Clinical Practice Indicators  
Myocardial Infarction (MI)  
“From 1st symptoms to follow-up at 1 year”  
March 2012

A method for improving the quality of the patient’s care pathway

Pilot Programmes – Clinical Impact  
Division of Quality and Safety improvement in Health Care  
Haute Autorité de Santé (HAS) – French National Authority for Health
Document placed online on 2 April 2009.

This update is concerned with:
- bringing up to date bibliographic references on the subject of “Myocardial infarction”
- validation by professional consensus of the French National MI Task Force and participating professional organisations.

This document was validated by the HAS Board in March 2012

© Haute Autorité de Santé – 2012
Table of Contents

1. Why these Clinical Practice Indicators (CPI)? ................................................................. 5

2. Participatory approach: French National MI Task Force & HAS ........................................... 6

3. List of abbreviations........................................................................................................... 8

4. Review of practices, priority objectives and list of indicators for each stage.................... 10
   - Stage 1: From pain to reperfusion .................................................................................. 11
   - Stage 2: From reperfusion to discharge from the healthcare establishment .................... 11
   - Stage 3: Post-infarction follow-up at 1 year..................................................................... 12

5. Proposed CPI benchmarks for assessing the clinical quality of the myocardial infarction care cycle ........................................................................................................... 13

6. Fact sheets about clinical practice indicators .................................................................... 14
   1. Rate of calls to the emergency medical assistance as a first step in the acute phase............. 14
   2. Rate of appropriate treatment with platelet aggregation inhibitor ...................................... 15
   3. Rate of treatment with morphine derivatives for intense pain ............................................ 16
   4. Rate of patients being referred directly to ICC ................................................................... 17
   5. Rate of patients undergoing a reperfusion strategy in the acute phase ................................. 18
   6. Time to primary angioplasty in the acute phase .................................................................. 19
   7. Time to thrombolysis in the acute phase ............................................................................ 20
   8. Rate of patients evaluated for left ventricular function while hospitalised ......................... 21
   9. Rate of patients with appropriate prescription for beta-blockers on discharge ..................... 22
  10. Rate of patients with appropriate prescription for platelet aggregation inhibitors on discharge . 23
  11. Rate of patients with appropriate prescription for statin on discharge .................................. 24
  12. Rate of patients with appropriate prescription of ACEI on discharge ................................... 25
  13. Rate of patients prescribed cardiovascular rehabilitation .................................................. 26
  14. Rate of patients assisted with smoking cessation ............................................................... 27
  15. Rate of patients receiving specialist diabetes advice on severe hyperglycaemia .................. 28
  16. Rate of patients receiving information on using the emergency medical assistance .......... 29
  17. Rate of post-infarction patients investigated for chest pains and/or the use of nitrates ......... 30
  18. Rate of post-infarction patients undergoing cardiovascular rehabilitation programmes ........ 31
  19. Rate of patients whose blood pressure was monitored post-infarction .............................. 32
  20. Rate of patients evaluated for post-infarction tolerance to treatment ................................... 33
  21. Rate receiving information about the need for regular post-infarction physical exercise ....... 34
  22. Rate of post-infarction patients monitored for active tobacco use ........................................ 35
  23. Rate having a lipid and blood glucose assessment 3 to 6 months post-infarction ................ 36
  24. Rate of patients having their weight monitored ................................................................. 37
  25. Rate of patients having their post-infarction physical activity monitored 3 to 6 months after discharge ........................................................................................................ 38
  26. Rate of post-infarction patients examined for peripheral artery occlusive disease (PAOD) ... 39
  27. Rate of patients receiving appropriate beta-blocker treatment at 1 year ............................. 40
  28. Rate of patients receiving appropriate aspirin treatment at 1 year ....................................... 41
  29. Rate of patients receiving appropriate treatment with a platelet aggregation inhibitor (apart from aspirin) at 1 year .......................................................... 42
  30. Rate of patients receiving appropriate treatment with statin at 1 year ................................. 43
  31. Rate of patients receiving appropriate treatment with a ACEI ............................................. 44
  32. Rate of patients having their diet monitored ....................................................................... 45
33. Rate of cases involving correspondence between the primary care doctor and the cardiologist ..... 46
34. 30-day mortality rates Optional ........................................................................................................ 47

