the other hand, ESC 2017 recommends the additional administration of low-dose rivaroxaban to selected STEMI patients with a low risk of bleeding who receive ASA and clopidogrel.	ESC 2017 DAPT, ESC 2017 MI	0 / 2	The key statement is differentiated. No need to update	Reference is made to the study ATLAS ACS2–TIMI51 that showed a benefit for patients after STEMI for this combination therapy. However, the risk of bleeding increased considerably.
V1.5.2.1.1/T4 – K12 (INR target range)	In the case of triple therapy, adjustment of the International Normalized Ratio (INR) to a value of 2.0 to 2.5 (3) is recommended.	ACCF 2013, ACCF 2012 unstable, AHA 2014, DEGAM 2016, ESC 2017 DAPT NVL 2016	0 / 7	The key statement is differentiated. No need to update	

(continued)

Table 26: Summarizing assessment of the partial aspect “Oral anticoagulants” (continued)

Designation of the extraction table in Section A3.4.4.2.1.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Patients after acute coronary syndrome (continued)					
V1.5.2.1.1/T4 – K13 (Monitoring)	Due to the risk of bleeding, the triple therapy should be given for as short a time as possible and plannable operations postponed if possible. In addition, patients under triple therapy should be carefully monitored.	ACCF 2013, ACCF 2012 unstable, AHA 2014, DEGAM 2016, NVL 2016	6 / 7	The key statement is differentiated. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; AHA: American Heart Association; ASA: acetylsalicylic acid (aspirin); ATLAS ACS2-TIMI: Acute Coronary Syndrome-Thrombolysis in Myocardial Infarction; BMS: bare metal stent; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DEGAM: German Society for General Medicine and Family Medicine; DES: drug-eluting stent; DMP: Disease Management Programme; ESC: European Society of Cardiology; INR: International Normalized Ratio; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NSTEMI: myocardial infarction without ST-elevation; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; RCT: randomized controlled trial; RL: directive; STEMI: ST-elevation myocardial infarction; T: topic aspect; V: health care aspect

4.2.4.2.1.2 Lipid-lowering agents (V1.5.2.1.2)

Text of the current DMP-A-RL on the health care aspect “Lipid-lowering agents”:

“Irrespective of the baseline value of serum lipids and with consideration of contraindications and/or intolerances, all patients with chronic CHD should receive HMG-CoA-reductase inhibitors (statins).

Those statins for which a morbidity and mortality-reducing effect has been demonstrated in secondary prevention, should be preferred”.

Table 27: Summarizing assessment of the general aspects of the health care aspect "Lipid-lowering agents"

Designation of the extraction table in Section A3.4.4.2.1.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
General aspects concerning lipid-modifying therapy					
V1.5.2.1.2 – K1 (Lipid target level)	Lipid-lowering therapy is recommended for patients with CHD. An LDL-C level of < 70 mg/dL (1.8 mmol/L) is mentioned or a reduction in LDL-C of at least 50 %. The same targets are also stated for type 1 and type 2 diabetics with diagnosed CHD. The Baker 2015 guideline states that all patients with type 2 diabetes and existing CHD should receive the maximum tolerated dose of statin, regardless of lipid levels.	AACE 2017, Baker 2015, CCS 2016, ESC 2017 MI, ESC 2016 dyslipid, ESC 2016 prevention, ESC 2013 diabetes	13 / 23	The key statement is differentiated. No need to update	
V1.5.2.1.2 – K2 (Apo-B level)	The Apo-B level for patients with CHD and/or diabetes is < 80 mg/dl.	AACE 2017	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2 – K3 (Chronic kidney disease)	A nephrologist should be consulted in the case of patients with chronic kidney disease if an increase in the dose of atorvastatin to more than 20 mg is required. In addition, the lipid-lowering therapy should be continued if dialysis is started.	ESC 2016 dyslipid, NICE 2016	1 / 2	The key statement is differentiated. No need to update	

AACE: American Association of Clinical Endocrinologists; Apo-B: apolipoprotein; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; LDL-C: low density lipoprotein cholesterol; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; RL: directive; T: topic aspect ;V: health care aspect

4.2.4.2.1.2.1 Statins (T1)

Table 28: Summarizing assessment of the partial aspect "Statins"

Designation of the extraction table in Section A3.4.4.2.1.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.2/T1 – K1 (General)	Provided there are no contraindications, patients with stable CHD should receive statins as the first-choice lipid-lowering agent. Likewise, in the absence of any contraindications, patients with acute coronary syndrome should start statin therapy as soon as possible after admission to hospital and continue this long-term.	AACE 2017; ACC 2013, ACCF 2013, ACCF 2012 stable, ACCF 2011 CABG[a], ACP 2012 stable, AkdÄ 2012, Baker 2015, CCS 2016, CCS 2014[b], ESC 2017 MI; ESC 2016 dyslipid, ESC 2016 prevention (ADD), ESC 2015, ESC 2014, ESC 2013 CAD, ESC 2013 diabetes ICSI 2012[c], NHFA 2016, NICE 2016, NVL 2016, SIGN 2017 prevention; SIGN 2016, VADoD 2014	31 / 36	The key statement agrees. No need to update	

(continued)

Table 28: Summarizing assessment of the partial aspect "Statins" (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.1 of the full final report	**Key statement** ▪ Comparison with DMP-A-RL	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.5.2.1.2/T1 – K2 (Pregnancy)	Statins are contraindicated in pregnant women, women planning a pregnancy or who are breast-feeding.	NICE 2016; SIGN 2017 prevention	1 / 2	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K3 (Review)	Response to the statin therapy should be checked 4–(6) 12 weeks after starting treatment and then regularly (every 3–12 months) on the basis of a lipid profile.	ACC 2013, ESC 2016 dyslipid, NICE 2016	3 / 5	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K4 (Liver function test)	A baseline liver function test is recommended and another shortly after starting statin therapy (4–12 weeks) or if hepatotoxicity is suspected under statin therapy.	ACC 2013, ESC 2013 CAD, VADoD 2014	2 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.5.2.1.2/T1 – K5 (Treatment adherence)	Administration of coenzyme Q10 or vitamin D to increase treatment adherence in statin therapy is not recommended.	NICE 2016	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K6 (Patient instruction)	Patients who start statin therapy should be warned to contact their physician immediately if they have inexplicable muscle pain or other side effects, especially if fever also occurs or they feel unwell.	SIGN 2017 prevention	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K7 (Side effects)	Patients in whom side effects occur under high-dose statin therapy should be treated with the maximum tolerated dose. If intolerance persists, a switch to an alternative statin can take place.	ACC 2013, NICE 2016, NVL 2016 SIGN 2017 prevention	4 / 6	The key statement is differentiated. No need to update	

(continued)

Table 28: Summarizing assessment of the partial aspect "Statins" (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.1 of the full final report	**Key statement** ▪ Comparison with DMP-A-RL	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.5.2.1.2/T1 – K8 (Discussion)	The benefit and the potential risk and other treatment strategies should be discussed with the patient before increasing the statin dose or if side effects occur.	NICE 2016, VADoD 2014	2 / 3	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K9 (Inadequate response)	If the response to treatment with the maximum tolerated statin dose is inadequate, then the patient should be encouraged in the adherence to the medication and an intensive change of lifestyle. Other secondary causes for the hyperlipidaemia should be excluded.	ACC 2013	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.5.2.1.2/T1 – K10 (Muscle pain)	Creatine kinase measurement is recommended if muscle pain occurs under statin therapy or there is a high risk of the occurrence of muscle pain.	ACC 2013, ESC 2013 CAD, NICE 2016	3 / 6	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.5.2.1.2/T1 – K11 (Creatine kinase level)	Routine measurement of creatine kinase is not recommended.	ACC 2013	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K12 (Choice of statin)	The choice of statin and its dosage should be made with consideration of the patient characteristics (e.g. age > 75 years or comorbidity), possible drug interactions, LDL-C level and patient preferences.	ACC 2013, Baker 2015 SIGN 2017 prevention	2 / 9	The key statement is differentiated. No need to update	

(continued)

Table 28: Summarizing assessment of the partial aspect “Statins” (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.1 of the full final report	**Key statement** ▪ Comparison with DMP-A-RL	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
V1.5.2.1.2/T1 – K13 (Impairment of efficacy)	Patients should be warned of a possible impairment of the efficacy of statins through other drugs and foodstuffs.	NICE 2016	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K14 (Blood glucose level)	Statin therapy should not be interrupted because of an increase in blood glucose or HbA1c levels.	NICE 2016	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K15 (Confusion)	If confusion and memory difficulties occur, the cause should be sought not only in the statin therapy.	ACC 2013	0 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K16 (After interruption)	Patients should be warned that the statin should be restarted after interruption of statin therapy due to drug interactions or treatment of intercurrent diseases.	NICE 2016	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T1 – K17 (After statin intolerance)	After statin intolerance, patients may if they wish, restart statin therapy with the same dosage and the same statin as before, provided creatine kinase levels are not significantly elevated.	SIGN 2017 prevention	0 / 1	The key statement is differentiated. No need to update	

(continued)

Table 28: Summarizing assessment of the partial aspect “Statins” (continued)

a: The guideline is more than 5 years old at the time of publication of the final report.
b: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
c: The validity of the guideline had expired at the time the final report was compiled.

AACE: American Association of Clinical Endocrinologists; ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; AkdÄ: Drug Commission of the German Medical Association; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; LDL-C: low density lipoprotein cholesterol; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect VADoD: Department of Veterans Affairs and Department of Defense

4.2.4.2.1.2.2 Other lipid-lowering agents (T2)

Table 29: Summarizing assessment of the partial aspect "Other lipid-lowering agents"

Designation of the extraction table in Section A3.4.4.2.1.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.2/T2 – K1 (Indication)	If the response to treatment with the maximum tolerated statin dose is inadequate, or there is absolute intolerance of statins, another lipid-lowering agent can be used in combination with a statin at a lower dose or as monotherapy.	ACC 2013, ACCF 2012 stable, Baker 2015, ESC 2017 MI, ESC 2016 dyslipid, ESC 2015, NVL 2016; SIGN 2017 prevention	0 / 10	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K2 (Combination treatment)	The combination of bile acid sequestrants, fibrates, nicotinic acid or omega-3 fatty acids with statins for secondary prevention of cardiovascular disease is not recommended. Likewise, the use of bile acid sequestrants, fibrates and nicotinic acid in chronic kidney disease or diabetes is not recommended.	NICE 2016	4 / 4	The key statement is differentiated. No need to update	
Ezetimibe					
V1.5.2.1.2/T2 – K3 (Ezetimibe)	Ezetimibe is recommended in second-line therapy if the target lipid levels are not achieved with the maximum tolerated statin therapy.	AkdÄ 2012, CCS 2016, ESC 2016 dyslipid, ESC 2013 diabetes	1 / 4	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K4 (GPT level)	Baseline glutamate pyruvate transaminase (GPT) levels should be measured before beginning treatment with ezetimibe.	ACC 2013	0 / 1	The key statement is differentiated. No need to update	

(continued)

Table 29: Summarizing assessment of the partial aspect “Other lipid-lowering agents” (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Fibrates					
V1.5.2.1.2/T2 – K5 (Fibrates)	Fibrates are recommended to treat severe hypertriglyceridaemia (> 500 mg/dL) in combination with statins or as monotherapy in statin intolerance.	AACE 2017, ACC 2013, AkdÄ 2012, Baker 2015, SIGN 2017 prevention, VADoD 2014	2 / 7	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K6 (Prevention)	Routine use of fibrates for the primary and secondary prevention of CHD is not recommended.	SIGN 2017 prevention	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K7 (Gemfibrozil)	Due to an elevated risk of muscle symptoms and rhabdomyolysis, gemfibrozil must not be used in combination with statins.	ACC 2013; SIGN 2017 prevention	1 / 2	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K8 (Renal function)	Renal function must be regularly checked if fenofibrate is used.	ACC 2013	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 29: Summarizing assessment of the partial aspect "Other lipid-lowering agents" (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Bile acid sequestrants					
V1.5.2.1.2/T2 – K9 (Bile acid sequestrants)	Patients with statin intolerance can receive a bile acid sequestrant to reduce the LDL-C level.	AkdÄ 2012	0[a] / 1	The key statement is differentiated. No need to update	
V1.5.2.1.2/T2 – K10 (Triglyceride level)	Bile acid sequestrants should not be used if triglycerides are elevated (≥ 300 mg/dL) and with caution if triglycerides are between 250–299 mg/dL.	ACC 2013	1 / 2	The key statement is differentiated. No need to update	
Nicotinic acid					
V1.5.2.1.2/T2 – K11 (Nicotinic acid)	Nicotinic acid can be given in statin intolerance, but the dose should be up-titrated and if side effects occur, the benefits should be weighed against the risks. The guideline SIGN 2017 prevention states that nicotinic acid should not be used to reduce the cardiovascular risk.	ACC 2013, AkdÄ 2012, SIGN 2017 prevention, VADoD 2014	2 / 5	The key statement is differentiated. No need to update	Nicotinic acid is no longer approved as s combination preparation for this indication in Germany.
V1.5.2.1.2/T2 – K12 (Review)	Hepatic transaminases, fasting blood glucose or HBA1c and uric acid should be regularly checked at the start and during treatment with nicotinic acid.	ACC 2013	4 / 4	The key statement is differentiated. No need to update	

(continued)

Table 29: Summarizing assessment of the partial aspect "Other lipid-lowering agents" (continued)

Designation of the extraction table in Section A3.4.4.2.1.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
PCSK9 inhibitors					
V1.5.2.1.2/T2 – K13 (PCSK9 inhibitors)	PCSK9 inhibitors are recommended for CHD patients with familial hypercholesterolaemia and patients who do not achieve the target LDL-C under statin therapy with or without ezetimibe.	AACE 2017, CCS 2016, ESC 2016 dyslipid, SIGN 2017 prevention	1 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	

a: GoR of the underlying recommendation was categorized as unclear and the LoE as not high.

AACE: American Association of Clinical Endocrinologists; ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; AkdÄ: Drug Commission of the German Medical Association; CCS: Canadian Cardiovascular Society; DMP: Disease Management Programme; ESC: European Society of Cardiology; GPT: glutamate-pyruvate transaminase; K: key statement; LDL-C: low-density lipoprotein cholesterol; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect VADoD: Department of Veterans Affairs and Department of Defense

4.2.4.2.1.3 Inhibitors of the renin-angiotensin-aldosterone system (RAAS) (V1.5.2.1.3)

Text of the current DMP-A-RL on the health care aspect “Inhibitors of the renin-angiotensin-aldosterone system (RAAS)”:

“ACE inhibitors are, in principle, indicated for all CHD patients in the early post-infarction phase (4 to 6 weeks). They are also indicated if the chronic CHD is associated with heart failure or with asymptomatic left ventricular dysfunction and/or with the comorbidities of hypertension and/or diabetes. In the case of ACE inhibitor intolerance (especially ACE inhibitor-induced cough), patients with CHD and systolic heart failure or the concomitant comorbidities of hypertension and diabetes can receive AT1-receptor antagonists. However, the latter are not recommended as an alternative for patients in whom angioedema has occurred under an ACE inhibitor”.

Table 30: Summarizing assessment of the health care aspect "Inhibitors of the renin-angiotensin-aldosterone system (RAAS)"

Designation of the extraction table in Section A3.4.4.2.1.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
ACE inhibitors					
V1.5.2.1.3 – K1 (ACE inhibitors)	Patients with stable CHD, unstable angina or who have had an acute myocardial infarction, should receive ACE inhibitors.	ACCF 2013, ACCF 2012 stable, ACCF 2011 CABG[a], ACP 2012 stable, AHA 2014, Baker 2015, CCS 2014[b], ESC 2017 MI, ESC 2015, ESC 2014, ESC 2013 CAD, ESC 2013 diabetes, ICSI 2012[c], NHFA 2016, NICE 2013, NVL 2016, SIGN 2016	20 / 27	The key statement deviates from the DMP-A-RL. Potential need to update	The DMP-A-RL recommends ACE inhibitors in the early post-infarction phase (4 to 6 weeks) and in CHD patients with concomitant heart failure, left ventricular dysfunction, hypertension or diabetes.
V1.5.2.1.3 – K2 (Up-titration)	The ACE dose should be up-titrated until the target dose or maximum tolerated dose is reached.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.3 – K3 (Combination treatment)	Unless for other reasons, patients who have had a myocardial infarction should not receive a combination of an ACE inhibitor and an AT1-receptor antagonist.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 30: Summarizing assessment of the health care aspect "Inhibitors of the renin-angiotensin-aldosterone system (RAAS)" (continued)

Designation of the extraction table in Section A3.4.4.2.1.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
AT1-receptor antagonists					
V1.5.2.1.3 – K4 (AT1-receptor antagonists)	AT1-receptor antagonists are recommended if ACE-inhibitor intolerance is present.	ACCF 2013, ACCF 2012 stable, ACP 2012 stable, AHA 2014, CCS 2014[b], ESC 2017 MI, ESC 2015, ESC 2014, NICE 2013, NVL 2016, SIGN 2016	11 / 12	The key statement agrees. No need to update	
Aldosterone antagonists					
V1.5.2.1.3 – K5 (Aldosterone antagonists)	Aldosterone antagonists are recommended for patients after myocardial infarction if they have already received ACE inhibitors and beta-receptor blockers and LVEF is ≤ 35 % or ≤ 40 %.	ACCF 2013, AHA 2014, ESC 2017 MI, ESC 2015, ESC 2014, SIGN 2016	6 / 6	The key statement is not in the current DMP-A-RL. Need to update	This is an additional point for the DMP-A-RL for CHD, which was previously contained in the module of heart failure.

(continued)

Table 30: Summarizing assessment of the health care aspect “Inhibitors of the renin-angiotensin-aldosterone system (RAAS)” (continued)

a: The guideline is more than 5 years old at the time of publication of the final report.
b: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
c: The validity of the guideline had expired at the time the final report was compiled.

ACCF: American College of Cardiology Foundation; ACCP: American College of Chest Physicians; ACE: angiotensin converting enzyme; ACP: American College of Physicians; AHA: American Heart Association; AT: angiotensin; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; LVEF: left ventricular ejection fraction; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.4.2.1.4 Beta-receptor blockers (V1.5.2.1.4)

Text of the current DMP-A-RL on the health care aspect “Prognosis-improving therapy – beta-receptor blockers”:

“In respect of the treatment goals named in Section 1.3, beta-blockers are the drugs of first choice for the treatment of chronic CHD, especially after acute myocardial infarction, even if there are relative contraindications. Their benefits are outstandingly high, particularly with risk constellations such as diabetes or arterial hypertension”.

Table 31: Summarizing assessment of the health care aspect "Prognosis-improving therapy – beta-receptor blockers"

Designation of the extraction table in Section A3.4.4.2.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.4 – K1 (General)	Beta-receptor blockers can be considered for the treatment of patients with chronic CHD.	ACCF 2012 stable	0 / 1	The key statement agrees. No need to update	
V1.5.2.1.4 – K2 (Normal left ventricular function)	After a myocardial infarction or acute coronary syndrome, patients with normal left ventricular function should receive long-term treatment with beta-receptor blockers.	ACCF 2013, ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2017 MI, ICSI 2012[b], NICE 2013, NVL 2016, SIGN 2016	8 / 10	The key statement agrees. No need to update	
V1.5.2.1.4 – K3 (Impaired left ventricular function)	Beta-receptor blockers are recommended for patients with diabetes and acute myocardial infarction and for stable CHD patients with impaired left ventricular function (≤ 40 %) or heart failure.	ACCF 2012 stable, ACP 2012 stable, Baker 2015, CCS 2014[a], ESC 2017 MI ESC 2015, ESC 2014, ESC 2013 diabetes, NHFA 2016, NICE 2013, NVL 2016	12 / 15	The key statement agrees. No need to update	
V1.5.2.1.4 – K4 (Hypertension)	Patients with CHD and hypertension should receive beta-receptor blockers to reduce blood pressure.	NVL 2016	0 / 1	The key statement agrees. No need to update	

(continued)

Table 31: Summarizing assessment of the health care aspect "Prognosis-improving therapy – beta-receptor blockers" (continued)

Designation of the extraction table in Section A3.4.4.2.1.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.1.4 – K5 (After a bypass operation)	Beta-receptor blockers are recommended after bypass surgery in order to reduce the incidence of atrial fibrillation.	ESC 2014	1 / 1	The key statement is differentiated. No need to update	
V1.5.2.1.4 – K6 (Dosage)	The dose of beta-receptor blockers for patients after acute myocardial infarction can be titrated so that the resting heart rate is less than 70 beats per minute (sinus rhythm).	CCS 2014[a], NVL 2016	0 / 2	The key statement is differentiated. No need to update	
V1.5.2.1.4 – K7 (Previous contraindication)	The possibility of treatment with beta-receptor blockers should be reviewed again in patients with acute coronary syndrome who were not given beta-receptor blockers in the first 24 hours due to previous contraindications.	ICSI 2012[b]	1 / 1	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; RL: directive; T: topic aspect; V: health care aspect

4.2.4.2.2 Symptomatic therapy and prophylaxis of angina (V1.5.2.2)

4.2.4.2.2.1 Beta-receptor blockers (V1.5.2.2.1)

Text of the current DMP-A-RL on the health care aspect “Symptomatic therapy and prophylaxis of angina – beta-receptor blockers”:

“Taking the contraindications into consideration, beta-receptor blockers – if necessary combined with nitrates and/or calcium channel blockers - are the prime recommendation for antianginal treatment of chronic CHD. Because of the simultaneous improvement in prognosis, they are the drugs of first choice”.

Table 32: Summarizing assessment of the health care aspect "Symptomatic therapy - beta-receptor blockers"

Designation of the extraction table in Section 4.2.4.2.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.2.1 – K1 (General)	Beta-receptor blockers and/or calcium channel blockers are recommended as first-line therapy to reduce symptoms of angina in patients with stable CHD.	ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2015, ESC 2013 CAD, NVL 2016	6 / 8	The key statement agrees. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; RL: directive; T: topic aspect; V: health care aspect

4.2.4.2.2.2 Calcium channel blockers (V1.5.2.2.2)

Text of the current DMP-A-RL on the health care aspect “calcium channel blockers”:

“In the presence of absolute contraindications (e.g. asthma), intolerance or inadequate antianginal effect of beta-receptor blockers, long-acting calcium channel blockers are to be considered for the antianginal treatment of chronic CHD”.

Table 33: Summarizing assessment of the health care aspect "Calcium channel blockers"

Designation of the extraction table in Section A3.4.4.2.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.2.2 – K1 (General)	Calcium channel blockers are recommended for patients with stable CHD if beta-receptor blockers are contraindicated, or in combination with beta-blockers if the latter have an inadequate antianginal effect.	ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], NVL 2016	4 / 7	The key statement agrees. No need to update	
V1.5.2.2.2 – K2 (Combination treatment)	Calcium channel blockers of the non-dihydropyridine type should be avoided in combination with beta-receptor blockers, because they can be a risk for atrioventricular block or excessive bradycardia.	CCS 2014[a]	1 / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline of low methodological quality.
V1.5.2.2.2 – Supplementary statement (Contraindication)	Supplementary statement without methodological explanation (NVL 2016)				
V1.5.2.2.2 – K3 (Diabetes and heart failure)	Calcium channel blockers should be avoided in patients with type 2 diabetes and chronic heart failure.	Baker 2015	0[b] / 1	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: GoR of the underlying recommendation was categorized as unclear and the LoE as not high.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; RL: directive; T: topic aspect; V: health care aspect

4.2.4.2.2.3 Nitrates (V1.5.2.2.3)

Text of the current DMP-A-RL on the health care aspect “Nitrates”:

“Fast-acting nitrates are first-choice drugs for the treatment of an attack of angina.