7. **Risk and mortality scores** ........................................................................................................... 48

8. **List of proposed items for clinical practice indicators collection** .................................................. 50

**Appendix 1. Proposed tools** ............................................................................................................ 54
   1.1 Proposed case report forms ........................................................................................................... 54
   1.1.1 Case report form for ACS in an outpatient setting – Transmission ..................................... 54
   1.1.2 Case report form for A&E ........................................................................................................ 55
   1.1.3 Case report form for CARDIOLOGY .................................................................................... 56
   1.1.4 Ambulatory follow-up form – 1st year post-infarction ............................................................. 57
   1.1.5 Proposed shared report forms for “Assessment at 1 year post-infarction: indicators of results and indicators of access to specialised programmes”.............................................. 59

   1.2 Proposals for memos ................................................................................................................... 60
   1.2.1 Optimal care pathway for the treatment of a suspected ACS .............................................. 60
   1.2.2 Suspected ACS in an outpatient setting .................................................................................. 60
   1.2.3 For SAMU ............................................................................................................................ 61
   1.2.4 For SAMU and A&E .............................................................................................................. 62
   1.2.5 For the Emergency Services ............................................................................................... 63
   1.2.6 For Cardiology Departments ............................................................................................... 64
   1.2.7 Following an ACS: ACS and diabetes .................................................................................. 66
   1.2.8 Following an ACS: ACS and smoking .................................................................................. 66

**Appendix 2 – Literature search** ...................................................................................................... 67

**Appendix 3. Bibliographic references** ............................................................................................ 70
   3.1 HAS methodological references ............................................................................................... 70
   3.2 Guidelines and other institutional studies and studies by healthcare agencies or professional organisations on “Myocardial infarction and secondary prevention” ............................................. 71
   3.3 “Myocardial infarction and secondary prevention” indicators ...................................................... 76
   3.4 Other publications ..................................................................................................................... 81
1. Why these Clinical Practice Indicators (CPI)?

Myocardial infarction is a public health issue about which there are very many regularly updated references both in France and abroad.

Established good practice is implemented by healthcare professionals and care teams along the entire patient care cycle, including the specific ones developed by regional actors.

In order to facilitate and to monitor the implementation of guidelines and the improvement of practices, practitioners from various disciplines working under the auspices of the HAS have together agreed on a common and shared base of Clinical Practice Indicators (CPI) that can be used to measure the optimal clinical pathway over the full patient care cycle – from the call to the emergency medical assistance to the follow-up in outpatients of the “classic” acute myocardial infarction. Every discipline and every team in addition retains the capability of creating and retrieving other criteria better suited to their objectives or to their practice.

CPIs are worked out on the basis of a collaborative, prospective approach, centred on the patient and his/her full care cycle and incorporating the 3 ESA quality dimensions (Efficacy, Safety and Access to the best care). Focusing on the key points of clinical practice, they enable their level of quality to be objectified. Their ultimate purpose is to help improve the quality and safety of care and the clinical impact for the patient throughout the full cycle of care.

CPIs are produced and validated with directly involved health professionals and their professional organisations (HAS Method). Information about implementation and feedback on practices are available on the HAS website.

Thus this common base of indicators enables professionals to assess and compare their results and their approaches to care, a form of benchmarking designed to improve the actual benefit for the patients. This comparison can be beneficially enhanced by describing the populations studied.

These CPIs also give institutions and decision-makers valid and consensual benchmarks for the clinical quality of the care cycle, and give patients useful information about the key benchmarks for good practice and for the results of care.