Long-acting nitrates are to be considered for long-term antianginal treatment of chronic CHD if there are absolute contraindications (e.g. asthma), intolerance or an inadequate antianginal effect with beta-receptor blockers”.

Table 34: Summarizing assessment of the health care aspect “Nitrates”

Designation of the extraction table in Section A3.4.4.2.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.2.3 – K1 (Fast-acting nitrates)	Fast-acting nitrates should be used to treat an attack of angina in patients with stable ischaemic heart disease or in patients with a NSTEMI and persistent ischaemic pain.	ACCF 2012 stable, ACP 2012 stable, AHA 2014, ESC 2015, ESC 2013 CAD, ICSI 2012[b], NVL 2016, SIGN 2016	9 / 11	The key statement agrees. No need to update	
V1.5.2.2.3 – K2 (Long-acting nitrates)	Long-acting nitrates can be used for antianginal treatment if beta-receptor blockers are contraindicated, have inacceptable side effects or do not achieve the desired effect in monotherapy. In the latter case, the nitrates are used in combination with beta-receptor blockers.	ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2013 CAD	4 / 6	The key statement agrees. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The validity of the guideline had expired at the time the final report was compiled.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NSTEMI: myocardial infarction without ST-elevation; NVL: German National Health Care Guideline; RL: directive; T: topic aspect; V: health care aspect

4.2.4.2.3 Therapeutic measures – drug treatment (V1.5.2) – other drugs (V1.5.2.X)

Text of the current DMP-A-RL on the health care aspect “Other drugs”:

The DMP Requirements Directive contains no statements about other drugs.

Table 35: Summarizing assessment of the aspect "Other drugs"

Designation of the extraction table in Section A3.4.4.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.2.X – K1 (Ivabradine ranolazine nicorandil)	Under consideration of the heart rate, blood pressure and tolerance, patients with stable CHD can receive ranolazine, ivabradine or nicorandil as second-line therapy for antianginal treatment.	ACCF 2012 stable, ESC 2013 CAD, NVL 2016	0 / 5	The key statement is not in the current DMP-A-RL. No need to update	
V1.5.2.X – K2 (Erythropoiesis-stimulating)	Erythropoiesis-stimulating substances should not be used in CHD patients with mild or moderate anaemia.	ACP 2013	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	Negative recommendation for a drug not mentioned in the DMP-A-RL.
V1.5.2.X – K3 (Hormone therapy)	Postmenopausal women should not receive any hormone treatment to reduce the cardiovascular risk.	ACCF 2012 stable, ACCF 2011 CABG[a], ACP 2012 stable, NVL 2016	4 / 4	The key statement is not in the current DMP-A-RL. Need to update	Negative recommendation for a drug not mentioned in the DMP-A-RL.

a: The guideline is more than 5 years old at the time of publication of the final report.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; RL: directive; T: topic aspect; V: health care aspect

4.2.4.3 Coronary angiography, interventional and surgical coronary revascularization (V1.5.3)

Text of the current DMP-A-RL on general aspects of this aspect of health care:

“The decision about invasive diagnostic tests or an intervention should be taken jointly with the patient as part of a differentiated therapy planning, based on an individual assessment of benefits and risk.

The physician has to check whether the patient can benefit from a particular intervention with respect to the treatment goals mentioned in Section 1.3. Diagnostic and - if appropriate - therapeutic measures are to be undertaken in agreement with the patient after detailed information about the benefits and risks.”

Table 36: Summarizing assessment of the health care aspect "Coronary angiography, interventional and surgical coronary revascularization"

Designation of the extraction table in Section A3.4.4.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3 – K1 (Decision-making)	A Heart Team should look after patients with complex CHD or stenoses of the left main coronary artery, calculate the prognostic scores and reach the therapeutic decision about a specific intervention. The patient should be advised with the help of leaflets and be included in the decision.	ACC 2014, ACCF 2012 stable, ACCF 2011 CABG[a], ACCF 2011 PCI[a], AHA 2014, ESC 2015, ESC 2014, ESC 2013 CAD, NVL 2016, SIGN 2016	16 / 21	The key statement deviates from the DMP-A-RL. Potential need to update	The need for an agreed process with patients with complex CHD is limited in the guidelines.
V1.5.3 – K2 (Impaired consciousness)	The extent of impaired consciousness after a cardiac arrest should not be the basis for a decision regarding a coronary intervention.	NCGC 2013	1 / 1	The key statement is differentiated. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; AHA: American Heart Association; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic; V: health care aspect

4.2.4.3.1 Coronary angiography (V1.5.3.1)

Text of the current DMP-A-RL on the health care aspect “Coronary angiography”:

“Coronary angiography should be considered, especially in the following cases:

1. In patients with acute coronary syndrome,
2. In patients with stable angina (CCS Class III and IV) despite drug treatment,
3. In patients with angina – regardless of the severity – who showed high-risk characteristics in the non-invasive pretesting,
4. In patients with angina who have survived a cardiac arrest or life-threatening ventricular arrhythmia,
5. In patients with angina and newly occurring symptoms of heart failure”.

Table 37: Summarizing assessment of the health care aspect "Coronary angiography"

Designation of the extraction table in Section A3.4.4.3.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.1 – K1 (Expanded diagnostics)	An (early) coronary angiography is indicated if the extent and severity of a CHD is to be assessed, non-invasive tests show a high cardiac risk, are inconclusive or cannot be performed or the diagnostic result would alter treatment and the benefits outweigh the risks.	ACC 2014, ACCF 2012 stable ACCF 2012 unstable CCS 2014[a], ESC 2014, ESC CAD 2013; NICE 2016 chest	7 / 11	The key statement agrees. No need to update	
V1.5.3.1 – K2 (Ischaemic symptoms)	Coronary angiography should be performed if ischaemic symptoms occur despite optimum drug treatment.	ACC 2014, NVL 2016	2 / 2	The key statement agrees. No need to update	
V1.5.3.1 – K3 (Control angiography)	A control angiography should not be routinely performed after PCI, but may be considered after a high-risk PCI, regardless of existing symptoms.	ESC 2014, ESC 2013 CAD	1 / 3	The key statement is DMP-A-RL. No need to update	
V1.5.3.1 – K4 (Metformin)	Renal function should be monitored for several days after a coronary angiography in patients receiving metformin.	ESC 2014	1 / 1	The key statement is differentiated. No need to update	
V1.5.3.1 – K5 (Indication)	Coronary angiography can be worthwhile following unsuccessful fibrinolysis or to clarify risks in patients with stable CHD and/or heart failure and/or severe symptoms or STEMI/ cardiac arrest or life-threatening ventricular arrhythmias.	ACCF 2013, ACCF 2012 stable, ACP 2012 diagnosis, CCS 2014[a], ESC 2013 CAD, NCGC 2013, NHFA 2016	9 / 15	The key statement is differentiated. No need to update	

(continued)

Table 37: Summarizing assessment of the health care aspect “Coronary angiography” (continued)

Designation of the extraction table in Section A3.4.4.3.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.1 – K6 (Non-invasive testing)	Non-invasive testing should precede coronary angiography in patients without heart or kidney failure, without diabetes, without early post-infarct angina or renewed symptoms, without a history of PCI or bypass surgery or a unclear risk score.	ESC 2015	1 / 1	The key statement is differentiated. No need to update	
a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points). ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; STEMI: ST-elevation myocardial infarction; T: topic; V: health care aspect;					

4.2.4.3.2 Interventional and surgical coronary revascularization (V1.5.3.2)

Text of the current DMP-A-RL on the health care aspect “Interventional and surgical coronary revascularization”:

“Taking account of the overall clinical picture, the contraindications and patient preferences, primarily only those invasive therapeutic measures whose benefits and safety in achieving the treatment goals stated in Section 1.3 have been demonstrated - particularly in randomized and controlled trials - should be considered. The current state of medical knowledge, including evidence-based guidelines or studies providing the best available evidence, is to be taken into consideration, because both interventional as well as surgical treatment of CHD are – like drug therapy – subject to constant change.

Before undertaking invasive therapeutic measures, an individual benefit-risk assessment is to be carried out. In particular, the haemodynamic and functional relevance of the demonstrated vascular changes are to be reviewed.

The optimum treatment for a patient (PCI, bypass surgery or conservative) should be agreed on an interdisciplinary basis between cardiologists, heart surgeons and primary care physicians, depending on the coronary findings, comorbidity and context factors”.

4.2.4.3.2.1 Fibrinolysis (T1)

Table 38: Summarizing assessment of the partial aspect “Fibrinolysis”

Designation of the extraction table in Section A3.4.4.3.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T1 – K1 (STEMI)	Patients with STEMI should receive immediate fibrinolysis if PCI cannot be performed within 2 hours and there is no contraindication. Transfer to a hospital with a cardiac catheterization facility should follow. Fibrinolysis should start even in the pre-hospital setting. Heparin and a fibrinolytic agent should be administered together. **Inconsistency of content:** Administration of fibrinolytic drugs or glycoprotein-IIb/IIIa inhibitors in a non-hospital setting is not recommended if the patient with STEMI is to undergo PCI.	ACCF 2013, ESC 2017 MI, NCGC 2013, NHFA 2016, SIGN 2016 NCGC 2013	12 / 15 1 / 1	The key statement is not addressed in the DMP-A-RL. Further review is proposed.	The guideline NCGC 2013 points out that a fibrinolytic therapy in a non-hospital setting is only expedient if interventional treatment is not an option.

(continued)

Table 38: Summarizing assessment of the partial aspect "Fibrinolysis" (continued)

Designation of the extraction table in Section A3.4.4.3.2.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T1 – K2 (NSTEMI)	Patients with NSTEMI should not receive intravenous fibrinolytic treatment.	AHA 2014	1 / 1	The key statement is differentiated. No need to update	The guideline AHA 2014 justifies its recommendation with a lack of benefit in relation to mortality and myocardial infarction. Intracranial bleeding and myocardial infarction occurred more often in patients who had received fibrinolytic treatment.
V1.5.3.2/T1 – K3 (Concomitant antiplatelet therapy)	Patients with STEMI should receive aspirin and clopidogrel in combination with fibrinolytic treatment.	ESC 2017 MI	2 / 2	The key statement is differentiated. No need to update	

ACCF: American College of Cardiology Foundation; AHA: American Heart Association; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NSTEMI: myocardial infarction without ST-elevation; PCI: percutaneous coronary intervention; SIGN: Scottish Intercollegiate Guidelines Network; STEMI: ST-elevation myocardial infarction; T: topic aspect; V: health care aspect;

4.2.4.3.2.2 Reperfusion therapy (T2)

Table 39: Summarizing assessment of the partial aspect "Reperfusion therapy"

Designation of the extraction table in Section A3.4.4.3.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T2 – K1 (Arterial access)	Access via the radial artery is recommended for patients under oral anticoagulants undergoing coronary angiography or interventional procedures.	NVL 2016	0 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K2 (General)	Patients with STEMI or left bundle branch block should receive reperfusion therapy as soon as possible within the first 12 hours of symptom onset. PCI is the most suitable technique, as well as fibrinolysis, where comorbidities and other patient characteristics are to be taken into account. If symptoms persist, this therapy is also indicated even if more than 12 hours have elapsed since symptom onset.	ACCF 2013, ESC 2017 MI; ESC 2014, ICSI 2012[a], NCGC 2013, NHFA 2016	15 / 17	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K3 (Diabetes and age)	For patients with diabetes and STEMI, primary PCI is recommended rather than fibrinolysis. Depending on the medication, renal function should be carefully checked after coronary angiography/PCI. In elderly patients, risks and benefits of treatment as well as patient preferences should be considered.	ESC 2015, ESC 2014, ESC 2013 diabetes	4 / 5	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K4 (Renal disease)	An invasive strategy can be considered in patients with Stage 2 and 3 chronic kidney disease. Harms and benefits of the intervention should be considered.	ACCF 2012 unstable, AHA 2014, ESC 2015	1 / 3	The key statement is differentiated. No need to update	

(continued)

Table 39: Summarizing assessment of the partial aspect "Reperfusion therapy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T2 – K5 (Elective operations)	Elective non-cardiac operations should be postponed after stent implantation if an interruption of the DAPT is required.	ACC 2016, ACCF 2011 PCI[b]	3 / 4	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K6 (Thrombus aspiration)	Routine performance of a thrombus aspiration is not recommended. However, it can be considered in selected patients.	ESC 2017 MI; ESC 2014	1 / 2	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K7 (Vital myocardium)	Myocardial revascularization should be considered in the case of a vital myocardium.	ESC 2014	0 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K8 (Heart failure)	Patients with CHD and heart failure should be tested for signs of ischaemia and, if appropriate, revascularization considered before a cardioverter-defibrillation is implanted.	ESC 2015	0 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K9 (Carotid arteries)	An ultrasound scan of the carotid arteries should be considered prior to CABG in patients with multivessel CHD, pAOD or aged over 70 years or more. However a general screening is not indicated for patients with unstable CHD and if an emergency CABG is indicated.	ESC 2014	1 / 2	The key statement is differentiated. No need to update	

(continued)

Table 39: Summarizing assessment of the partial aspect "Reperfusion therapy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T2 – K10 (Peripheral arterial disease)	When deciding on treatment for peripheral vascular diseases, the cardiac situation should be considered and - if applicable - an ACS/CHD treated as first priority.	ESC 2014	2 / 3	The key statement is differentiated. No need to update	
V1.5.3.2/T2 – K11 (PCI in pregnant women)	Coronary angiography can be considered during pregnancy if it is strictly indicated and under protective measures for the fetus. PCI is the method of choice in pregnant women with STEMI.	ESC 2011[b]	1 / 2	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.5.3.2/T2 – K12 (Surgery in pregnant women)	A bypass or valve (replacement) operation can be considered in pregnant women if conservative treatment is unsuccessful, the mother's life is in danger and a PCI is not possible.	ESC 2011[b]	0 / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.

a: The validity of the guideline had expired at the time the final report was compiled.
b: The guideline is more than 5 years old at the time of publication of the final report.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; AHA: American Heart Association; ACS: acute coronary syndrome ; CABG: coronary artery bypass graft; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICSI: Institute for Clinical Systems Improvement; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guideline Centre; NHFA: National Heart Foundation of Australia; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; STEMI: ST-elevation myocardial infarction; T: topic; V: health care aspect

4.2.4.3.2.3 Indication for an invasive strategy (T3)

Table 40: Summarizing assessment of the partial aspect “Indication for an invasive strategy”

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an invasive strategy					
V1.5.3.2/T3 – K1 (Indication)	Even if primary fibrinolysis was carried out, coronary angiography and revascularization should be considered for patients with myocardial infarction and complications/comorbidities or with high risk. A PCI is recommended for emergency situations if fibrinolysis is not successful.	ACCF 2013, AHA 2014, ESC 2017 MI, ESC 2014, NCGC 2013, NHFA 2016, SIGN 2016	4 / 10	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K2 (Complications)	Heart catheterization and coronary angiography are also indicated if patients with STEMI develop complications or the reperfusion therapy was not successful.	ACCF 2013, ESC 2017 MI	4 / 5	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K3 (Risk assessment)	Coronary angiography should be considered for assessing risk in patients with stable CHD who develop symptoms of heart failure (EF ≤ 50%) or ischaemia in non-invasive tests.	ACCF 2012 stable, ACP 2012 diagnosis	2 / 3	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an invasive strategy (continued)					
V1.5.3.2/T3 – K4 (Moderate risk)	Coronary angiography should be performed in patients with stable CHD, preserved left ventricular function and poor quality of life because of anginal pain or a moderate risk on the basis of non-invasive tests. This also applies to patients who have survived a cardiac arrest, have a high risk with non-invasive tests and life-threatening arrhythmias.	ACCF 2012 stable, ACP 2012 diagnosis; CCS 2014[a], ESC 2014, ESC 2013 CAD, NVL 2016	4 / 7	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K5 (Degree of stenosis)	Revascularization is indicated to improve the prognosis and to reduce risk in patients with stable angina/CHD or silent ischaemia and with a stenosis of more than 50% or an FFR of 0.80 and less.	ESC 2014	1 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K6 (Delayed invasive strategy)	A delayed invasive strategy is recommended for patients with unstable angina/NSTEMI and comorbidity (renal or heart failure, diabetes, post-infarct angina or renewed signs of ischaemia) and also for stable patients with STEMI, who present 12 to 24 hours after symptom onset. A routinely delayed invasive strategy is not recommended.	ESC 2017 MI, ESC 2015, ESC 2014	4 / 6	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an invasive strategy (continued)					
V1.5.3.2/T3 – K7 (Symptom improvement)	PCI or CABG to improve symptoms is worthwhile if, despite guideline-compliant drug treatment, a vascular stenosis of 70% or more is present or drug treatment is not possible.	ACCF 2012 stable, ACCF 2011 CABG[b], ACCF 2011 PCI[b], ACP 2012 stable, ESC 2014, NVL 2016	7 / 10	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K8 (Probability of survival	PCI can be an alternative to CABG to improve the probability of survival for selected patients with stenosis of the ostial or trunk left main coronary artery under certain circumstances (anatomy, site of lesion, SYNTAX score, surgical risks).	ACCF 2012 stable	0 / 2	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K9 (Arteries without signs of infarction)	PCI in an artery without territorial infarction is worthwhile after the primary PCI and also in chronic total occlusion if, according to the non-invasive tests, there is a moderate to high risk, or anginal symptoms are to be reduced. In patients with cardiogenic shock it can take place even during the primary PCI.	ACCF 2013, ESC 2017 MI	1 / 4	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an invasive strategy (continued)					
V1.5.3.2/T3 – K10 (Significant stenosis)	CABG can be worthwhile to improve symptoms or survival probability if significant stenosis is present in several large vessels or proximally in the left coronary artery.	ACCF 2012 stable, ACP 2012 stable	1 / 2	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K11 (Bypass operation)	CABG with the exclusive aim of prolonging life can be considered in patients with stable CHD and either heart failure, or massive ischaemia, or end-stage renal failure. However, the benefit in patients without severe ischaemia is unclear.	ACCF 2012 stable, ACCF 2011 CABG[b], ACCF 2011 PCI[b], ESC 2017 MI; ESC 2014	1 / 5	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K12 (Transmyocardial laser revascularization)	Transmyocardial laser revascularization can supplement a CABG and improve symptoms if vital ischaemic myocardium cannot be supplied with a bypass.	ACCF 2011 CABG[b], ACCF 2011 PCI[b], ACCF 2012 stable	0 / 3	The key statement is differentiated. No need to update	This technique is obsolete for clinical practice.
V1.5.3.2/T3 – K13 (Defects)	Simultaneous valve replacement should be considered for patients with treatment-requiring valve defects who undergo CABG.	ACCF 2013, ACCF 2011 CABG[b]	3 / 5	The key statement is differentiated. No need to update	
Indication for a hybrid revascularization					
V1.5.3.2/T3 – K14 (Hybrid revascula-rization)	A combined (hybrid) intervention in specialized centres is recommended for CHD patients who cannot be adequately treated with PCI or CABG alone.	ACCF 2012 stable, ACCF 2011 CABG[b], ACCF 2011 PCI[b], ESC 2014	0 / 7	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect “Indication for an invasive strategy” (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an immediate intervention					
V1.5.3.2/T3 – K15 (Immediate intervention)	Immediate coronary angiography with revascularization should be considered in survivors of a cardiac arrest and patients with NSTEMI but refractory angina or other severe symptoms including cardiogenic shock.	AHA 2014, ESC 2017 MI, ESC 2015, ESC 2014, NHFA 2016	10 / 11	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K16 (Emergency bypass operation)	An emergency CABG is indicated in patients with STEMI if, for anatomical reasons, a PCI is impossible and renewed complications occur.	ACCF 2013, AHA 2014, ESC 2015	3 / 3	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K17 (Emergency PCI)	An emergency PCI is recommended for patients with cardiogenic shock if suitable anatomical conditions are present to remove a stent thrombosis after unsuccessful fibrinolysis and in the presence of severe complications.	ESC 2017 MI, ESC 2015, ESC 2014, SIGN 2016	6 / 7	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K18 (Immediate coronary angiography)	Immediate coronary angiography is recommended for patients with life-threatening complications or high risk of ischaemia, even irrespective of the ECG result.	ESC 2014, NHFA 2016	2 / 4	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Indication for an early intervention					
V1.5.3.2/T3 – K19 (Early intervention)	With observance of comorbidities and contraindications, early coronary angiography is indicated in order to determine treatment for patients with unstable angina/NSTEMI and severe symptoms or significant risk, and is independent of the ingestion of oral anticoagulants. An ischaemia-directed strategy can be considered for stabilized patients with a high risk.	ACCF 2012 unstable, AHA 2014, ESC 2015, ESC 2014, NHFA 2016, SIGN 2016	7 / 13	The key statement agrees. No need to update	
V1.5.3.2/T3 – K20 (Early in STEMI)	Early coronary angiography is recommended for patients with STEMI if the symptoms have stopped completely and ST-elevation has fully normalized, either spontaneously or after administration of nitroglycerin (glyceryl trinitrate). The prerequisite is that the symptoms or ST-elevation must not recur.	ESC 2017 MI	1 / 1	The key statement agrees. No need to update	
Revascularization in patients with symptoms despite optimum drug treatment					
V1.5.3.2/T3 – K21 (Revascularization)	Revascularization therapy such as PCI is indicated for patients with severe symptoms despite optimum drug treatment. PCI should be considered as first-line therapy. This also applies to restenoses and bypasses using the internal mammary artery, if technically possible.	ACCF 2012 stable, ACCF 2011 CABG[b], ACCF 2011 PCI[b], ESC 2014	3 / 7	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Revascularization in patients with symptoms despite optimum drug treatment (continued)					
V1.5.3.2/T3 – K22 (Imaging techniques)	The use of intravascular ultrasonography or optical coherence tomography to assess stent thrombosis or restenosis can be considered.	ACCF 2011 PCI[b], ESC 2014	0 / 3	The key statement is differentiated. No need to update	
Revascularization in patients with symptoms despite optimum drug treatment					
V1.5.3.2/T3 – K23 (Repeat stenting)	DES or drug-coated balloons or BMS are recommended for in-stent restenosis, provided DAPT is possible. DES should be preferred for the treatment of restenosis.	ACCF 2011 PCI[b], ESC 2014	10 / 11	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K24 (Stent thrombosis)	Emergency PCI followed by DAPT (prasugrel or ticagrelor instead of clopidogrel) is recommended for stent thrombosis in order to restore myocardial perfusion. Thrombus aspiration or high-pressure balloon dilatation should be considered.	ESC 2014	1 / 2	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K25 (Re-do bypass operation)	Re-do CABG should be considered for patients whose coronary anatomy and lesions are not suitable for PCI, whose bypasses are occluded or if massive anginal symptoms are present despite optimum drug treatment. The internal mammary artery should be used as a bypass.	ESC 2014	1 / 3	The key statement is differentiated. No need to update	