---

1 Appendix III B. Guidelines: 38, 40, 52, 61, 62, 65; C. Indicators: 115 and D. Other: 151
2 Definition: [acute coronary syndrome with ST elevation (ACS ST+) or with recent or presumed recent left bundle branch block (LBBB)]
3 Appendix III A. Method: 1, 2, 5, 6
4 Appendix III A. Method: 3; C. Indicators: 99, 107, 108, 109; D. Other: 149
5 Appendix III B. Guidelines: 3; D. Other: 150
2. Participatory approach: French National MI Task Force & HAS

The following professional bodies were invited to be involved in carrying out this programme: ANFIIDE, CEPPRAL, CFMU, CHEM, CMG, CNCF, CNCH, CNGE, CNPC, CNPEDMM, FMC No. 1, FMF, LORFOMEC, RSSMG, SFC, SFDROM, SFMG, SFMU, SFT, SFTG, UFCV, UNAFORMEC, UNR Santé and the representatives of the practice registries of E-MUST, of Chateauroux, and of Franche Comté, RICO, RESCA+31, REGLO-R SCA ST+, Oscar+, RESCue network, RENAU-RESCOR network, Rivarance network, the National Fast-MI Survey, the REACH Study and the Euroheart Survey.

Contributors:

Since 2008
Dr François-Xavier Ageron, A&E doctor, RENAU-RESURCOR, Annecy
Dr Sophie Bataille, A&E doctor, E-MUST, Paris
Dr Loïc Belle, cardiologist, RENAU-RESURCOR, SFC, CNCH, Annecy
Dr Jean-Michel Bunel, GP, Maronne
Prof. Bogdan Catargi, endocrinologist-diabetologist, Bordeaux
Dr Sandrine Charpentier, A&E doctor, RESCA+31, Toulouse
Prof Cyrille Colin, epidemiologist, CEPPRAL, Lyon
Prof. Yves Cottin, cardiologist, RICO, Dijon
Prof. Nicolas Danchin, cardiologist, SFC, Fast-MI, Indicqard, Paris
Dr Valérie Debierre, A&E doctor, SFMU, Nantes
Prof. Laurent Degos, President of HAS 2004-2010
Dr Jean-Louis Ducassé, A&E doctor, CFMU, Toulouse
Dr Antoine Duclos, epidemiologist, CEPPRAL, Lyon
Dr Annabel Dunbavand, medical adviser, FMF Health Centres, Paris
Dr Charles Autreaux, GP, Jolimetz
Dr Marc Baudet, cardiologist, Maison du cœur, Dax
Dr Jacques Berland, cardiologist, CNPC, CNCF, Rouen
Dr Ivan Berlin, pharmacologist, smoking specialist, SFT
Mireille Bucau, nurse specialising in therapeutic education, Dax
Dr Simon Cattan, cardiologist, CNCH, Montfermeil
Dr Tahar Chouihed, A&E doctor, REGLOR-SCA ST+ Registry, Nancy
Dr Emmanuel Corbillion, SMACDAM, HAS
Catherine Daugareil, nurse specialising in therapeutic education, Maison du cœur, Dax
Eric Delezie, masseur/physiotherapist, CNMK, Paris
Dr Thierry Denolle, cardiologist, Rivarance Network, Dinard
Dr Gilles Dentan, cardiologist, CNPC, Fontaine les Dijon
Marielle Desmartin, dietician, Lyon
Catherine Frerou, dietician, Rennes
Dr Pascal Héricotte, cardiologist, URCET, Dax
Dr Marie-Christine Iliou, cardiologist, SFC, Gers
Prof. Patrick Jourdain, cardiologist, CNCH, Cergy Pontoise
Prof. Véronique Kerlan, endocrinologist, CNPEDMM, Brest
Brigitte Lecoindre, ANFIIDE, Lyon
Dr Béatrice Lemaître, company doctor, SFT, Caen
Dr Yann L’Hermitte, A&E doctor and HAS project manager, Paris
Dr Jacques Migueres, GP, Paris
Dr Jean-Michel Oriol, GP, HAS project manager, Septeme, Rhône Alpes
Prof. François Paillard, cardiologist, Rennes
Dr Eric Perchicot, cardiologist, CNPC, Cavaillon
Dr Joel Petite, GP, HAS project manager, Franche Comté
Marion Plétan, health manager, HAS project manager
Dr Denis Pouchain, GP, CNGE, Paris
Armelle Richard, nurse specialising in therapeutic education, Rivarance Network, Dinard
Dr Pierre Sabouret, cardiologist, REACH, Paris
Prof. Jeannot Schmidt, A&E doctor, SFMU, Clermont-Ferrand
Dr Claude Sicil, GP, Carnoux en Provence
Florent Teboul, masseur-physiotherapist, Villeneuve St Denis
Prof. Daniel Thomas, cardiologist, smoking specialist, SFT
Dr Michel Varroud-Vial, diabetologist, UNR Santé