(continued)

Table 40: Summarizing assessment of the partial aspect "Indication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Revascularization in patients with symptoms despite optimum drug treatment (continued)					
V1.5.3.2/T3 – K26 (Saphenous vein bypass)	If a saphenous vein bypass fails, then, if possible, PCI with DES using embolization protection should be considered.	ESC 2014	2 / 2	The key statement is differentiated. No need to update	
Repeat revascularization in patients with symptoms despite optimum drug treatment					
V1.5.3.2/T3 – K27 (Questionable benefit)	Re-do CABG or PCI is of questionable benefit for patients after CABG or with signs of extensive myocardial ischaemia, if the probability of survival is to be improved.	ACCF 2012 stable, ACCF 2011 CABG[b], ACCF 2011 PCI[b]	0 / 6	The key statement is differentiated. No need to update	
V1.5.3.2/T3 – K28 (PCI for restenosis)	PCI rather than a re-do CABG should be performed in the case of restenosis. This particularly applies if the internal mammary artery bypass is patent or in patients after CABG with severe symptoms despite guideline-compliant drug treatment.	ACCF 2012 stable, ESC 2014	1 / 5	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The guideline is more than 5 years old at the time of publication of the final report.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ACS: acute coronary syndrome; AHA: American Heart Association; BMS: bare metal stent; CABG: coronary artery bypass graft; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DES: drug-eluting stent; DMP: Disease Management Programme; ECG: electrocardiogram; EF: ejection fraction; ESC: European Society of Cardiology; FFR: fractional flow reserve; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NCGC: National Clinical Guidelines Centre; NHFA: National Heart Foundation of Australia; NSTEMI: myocardial infarction without ST-elevation; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; SIGN: Scottish Intercollegiate Guidelines Network; STEMI: ST-elevation infarction; SYNTAX: Synergy between PCI with Taxus and Cardiac Surgery; T: topic; V: health care aspect

4.2.4.3.2.4 Contraindication for an invasive strategy (T4)

Table 41: Summarizing assessment of the partial aspect "Contraindication for an invasive strategy"

Designation of the extraction table in Section A3.4.4.3.2.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T4 – K1 (Coronary angiography)	Coronary angiography to assess risk should not be undertaken in patients with stable CHD and an ejection fraction of more than 50 %, with life-limiting comorbidities, with low CHD-risk or who decline revascularization. This also applies to symptom-free patients.	ACCF 2012 unstable, ACP 2012 diagnosis	6 / 6	The key statement is differentiated. No need to update	
V1.5.3.2/T4 – K2 (Contraindications)	(Early) invasive therapy is not recommended ▪ In patients with additional, other serious diseases, ▪ If comorbidity calls the benefit of revascularization into question, ▪ In patients with troponin-negative chest pain or low CHD risk, ▪ In women, ▪ After coronary vascularization without renewed ischaemia or ▪ If bypass surgery is not an option or for risk assessment.	ACCF 2012 stable, AHA 2014, NVL 2016	8 / 8	The key statement is differentiated. No need to update	
V1.5.3.2/T4 – K3 (Requirements)	CABG or PCI should not be undertaken with the aim of prolonging life if the anatomical or physiological requirements for it are not met.	ACCF 2012 stable, ACCF 2011 CABG[a], ACCF 2011 PCI[a], ACP 2012 stable	9 / 13	The key statement is differentiated. No need to update	

(continued)

Table 41: Summarizing assessment of the partial aspect "Contraindication for an invasive strategy" (continued)

Designation of the extraction table in Section A3.4.4.3.2.4 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T4 – K4 (Contraindication for PCI)	PCI should not be undertaken in stable patients with trunk stenosis in whom a CABG is possible.	ACCF 2011 CABG[a], ACCF 2011 PCI[a]	2 / 2	The key statement is differentiated. No need to update	The recommendations of the guidelines are no longer basically valid for clinical practice.
V1.5.3.2/T4 – K5 (Asymptomatic)	No routine PCI in an artery affected by the infarction should be undertaken in asymptomatic patients more than 48 hours after the start of the STEMI.	ESC 2017 MI	1 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T4 – K6 (DAPT intolerance)	PCI with stent implantation should not be undertaken if the patient does not tolerate DAPT.	ACCF 2013, ACCF 2012 stable, ACCF 2011 PCI[a]	4 / 4	The key statement is differentiated. No need to update	
V1.5.3.2/T4 – K7 (Prophylactic revascularization)	Prophylactic coronary revascularization should not be undertaken before a non-cardiac operation.	ACCF 2011 PCI[a]	1 / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.5.3.2/T4 – K8 (Elective operation)	Due to the necessary interruption of the antiplatelet medication, an elective, non-cardiac operation should not be performed within an appropriate interval before and after a procedure on the coronary arteries.	ACC 2016, ACCF 2011 PCI[a]	2 / 3	The key statement is differentiated. No need to update	The time intervals after DES implantation vary between the guidelines (6 to 12 months).

(continued)

Table 41: Summarizing assessment of the partial aspect "Contraindication for an invasive strategy" (continued)

a: The guideline is more than 5 years old at the time of publication of the final report.
ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; CABG: coronary artery bypass graft; CHD: coronary heart disease; DAPT: dual antiplatelet therapy; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; STEMI: ST-elevation infarction; T: topic; V: health care aspect

4.2.4.3.2.5 Type of intervention (T5)

Table 42: Summarizing assessment of the partial aspect "Type of intervention"

Designation of the extraction table in Section A3.4.4.3.2.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T5 – K1 (Criteria)	The type of intervention is determined on the basis of the following criteria: severity of the disease, coronary anatomy, number of stenosed vessels, site of the stenoses, Syntax score, duration of symptoms and comorbidities.	ACC 2014, ACCF 2012 stable, ACCF 2012 unstable, ACCF 2011 CABG[a], ACCF 2011 PCI[a], ACP 2012 stable, AHA 2014, ESC 2015, ESC 2014, ESC 2013 CAD, ESC 2013 diabetes NVL 2016, SIGN 2016	71 / 136	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K2 (Proximal LAD stenosis)	PCI or CABG can be performed in the case of one-vessel disease with proximal stenosis of the left anterior descending artery; re-intervention is more often required after PCI.	NVL 2016	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 42: Summarizing assessment of the partial aspect "Type of intervention" (continued)

Designation of the extraction table in Section A3.4.4.3.2.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T5 – K3 (PCI/bypass operation)	PCI should be preferred in patients with multivessel coronary disease and ischaemic symptoms, as well as in chronic kidney disease, or in those with a high surgical risk or a life expectancy of less than 1 year. CABG should be considered in dialysis-requiring patients with multivessel coronary disease and an acceptable surgical risk, chronic kidney disease and a life expectancy of more than 1 year.	ESC 2015, ESC 2014	0 / 3	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K4 (Primary PCI)	A stent should be implanted during a primary PCI, especially in patients with STEMI.	ACCF 2013, ESC 2017 MI, ESC 2014, SIGN 2016	4 / 4	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K5 (Invasive/conservative)	Patients with diabetes and STEMI or NSTEMI should have rapid invasive therapy (primary PCI) rather than receive conservative therapy (fibrinolysis).	ESC 2014	3 / 3	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K6 (DES/BMS)	Newer DES rather than BMS should be used in patients with ACS or ostial lesions or patients with diabetes if the risk of bleeding is high or in the case of larger lesions.	ESC 2014, ESC 2013 diabetes, NVL 2016	1 / 3	The key statement is differentiated. No need to update	

(continued)

Table 42: Summarizing assessment of the partial aspect “Type of intervention” (continued)

Designation of the extraction table in Section A3.4.4.3.2.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.5.3.2/T5 – K7 (Multiple vessels)	PCI in multiple vessels can be worthwhile in the treatment of NSTEMI.	AHA 2014	0 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K8 (Symptom control)	PCI can also be an alternative to CABG for symptom control in patients with diabetes and anginal pain.	ESC 2013 diabetes	0 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K9 (DES stent)	Patients undergoing PCI should receive a DES of the new generation. This applies particularly to patients with chronic kidney disease or with a high risk of bleeding, who are to receive DAPT for only a brief period.	ESC 2017 DAPT, ESC 2017 MI, ESC 2015, ESC 2014	7 / 8	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K10 (PCI of other stenoses)	In selected patients, simultaneous PCI for other smaller stenoses can be considered when the main lesion is treated.	ESC 2014	0 / 1	The key statement is differentiated. No need to update	
Atrial fibrillation					
V1.5.3.2/T5 – K11 (Atrial fibrillation)	Left atrial appendage closure can be considered in patients with atrial fibrillation who undergo PCI or CABG and have a high stroke risk or contraindications for oral anticoagulation.	ESC 2014	0 / 2	The key statement is differentiated. No need to update	

(continued)

Table 42: Summarizing assessment of the partial aspect “Type of intervention” (continued)

Designation of the extraction table in Section A3.4.4.3.2.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Peripheral arterial disease					
V1.5.3.2/T5 – K12 (Peripheral arterial disease)	It is recommended that patients with ACS first undergo ACS treatment and are then operated on for the peripheral arterial disease.	ESC 2014	1 / 1	The key statement is differentiated. No need to update	
V1.5.3.2/T5 – K13 (Prophylactic coronary revascularization)	Prophylactic coronary revascularization prior to other risky vascular surgery can be considered for stable patients suffering from signs of cardiac ischaemia or with a high cardiac risk.	ESC 2014	0 / 1	The key statement is differentiated. No need to update	
Indication for a delayed intervention					
V1.5.3.2/T5 – K14 (Delayed intervention)	A (delayed) intervention is recommended for patients with moderate risk if diabetes, kidney or heart failure or renewed symptoms are present or if PCI/CABG has already been undertaken. A delayed intervention is also indicated in patients with at least one criterion for high risk.	ACCF 2013, ESC 2015, ESC 2014	9 / 9	The key statement is differentiated. No need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ACS: acute coronary syndrome; AHA: American Heart Association; CABG: coronary artery bypass Graft; DAPT: dual antiplatelet therapy; DES: drug-eluting stent; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NSTEMI: myocardial infarction without ST-elevation; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; SIGN: Scottish Intercollegiate Guidelines Network; STEMI: ST-elevation infarction; T: topic; V: health care aspect

4.2.5 Monitoring and follow-up (V1.X)

Text of the current DMP-A-RL on the health care aspect “Monitoring and follow-up”

The DMP Requirements Directive contains no statements about monitoring and follow-up. However, some aspects can be found in the DMP-A-RL under the health care aspect of Differentiated Therapy Planning.