In 2010-2012
Dr Charles Autreaux, GP, Jolimetz
Dr Marc Baudet, cardiologist, Maison du cœur, Dax
Dr Jacques Berland, cardiologist, CNPC, CNCF, Rouen
Dr Ivan Berlin, pharmacologist, smoking specialist, SFT
Mireille Bucau, nurse specialising in therapeutic education, Dax
Dr Simon Cattan, cardiologist, CNCH, Montfermeil
Dr Tahar Chouihed, A&E doctor, REGLOR-SCA ST+ Registry, Nancy
Dr Emmanuel Corbillion, SMACDAM, HAS
Catherine Daugareil, nurse specialising in therapeutic education, Maison du cœur, Dax
Eric Delezie, masseur/physiotherapist, CNMK, Paris
Dr Thierry Denolle, cardiologist, Rivarance Network, Dinard
Dr Gilles Dentan, cardiologist, CNPC, Fontaine les Dijon
Marielle Desmartin, dietician, Lyon
Catherine Frerou, dietician, Rennes
Dr Pascal Héricotte, cardiologist, URCET, Dax
Dr Marie-Christine Iliou, cardiologist, SFC, Gers
Prof. Patrick Jourdain, cardiologist, CNCH, Cergy Pontoise
Prof. Véronique Kerlan, endocrinologist, CNPEDMM, Brest
Brigitte Lecoindre, ANFIIDE, Lyon
Dr Béatrice Lemaître, company doctor, SFT, Caen
Dr Yann L’Hermitte, A&E doctor and HAS project manager, Paris
Dr Jacques Migueres, GP, Paris
Dr Jean-Michel Oriol, GP, HAS project manager, Septeme, Rhône Alpes
Prof. François Paillard, cardiologist, Rennes
Dr Eric Perchicot, cardiologist, CNPC, Cavaillon
Dr Joel Petite, GP, HAS project manager, Franche Comté
Marion Plétan, health manager, HAS project manager
Dr Denis Pouchain, GP, CNGE, Paris
Armelle Richard, nurse specialising in therapeutic education, Rivarance Network, Dinard
Dr Pierre Sabouret, cardiologist, REACH, Paris
Prof. Jeannot Schmidt, A&E doctor, SFMU, Clermont-Ferrand
Dr Claude Sicil, GP, Carnoux en Provence
Florent Teboul, masseur-physiotherapist, Villeneuve St Denis
Prof. Daniel Thomas, cardiologist, smoking specialist, SFT
Dr Michel Varroud-Vial, diabetologist, UNR Santé
HAS Coordination - Pilot Programmes- Clinical Impact Department:

Dr Armelle Leperre-Desplanques, Head of Department; Dr Linda Banaei-Bouchareb, Lead Project Manager “Myocardial Infarction” Pilot Programme, Dr Carlos El-Khoury, Consultant “Myocardial Infarction”, Marie Erbault, Carole Micheneau, Dr Nathalie Riolacci, Deputy Head of Department.

The literature search and monitoring were carried out by Virginie Henry (Documentalist) and Renée Cardoso (Assistant Documentalist), with the participation of Mireille Cecchin (Documentalist) of the HAS’s Communication and Publications Department, in conjunction with the Lead Project Manager reporting on the topic of myocardial infarction, Linda Banaei-Bouchareb.
3. List of abbreviations