Table 43: Summarizing assessment of the general aspects of the health care aspect “Monitoring and follow-up”

Designation of the extraction table in Section A3.4.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.X – K1 (Follow-up appointment)	Patients with stable CHD and those who have undergone revascularization should be invited to a follow-up appointment by their primary care physician at regular intervals but at least once a year. Shorter intervals of every 4-6 months are recommended in the first year after starting treatment. These investigations should include the following points: ▪ Recording of symptoms and clinical function, ▪ Recording of complications of CHD such as heart failure and cardiac arrhythmias, ▪ Check on cardiac risk factors, ▪ Recording of efficacy and treatment adherence (compliance) regarding drug therapy and the recommended lifestyle changes.	ACCF 2012 stable, ACP 2012 stable, ESC 2013 CAD, NVL 2016	5 / 8	The key statement is not in the current DMP-A-RL. Potential need to update	

(continued)

Table 43: Summarizing assessment of the general aspects of the health care aspect “Monitoring and follow-up” (continued)

Designation of the extraction table in Section A3.4.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.X – K2 (Physician-patient discussion)	A positive attitude should be conveyed in the discussion with the patient and the need for education on dealing with the disease reviewed. In addition, patients should be encouraged to formulate their own treatment goals, which are documented by the physician and reviewed at the follow-up examinations.	NVL 2016	0 / 3	The key statement is not in the current DMP-A-RL. No need to update	
V1.X – K3 (Primary care practice)	Procedures in the primary care practice should be arranged in such a way that the regular follow-up appointments can be kept and implemented according to the recommendations.	NVL 2016	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.X – K4 (Check of laboratory values)	Serum lipids, glucose metabolism and creatinine should be checked annually in patients with CHD. **Inconsistency of content:** Routine checking of lipid levels for secondary prevention is not recommended for patients with arteriosclerotic cardiovascular disease or after myocardial infarction.	ACCF 2012 stable, ESC 2016 prevention (ADD), ESC 2013 CAD VADoD 2014	2 / 3 1 / 1	The key statement is addressed in the DMP-A-RL. Further appraisal is proposed.	The annual check of the risk indicator “kidney disease” has hitherto not been mentioned.

(continued)

Table 43: Summarizing assessment of the general aspects of the health care aspect "Monitoring and follow-up" (continued)

Designation of the extraction table in Section A3.4.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.X – K5 (Weight check)	The BMI and/or hip circumference of patients should be measured at the annual follow-up appointment. Overweight patients should be constantly encouraged to lose weight, whilst those of normal weight should be told to avoid any weight increase.	ACCF 2012 stable, ACP 2012 stable, ESC 2016 prevention (ADD), NVL 2016	4 / 5	The key statement agrees. No need to update	
V1.X – K6 (Risk of bleeding)	The risk of bleeding in patients who have had a myocardial infarction should be determined at the follow-up appointment.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	
V1.X – K7 (After revascularization)	It is recommended that patients who, after revascularization because of an infarction, show less risky findings at a stress test, should pay special attention to the drug treatment and lifestyle changes.	ESC 2014	1 / 1	The key statement is differentiated. No need to update	
V1.X – K8 (Repeated workup)	Patients with stable CHD, whose symptoms are not controlled by optimum medical treatment, should undergo a repeat examination with respect to diagnostics and revascularization.	CCS 2014[a]	0 / 1	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline of low methodological quality.

(continued)

Table 43: Summarizing assessment of the general aspects of the health care aspect “Monitoring and follow-up” (continued)

Designation of the extraction table in Section A3.4.5 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.X – K9 (Stress test)	Without specific clinical indication, a routinely performed stress test is not recommended for asymptomatic patients. However it can be considered more than 2 years after a PCI, more than 5 years after bypass surgery, or if the previous test is assessed as no longer valid. A stress test can be considered after revascularization in order to review the drug treatment or to adjust the recommended physical activity.	ACCF 2011 PCI[b], ESC 2016 prevention (ADD), ESC 2014, ESC 2013 CAD	1 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
b: The guideline is more than 5 years old at the time of publication of the final report.

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; ADD: addendum; BMI: body mass index; CAD: coronary artery disease; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National health Care Guideline; PCI: percutaneous coronary intervention; T: topic aspect; V: health care aspect VaDoD: Department of Veterans Affairs and Department of Defense

4.2.5.1 Electrocardiography (T1)

Table 44: Summarizing assessment of the partial aspect "Electrocardiography"

Designation of the extraction table in Section A3.4.5.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.X/T1 – K1 (Resting ECG)	A 12-lead resting ECG can be recorded in patients with stable symptoms at the annual follow-up or in addition, if the anginal status has changed, symptoms suggest arrhythmia or a change in the drug treatment can lead to changes in electrical conduction.	ACCF 2012 stable, CCS 2014[a], ESC 2013 CAD, SIGN 2016	1 / 4	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.X/T1 – K2 (Exercise ECG)	An exercise ECG can be considered after 1 year or a longer period in patients with known stable CHD if they have previously shown silent ischaemia, have a high risk of a repeat cardiovascular event, show new or more intense symptoms not consistent with instability, are physically capable of exercise and have an interpretable ECG. No ergometry should be undertaken as part of the follow-up in asymptomatic patients. In addition, patients with new and more intense symptoms should not undergo an exercise ECG if they are not capable of adequate physical exercise, or have a disabling comorbidity or an uninterpretable ECG.	ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2013 CAD, NVL 2016	6 / 10	The key statement is not in the current DMP-A-RL. Potential need to update	

(continued)

Table 44: Summarizing assessment of the partial aspect "Electrocardiography" (continued)

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).
ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CAD: coronary artery disease; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic aspect; V: health care aspect

4.2.5.2 Non-invasive imaging techniques (T2)

Table 45: Summarizing assessment of the partial aspect "Non-invasive imaging techniques"

Designation of the extraction table in Section A3.4.5.2 of the full final report	**Key statement**	**Underlying recommendations of the following guideline(s)**	**High GoR (n / N)**	**Comparison with DMP-A-RL** **Methodological assessment**	**Notes**
Echocardiography and other imaging techniques					
V1.X/T2 – K1 (Re-assessment)	Measurement of left ventricular function by echocardiography or nuclear medicine diagnostics is not recommended for routine re-assessment of patients whose clinical status has not changed and with a low risk of the occurrence of cardiovascular events. It can, however, be considered for specific patient groups.	ACCF 2012 stable, ACP 2012 diagnosis, ACP 2012 stable, ESC 2014	5 / 6	The key statement is differentiated. No need to update	

(continued)

Table 45: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.5.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Echocardiography and other imaging techniques (continued)					
V1.X/T2 – K2 (Indications)	Pharmacological or physical stress tests with imaging techniques (nuclear medicine myocardial perfusion diagnostics, echocardiography, cardiac MRI) are recommended in patients with known stable angina, who show new or more intense symptoms that are not consistent with instability and who are not capable of adequate physical exercise or have a disabling comorbidity. However, they are not recommended for the follow-up of most patients with stable angina and should be undertaken no sooner than ▪ 5 years after bypass surgery, ▪ 2 years after a PCI.	ACCF 2012 stable, ACP 2012 stable, CCS 2014[a], ESC 2013 CAD	9 / 14	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.X/T2 – K3 (Treatment decision)	A stress test with imaging is recommended for risk assessment in patients with known CHD and increasing symptoms if the site and extent of the ischaemia would influence the treatment decision.	ESC 2013 CAD	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	

(continued)

Table 45: Summarizing assessment of the partial aspect "Non-invasive imaging techniques" (continued)

Designation of the extraction table in Section A3.4.5.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Echocardiography and other imaging techniques (continued)					
V1.X/T2 – K4 (Left ventricular dysfunction)	Patients with reduced LVEF after myocardial infarction should be offered an investigation of their LVEF.	NICE 2013	1 / 1	The key statement is not in the current DMP-A-RL. Potential need to update	
V1.X/T2 – K5 (ICD treatment)	Patients who have had a myocardial infarction and for whom ICD treatment is an option, should undergo another investigation of their LVEF. If the result of the echocardiography is unclear, alternative techniques, e.g. cardiac MRI, should be used.	ACCF 2013, ESC 2017 MI	2 / 3	The key statement is differentiated. No need to update	
V1.X/T2 – K6 (Revascularization)	A prior stress test with an imaging technique can be considered for symptomatic patients who are to undergo a PCI or bypass surgery.	ESC 2013 CAD	0 / 1	The key statement is differentiated. No need to update	
Coronary angiography					
V1.X/T2 – K7 (Control angiography)	A control angiography can be considered following a high-risk PCI, irrespective of the presence of symptoms. However, a routine control angiography is not advised.	ESC 2014, ESC 2013 CAD	1 / 3	The key statement is differentiated. No need to update	

(continued)

Table 45: Summarizing assessment of the partial aspect “Non-invasive imaging techniques” (continued)

Designation of the extraction table in Section A3.4.5.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
CT-coronary angiography					
V1.X//T2 – K8 (CT-coronary angiography)	CT-coronary angiography can be considered in patients with stable CHD, a stent diameter of more than 3 mm and new or worsening symptoms. It should not be carried out if the coronary arteries are known to be calcified or the stent diameter is less than 3 mm.	ACCF 2012 stable	1 / 3	The key statement is differentiated. No need to update	

a: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; CAD: coronary artery disease; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; CT: computed tomography; DMP: Disease Management Programme; ESC: European Society of Cardiology; ICD: implantable cardioverter defibrillator; K: key statement; LVEF: left ventricular ejection fraction; MRI: magnetic resonance imaging; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; PCI: percutaneous coronary intervention; T: topic aspect; V: health care aspect

4.2.6 Rehabilitation (V1.6)

Text of the current DMP-A-RL on the health care aspect "Rehabilitation"

"***1.6 Rehabilitation***

Cardiological rehabilitation is the process by which patients with heart disease are supported with the help of a multidisciplinary team to achieve and maintain the individually best possible physical and mental health and social integration. It is part of a comprehensive care package for CHD patients that is focussed on long-term success. The goals agreed between the physician and the patient should take account of rehabilitation measures, especially the personal responsibility of the patient.

The scale and content of rehabilitation are in particular:

1. Somatic level: supervision, risk stratification, treatment adjustment, remobilization, training, secondary prevention;

2. Psychosocial level: coping with the disease, reduction of anxiety and depression;

3. Educative level (in particular advice, education and training): communication of disease-related knowledge and skills (including understanding of the disease, modification of lifestyle and risk factors), reinforcement of motivation;

4. Sociomedical level: occupational reintegration, maintenance of independence.

Rehabilitation as an overall concept includes (according to WHO and based on SIGN 2002):

5. Early mobilization during acute treatment,

6. Rehabilitation (according to Section 1.7.4) after acute treatment,

7. Long-term local follow-up and care".

and

"1.7.4 Instigation of a rehabilitation programme

The instigation of a rehabilitation programme (in the sense of Section 1.6) is to be considered especially:

13. After acute coronary syndrome,

14. After coronary revascularization,

15. In patients with stable angina and related limiting symptoms (significant impairment of quality of life, taking the individual life circumstances into account) that persist despite conservative, interventional and/or surgical measures,

16. In patients with chronic heart failure and related limiting symptoms (significant impairment of quality of life, taking the individual life circumstances into account) that persist despite conservative, interventional and/or surgical measures”.

Table 46: Summarizing assessment of the health care aspect “Rehabilitation”

Designation of the extraction table in Section A3.4.6 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Definition and aim					
V1.6 – K1 (Cardiological rehabilitation)	Cardiological rehabilitation, which consists of several phases, aims to strengthen and/or maintain the long-term health and well-being of the patient.	NVL 2016	1 / 2	The key statement is differentiated. No need to update	
Encouragement to participate					
V1.6 – K2 (Participation)	Rehabilitation should be offered in a culturally sensitive manner and with options for the patient. The benefits of the measures should be explained and support offered. There should be contact between the rehabilitation team and the patient, if he/she does not participate in the rehabilitation.	NICE 2013	7 / 7	The key statement is differentiated. No need to update	
V1.6 – K3 (Passing on of experience)	The experience of former rehabilitation patients should help to motivate heart patients to take part in rehabilitation programmes.	NICE 2013	1 / 1	The key statement is differentiated. No need to update	

(continued)

Table 46: Summarizing assessment of the health care aspect "Rehabilitation" (continued)

Designation of the extraction table in Section A3.4.6 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Rehabilitation therapy					
V1.6 – K4 (Indication)	Medically-supervised rehabilitation programmes should be offered to all patients with stable CHD, after ACS or interventional therapy, or CABG. If necessary, such programmes can be gender-specific.	ACCF 2013, ACCF 2012 stable, ACCF 2011 CABG[a], ACCF 2011 PCI[a], AHA 2014, CCS 2014[b], ESC 2017 MI, ESC 2016 prevention, ESC 2015, ESC 2014, NHFA 2016, NICE 2013, NVL 2016	15 / 21	The key statement is differentiated. No need to update	
V1.6 – K5 (Offer)	As part of cardiac rehabilitation, different training options should be offered immediately after acute treatment with individual management and optimization of treatment to meet the needs of each patient.	NICE 2013, NVL 2016, SIGN 2017 reha	6 / 9	The key statement is differentiated. No need to update	
V1.6 – K6 (Enrolment examination)	On entry into a rehabilitation programme, patients should undergo an individualized examination. After a PCI, a stress test should be offered before starting a rehabilitation programme.	ACCF 2011 PCI[a], SIGN 2017 reha	0 / 2	The key statement is differentiated. No need to update	In Germany, a PCI is not a mandatory indication for a rehabilitation programme.

(continued)

Table 46: Summarizing assessment of the health care aspect “Rehabilitation” (continued)

Designation of the extraction table in Section A3.4.6 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Rehabilitation therapy (continued)					
V1.6 – K7 (Rehabilitation therapy)	As part of rehabilitation, the patient should be educated about the disease, the treatment, information and support offers, about disease management and a coping strategy to deal with the disease. Rehabilitation should also include psychosocial and psychoeducative interventions. Relatives should be involved in the advice and education/training sessions and their special problems taken into account (including problems with partners, life management).	NICE 2013, NVL 2016, SIGN 2017 reha, SIGN 2016	3 / 14	The key statement is differentiated. No need to update	
V1.6 – K8 (Prescribing)	Consideration can be given during the cardiological rehabilitation to allowing appropriately qualified, non-medical staff to undertake the prescribing of drugs.	SIGN 2017 reha	0 / 2	The key statement is differentiated. No need to update	In Germany, prescription-only drugs can only prescribed by physicians.
V1.6 – K9 (Diet and weight)	A range of strategies, including telephone follow-up, training tools, agreements and feedback can be considered to improve the permanent implementation of dietary recommendations. If support is needed with weight management, the patient can be referred to weight-loss programmes.	SIGN 2017 reha	0 / 2	The key statement is differentiated. No need to update	

(continued)

Table 46: Summarizing assessment of the health care aspect “Rehabilitation” (continued)

Designation of the extraction table in Section A3.4.6 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Rehabilitation therapy (continued)					
V1.6 – K10 (Cognitive behavioural therapy)	Cognitive behavioural therapy is the first-choice treatment for patients with depression or anxiety. It can also be used in patients with specific psychological needs. However this treatment should only be undertaken by appropriately qualified specialist staff.	SIGN 2017 reha	1 / 3	The key statement is differentiated. No need to update	
V1.6 – K11 (Step-by-step plan)	As part of cardiac rehabilitation, psychological therapy according to a step-by-step care plan should be given, in order to meet the psychological needs of the patient.	SIGN 2017 reha	1 / 1	The key statement is differentiated. No need to update	
V1.6 – K12 (Technical support)	Support via telephone, internet or text messages can be given to patients in a rehabilitation programme.	SIGN 2017 reha	0 / 1	The key statement is differentiated. No need to update	
V1.6 – K13 (Occupational rehabilitation)	Patients in a cardiac rehabilitation programme may receive interventions for occupational rehabilitation that address disease perception in terms of the probability of a return to work. In addition, as preparation for reintegration, the prescribed physical activities can be adjusted to those of the workplace.	SIGN 2017 reha	0 / 3	The key statement is differentiated. No need to update	

(continued)

Table 46: Summarizing assessment of the health care aspect “Rehabilitation” (continued)

a: The guideline is more than 5 years old at the time of publication of the final report.
b: In its overall assessment according to AGREE II, the guideline shows a low methodological quality (≤ 3 points).

ACCF: American College of Cardiology Foundation; ACS: acute coronary syndrome; AHA: American Heart Association; CABG: coronary artery bypass graft; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NHFA: National Heart Foundation of Australia; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; PCI: percutaneous coronary intervention; SIGN: Scottish Intercollegiate Guidelines Network; T: topic; V: health care aspect

4.2.7 Cooperation between health care sectors (V1.7)

Text of the current DMP-A-RL about general aspects of the health care aspect “Cooperation between health care sectors”

“The care of chronic CHD patients requires the cooperation of all sectors (out-patient and in-patient) and institutions. Qualified treatment must be ensured over the entire health care chain”.

Table 47: Summarizing assessment of the general aspects of the health care aspect "Cooperation between health care sectors"

Designation of the extraction table in Section A3.4.7 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.7 – K1 (Health care)	All communities should provide a regional system for the care of patients with myocardial infarction, offer follow-up care to prevent re-admissions and cooperate with hospitals of higher health care sectors.	ACCF 2013, ACCF 2011 CABG[a], AHA 2014, ESC 2014	4 / 5	The key statement is differentiated. No need to update	
V1.7 – K2 (PCI)	PCI should only be undertaken in a hospital without cardiac surgery if transfer to a hospital with such a facility is ensured if it is needed.	ACCF 2011 PCI[a]	1 / 3	The key statement is differentiated. No need to update	The assessment of the need to update is based on a guideline that is more than 5 years old.
V1.7 – K3 (Patient-centred therapy)	To reduce symptoms and improve health-related quality of life for patients with refractory angina, patient-centred effective care should be held ready. This requires cooperation between cardiologists and pain specialists.	CCS 2012 refractory	0[a] / 1	The key statement is differentiated. No need to update	

a: GoR and LoE of the underlying recommendation were categorized as unclear.

ACCF: American College of Cardiology Foundation; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; PCI: percutaneous coronary intervention; T: topic; V: health care aspect

4.2.7.1 Care by primary care physicians (V1.7.1)

Text of the current DMP-A-RL on the health care aspect “Care by primary care physicians”:

“The long-term care of patients and its documentation as part of the structured treatment programme is basically undertaken by the primary care physician in the context of their tasks laid down in § 73 of the Social Code Book Five.

In exceptional cases, a patient with coronary heart disease can choose a licensed or authorized qualified specialist physician or a qualified establishment licensed or authorized to provide these services or which participates in community-based medical care according to § 137f Para. 7 of the Social Code Book Five, also for long-term care, documentation and coordination of the further measures in the structured treatment programme, if the chosen specialist physician or chosen establishment participates in the programme. This applies particularly if the patient has been permanently cared for by this physician or establishment already before enrolment, or this care is necessary on medical grounds. If, according to the grounds for transfer named in Section 1.7.2, their particular qualification to treat the patient is insufficient, then the transfer rules named therein are to be observed by the chosen physician or chosen establishment”.

Table 48: Summarizing assessment of the health care aspect “Care by primary care physicians”

Designation of the extraction table in Section A3.4.7.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.7.1 – K1 (Pre-hospital care)	Pre-hospital care should take place in regional networks so that patients with myocardial infarction can receive reperfusion therapy as rapidly as possible. High-risk patients should be treated by interdisciplinary teams in centres.	ESC 2017 MI, ESC 2014, ESC 2011[a]	3 / 3	The key statement is differentiated. No need to update	
V1.7.1 – K2 (Treatment plan)	On discharge, the primary care physician should receive a comprehensive treatment plan from the hospital for patients who have had a myocardial infarction.	NICE 2013	3 / 3	The key statement is not in the current DMP-A-RL. Potential need to update	

a: The guideline is more than 5 years old at the time of publication of the final report.

DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; T: topic; V: health care aspect

4.2.7.2 Transfer from the treating physician to a qualified specialist physician or qualified establishment (V1.7.2)

Text of the current DMP-A-RL on the health care aspect “Transfer from the treating physician to a qualified specialist physician or qualified establishment”:

“The physician has to check whether – particularly in the case of the following indications or grounds - a transfer or referral for co-treatment and for additional diagnostics and risk stratification of patients with chronic CHD to the qualified specialist physician or qualified establishment or psychotherapist should take place:

1. First-ever or increasing anginal symptoms,
2. Newly occurring or increasing heart failure,
3. Newly occurring or symptomatic cardiac arrhythmias,
4. Inadequate response to treatment,
5. Patients with comorbidities (e.g. hypertension, diabetes, depression),
6. Co-treatment of patients with additional cardiological diseases (e.g. valve defects),
7. Indication for invasive diagnostics and treatment,
8. Undertaking of invasive diagnostics and treatment,
9. Rehabilitation,
10. Education of patients.

Otherwise, the decision about a transfer is at the physician’s discretion”.

Table 49: Summarizing assessment of the health care aspect “Transfer from the treating physician to the qualified specialist physician or qualified establishment”

Designation of the extraction table in Section A3.4.7.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.7.2 – K1 (Involvement of specialist physician)	In certain situations, qualified specialist physicians should be involved in therapy planning for patients with stable CHD and comorbidities or intolerance to statins.	NICE 2016, NVL 2016, SIGN 2016	2 / 3	The key statement agrees. No need to update	
CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; NICE: National Institute for Health and Care Excellence; NVL: German National Health Care Guideline; SIGN: Scottish Intercollegiate Guidelines Network; T: topic; V: health care aspect					

4.2.7.3 Admission to a hospital (V1.7.3)

Text of the current DMP-A-RL on the health care aspect “Admission to a hospital”:

“Indications for in-patient treatment of patients with chronic CHD in a qualified in-patient establishment are in particular:

11. Suspected acute coronary syndrome,

12. Suspected life-threatening decompensation of related and concomitant diseases (e.g. hypertension, heart failure, arrhythmias, diabetes).

In addition, admission for in-patient treatment should be considered on a case-by-case basis for patients in whom invasive diagnostics and treatment are indicated.

Otherwise, the decision about an admission is at the physician’s discretion”.

Table 50: Summarizing assessment of the health care aspect "Admission to a hospital"

Designation of the extraction table in Section A3.4.7.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V1.7.3 – K1 (Choice of hospital)	Patients with suspected ACS and patients who have received fibrinolysis should be admitted to a hospital with a monitoring or heart catheterization facility. Patients who are to undergo PCI are to be brought immediately to the catheterization laboratory and not first to the emergency department.	ACCF 2013, ESC 2017 MI; ESC 2015, ESC 2014	6 / 7	The key statement is differentiated. No need to update	
V1.1.7.3 – K2 (Initial treatment by emergency services)	A patient with suspected ACS should (in the context of emergency care) receive an opioid i.v., oxygen in the case of dyspnoea (SaO_2 < 90% or PaO_2 < 60 mm Hg) and a sedative if needed. Routine use of oxygen in patients with SaO_2 ≥ 90% and cooling by large quantities of cold infusions are not recommended.	ESC 2017 MI	3 / 5	The key statement is differentiated. No need to update	
V1.1.7.3 – K3 (Organization)	In order to treat patients as soon as possible, all hospitals with emergency departments, catheterization laboratories or cardiology departments should ensure that they have protocols and the equipment for handling STEMI patients and a 24-hour on-call service. Patients who are to be transported to a hospital with a cardiac catheterization laboratory must be attended until transfer in a department with monitoring facilities.	ESC 2017 MI, ESC 2014	9 / 9	The key statement is differentiated. No need to update	

ACCF: American College of Cardiology Foundation; ACS: acute coronary syndrome; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; i.v.: intravenous; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; PaO_2: partial pressure of oxygen; PCI: percutaneous coronary intervention; STEMI: ST-elevation myocardial infarction; SaO_2: arterial oxygen saturation; T: topic; V: health care aspect

4.2.8 Education of the insured (V4.2)

Text of the current DMP-A-RL on the health care aspect “Education of the insured”

“The comments on § 4 of this directive apply accordingly.

As part of the structured treatment programme, bearing in mind existing related and concomitant diseases, the physician checks whether the patient can benefit from structured, evaluated, target group-specific (including anticoagulation, diabetes, hypertension) and published education and treatment programmes”.

Table 51: Summarizing assessment of the health care aspect „Education of the insured”

Designation of the extraction table in Section A3.4.8 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
V4.2 – K1 (Education content)	Patients with CHD and if applicable, after interventional treatment, should be informed according to an individual plan about their disease, the treatment and their various options, the importance of treatment adherence, how to deal with the disease and changes in lifestyle. They should learn to assess their situation themselves.	ACCF 2012 stable, ACP 2012 stable, AHA 2014, ESC 2013 CAD	17 / 21	The key statement is not in the current DMP-A-RL. Potential need to update	The DMP-A-RL does not mention education content. In the context of Commission P05-04, IQWiG wrote an evidence-based patient information leaflet on the topic “Coronary heart disease” which is published on Gesundheitsinfor-mation.de and constantly updated.
V4.2 – K2 (Self-help)	Patients should be trained so that they can help themselves in the case of anginal attacks or request help.	ACCF 2012 stable, ACP 2012 stable, CCS 2012 refractory, SIGN 2016	2 / 5	The key statement is not in the current DMP-A-RL. Potential need to update	

ACCF: American College of Cardiology Foundation; ACP: American College of Physicians; AHA: American Heart Association; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP: Disease Management Programme; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; SIGN: Scottish Intercollegiate Guidelines Network; T: topic; V: health care aspect

4.2.9 Specific forms of angina (V1.Y)

Text of the current DMP-A-RL on the health care aspect “Specific forms of angina”

The DMP-A-RL contains no comments about microvascular, refractory or vasospastic angina.

4.2.9.1 Microvascular angina (T1)

Table 52: Summarizing assessment of the partial aspect “Microvascular angina”

Designation of the extraction table in Section A3.4.9.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Diagnostics					
V1.Y/T1 – K1 (Stress echocardio-graphy)	Stress echocardiography should be considered in order to establish whether regional wall motion abnormalities occur in conjunction with the angina and ST-segment changes.	ESC 2013 CAD	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
V1.Y/T1 – K2 (Doppler echocardio-graphy)	Transthoracic Doppler echocardiography of the LAD can be considered for measuring coronary flow reserve.	ESC 2013 CAD	0 / 1	The key statement is not in the current DMP-A-RL. No need to update	
Therapy					
V1.Y/T1 – K3 (Secondary prevention)	Patients with microvascular angina should receive secondary preventative medication, including ASA and statins.	ESC 2013 CAD	1 / 1	The key statement is differentiated. No need to update	
V1.Y/T1 – K4 (Drug treatment)	Beta-receptor blockers are recommended as first-choice drugs for all patients with microvascular angina. Calcium channel blockers are recommended if the efficacy of beta-receptor blockers is inadequate.	ESC 2013 CAD	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 52: Summarizing assessment of the partial aspect “Microvascular angina” (continued)

Designation of the extraction table in Section A3.4.9.1 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Therapy (continued)					
V1.Y/T1 – K5 (Refractory symptoms)	ACE inhibitors or nicorandil can be considered first of all for the treatment of patients with refractory symptoms. If these are insufficiently effective, then xanthine derivatives or non-pharmacological treatment methods such as neurostimulation techniques can be considered.	ESC 2013 CAD	0 / 2	The key statement is not in the current DMP-A-RL. No need to update	

ACE: angiotensin converting enzyme; CAD: coronary artery disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; LAD: left anterior descending artery; N: total number of recommendations concerning this key statement; T: topic aspect; V: health care aspect

4.2.9.2 Refractory angina (T2)

Table 53: Summarizing assessment of the partial aspect "Refractory angina"

Designation of the extraction table in Section A3.4.9.2 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Therapy					
V1.Y/T2 – K1 (Treatment options)	To relieve symptoms and increase the health-related quality of life, patients with refractory angina can be given extended external counterpulsation, spinal cord stimulation, percutaneous myocardial laser revascularization or transcutaneous electrical nerve stimulation.	ACC 2014, ACCF 2012 stable CCS 2012 refractory, ESC 2013 CAD	0 / 12	The key statement is differentiated. No need to update	
V1.Y/T2 – K2 (Transmyocardial laser revascularization)	Transmyocardial laser revascularization is not recommended for symptom relief in most patients with refractory angina.	ACCF 2012 stable, CCS 2012 refractory, ESC 2013 CAD	2 / 3	The key statement is differentiated. No need to update	
V1.Y/T2 – K3 (Intermittent thrombolysis)	Based on study data, no recommendations can be given on the efficacy and safety of intermittent thrombolysis in patients with refractory angina.	CCS 2012 refractory	1 / 1	The key statement is differentiated. No need to update	
V1.Y/T2 – K4 (Drug treatment)	Robust RCTs are needed in order to recommend drug treatment of refractory angina with allopurinol, ranolazine, nicorandil, trimetazidine or ivabradine.	CCS 2012 refractory, ESC 2013 CAD	6 / 9	The key statement is differentiated. No need to update	
V1.Y/T2 – K5 (Alternative therapies)	Acupuncture should be used in patients with refractory angina or stable CHD to relieve symptoms or reduce the cardiovascular risk.	ACCF 2012 stable, ACP 2012 stable	2 / 2	The key statement is differentiated. No need to update	

(continued)

Table 53: Summarizing assessment of the partial aspect “Microvascular angina” (continued)

ACC: American College of Cardiology; ACCF: American College of Cardiology Foundation; CAD: coronary artery disease; CCS: Canadian Cardiovascular Society; CHD: coronary heart disease; DMP-A-RL: Disease Management Programme Requirements Directive; ESC: European Society of Cardiology; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; RCT: randomized controlled trial; T: topic aspect; V: health care aspect

4.2.9.3 Vasospastic angina (T3)

Table 54: Summarizing assessment of the partial aspect "Vasospastic angina"

Designation of the extraction table in Section A3.4.9.3 of the full final report	Key statement	Underlying recommendations of the following guideline(s)	High GoR (n / N)	Comparison with DMP-A-RL Methodological assessment	Notes
Diagnostics					
V1.Y/T3 – K1 (Electrocardiography)	Recording of a 24-hour ECG is recommended in patients with suspected vasospastic angina.	ESC 2013 CAD	1 / 3	The key statement is differentiated. No need to update	
V1.Y/T3 – K2 (Coronary angiography)	Coronary angiography is recommended in patients with episodic chest pain and concurrent transient ST-elevations that resolve after administration of nitrates or calcium channel blockers, to enable the extent of the cardiovascular disease to be estimated.	AHA 2014, ESC 2013 CAD	2 / 2	The key statement is differentiated. No need to update	
V1.Y/T3 – K3 (Drug treatment)	Calcium channel blockers alone or combined with long-acting nitrates, HMG-CoA-reductase inhibitors, smoking cessation and the modification of other atherosclerotic risk factors are recommended to reduce the frequency of vasospastic angina.	AHA 2014, ESC 2015, ESC 2013 CAD	2 / 4	The key statement is differentiated. No need to update	

AHA: American Heart Association; CAD: coronary artery disease; DMP-A-RL: Disease Management Programme Requirements Directive; ECG: electrocardiogram; ESC: European Society of Cardiology; HMG-CoA: 3-hydroxy-3-methylglutaryl coenzyme A; K: key statement; n: number of recommendations with high GoR; N: total number of recommendations concerning this key statement; T: topic aspect; V: health care aspect

5 Classification of the work results

Diagnostics

Patients can be included in the DMP CHD if the diagnosis of a coronary heart disease can be made with adequately high probability. The DMP-A-RL names a 90% probability of the presence of CHD made up of symptoms, clinical examination, history, concomitant diseases and exercise ECG as criterion. However, no risk score or model is mentioned on which the probability of a stenosing CHD can be determined in a primary care practice.

Acute coronary syndrome

The diagnosis of acute coronary syndrome is a subject covered by the DMP-A-RL, but not its treatment. Therefore only the recommendations on diagnosis and long-term treatment have been extracted from guidelines dealing with the care of patients with acute coronary syndrome. Since it was sometimes difficult to differentiate between the diagnostics of ACS and interventional therapy, recommendations on treatment (PCI, bypass operation or conservative) were also extracted and included in the synthesis of the report if these affect the treatment decision. This is because, according to DMP-A-RL, this decision should be made on an interdisciplinary basis between cardiologists, heart surgeons and primary care physicians and, in terms of long-term therapy and follow-up monitoring, touches on the subject area of the DMP.

Concomitant diseases

Consideration of comorbidities is important for the care of patients with CHD [23]. This was also demonstrated by the DMP Evaluation Report North-Rhine: at least one additional accompanying disease was recorded in 98.6% of all patients enrolled into the DMP CHD. In addition to the comorbidities already covered by the DMP CHD - arterial hypertension, diabetes and psychological diseases - the documented additional concomitant diseases included lipid metabolism disorders (79.6%), COPD (16.6%) and peripheral arterial disease (11.7%) [19].

Since most guidelines focus on the diagnosis and treatment of a single disease, the current guideline synopsis was not able to identify recommendations for all commonly occurring comorbidities. However, guidelines specifically developed for patients with CHD and concomitant diabetes or a lipid metabolism disorder could be identified and integrated into the report.

The care of patients with CHD and concomitant renal insufficiency was also often addressed in the guidelines. Particular features of this group of patients are referred to in the recommendations on diagnostics and treatment.

Exercise groups for heart patients: implementation of the DMP-A-RL in routine health care?

European and American guidelines have long recommended regular physical activity for patients with CHD [24-30]. The German National Health Care Guideline also expressly

mentions coronary sport [6]. The DMP-A-RL also recommends exercise groups for patients with heart disease in Section 1.5.1.3 [18]. During the writing of the report, the question arose of whether this recommendation is implemented in routine health care.

The current DMP CHD Evaluation Report does not refer to participation in exercise groups for heart patients [31]. Only rehabilitation exercise programmes are addressed in the Heart Report 2016 [32] and exercise groups for heart patients are not explicitly mentioned. Rehabilitation sport, including exercise groups specifically for patients with heart disease, is called for by the German Pension Insurance Association [33,34] and in 2016, the German Association for Prevention and Rehabilitation recorded 6000 German exercise groups for heart patients with approx. 120,000 participants. That appears very positive.

However, if these figures are considered on a population basis, then the picture is rather different: according to figures of the RKI (Robert Koch Institute), the prevalence of CHD across all age groups is 6.6% for women and 9.6% for men [35]. If the current population figures of the German Federal Statistical Office (approx. 82.2 million inhabitants; as of 12/2015 [36]) are used to calculate the number of CHD cases, then one can assume there are approx. 6.6 million CHD patients in Germany. Accordingly, only just 2% of all those affected take part in exercise groups for heart patients in that country. It is therefore to be feared that, at a population level, either the availability of such groups - or the readiness of this group of patients to participate in physical activity - in routine health care is too low.

6 Conclusions

The recommendations from current evidence-based guidelines were summarized into key statements. Based on the grade of recommendation of the recommendations underlying the key statements, a need to update or a potential need to update could be identified for some of the health care aspects of the DMP Requirements Directive (DMP-A-RL). No (potential) need to update could be identified for the health care aspect “Rehabilitation”. No recommendations in the included guidelines could be identified for the health care aspect “Treatment goals”, so that no statement regarding a need for updating could be made with regard to this aspect.

In addition, recommendations about other aspects/topics of health care were identified that have hitherto not been addressed in the DMP-A-RL:

- Monitoring and follow-up
- Specific forms of angina
  - microvascular angina
  - refractory angina
  - vasospastic angina

Comparison with the current guidelines showed that none of the items used so far in the DMP-A-RL have become outdated.

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Please see full final report for full reference list.

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