ACEI  Angiotensin converting enzyme inhibitor
ACS  Acute coronary syndrome
ACS ST+  Acute coronary syndrome with ST segment elevation
A&E  Accident and emergency department
ADLF  Association des Diététiciens de Langue Française [Association of French-Speaking Dieticians]
AFDN  Association Française des Diététiciens Nutritionnistes [French association of nutritional dieticians]
AFSSAPS  Agence Française de Sécurité Sanitaire des Produits de Santé [French Health Products Safety Agency]
ALFEDIAM  Association de Langue Française pour l'Etude du Diabète et des Maladies Métaboliques [French language association for the study of diabetes and metabolic diseases]
ANFIIDE  Association Nationale Française des Infirmières et Infirmiers Diplômés et Etudiants [French National Graduate and Student Nurses Association]
APP  Acute phase pathway
ARA II  Angiotensin receptor antagonist
BASA  Beta-blocker, Antiplatelet drugs or platelet aggregation inhibitor (aspirin and/or clopidogrel/prasugrel/ticagrelor), Statin, ACEI or ARAII
CARDIO-ARHIF  Registre de Cardiologie de l’Agence régionale d’hospitalisation d’Ile de France [Ile de France Regional Hospitalisation Agency Cardiology Registry]
CD  Cardiology department
CEPPRAL  Coordination Pour l’évaluation Des Pratiques Professionnelles en santé en Rhône-Alpes [Coordination for the evaluation of professional health practices in Rhône-Alpes]
CFMU  Collège Français de Médecine d’Urgence [French College of Emergency Medicine]
CHEM  Collège des Hautes Études en medicine [College of Higher Medical Studies]
CMG  Collège de la Médecine Générale [College of General Medicine]
CMRE  Chargés de Mission Régionaux pour l’Evaluation [Regional Project Leaders for Evaluation]
CNCF  Collège National des Cardiologues Français [French National College of Cardiologists]
CNCH  Collège National des Cardiologues Hospitaliers [French National College of Hospital Cardiologists]
CNGE  Collège National des Généralistes Enseignants [French National College of Generalist Teachers]
CNOMK  Conseil National de l’Ordre des Masseurs-Kinésitherapeutes [National Board of the Association of Masseurs and Physiotherapists]
CNPC  Conseil National Professionnel de Cardiologie [French National Council for the Cardiology Profession]
CNPEDMM  Conseil National Professionnel d’Endocrinologie, Diabète et Maladies Métaboliques [French National Professional Council for Endocrinology, Diabetes and Metabolic Diseases]
CO  Cardiologie ambulatoire [cardiology outpatients]
CPI  Clinical Practice Indicator
CR  Cardiovascular rehabilitation
DDE  Department of diabetology and endocrinology
DO  Diabétologie ambulatoire [diabetes outpatients]
DREES  Direction de la recherche, des études, de l’évaluation et des statistiques [Directorate for Research, Surveys, Assessment and Statistics]
E MUST  Evaluation en Médecine d’urgence des stratégies thérapeutiques de l’infarctus du myocarde [Evaluation in emergency medicine of therapeutic strategies for myocardial infarction]
FMC No.1  Association Formation Médicale Continue n°1 [Association for continuous medical training No. 1]
FNMF  Fédération Nationale de la Mutualité Française [French National Federation of Mutual Companies]
GP  General Practitioner
HCSP  Haut Conseil de la Santé Publique [French High Council for Public Health]
IC  Interventional Cardiology
INPES  Institut National de Prévention et d’Education pour la Santé – [National Prevention and Health Education Institute]
INVES  Institut de Veille Sanitaire [Health Monitoring Institute]
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRDES</td>
<td>Institut de Recherche et Documentation en Economie de la Sante</td>
</tr>
<tr>
<td>LBBB</td>
<td>Left bundle branch block</td>
</tr>
<tr>
<td>LORFOMEC</td>
<td>Fédération Lorraine des Associations de Formation Médicale Continue</td>
</tr>
<tr>
<td>MI</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>ORBI</td>
<td>Observatoire Régional Breton sur l'Infarctus du Myocarde</td>
</tr>
<tr>
<td>OSCAR+</td>
<td>Observatoire du Syndrome Coronarien Aigu du réseau RESCUe</td>
</tr>
<tr>
<td>Pathway</td>
<td>Patient’s care pathway in the health system</td>
</tr>
<tr>
<td>PMP</td>
<td>Paramedical professionals</td>
</tr>
<tr>
<td>PPE</td>
<td>Évaluation des Pratiques Professionnelles</td>
</tr>
<tr>
<td>RCFC</td>
<td>Registre du réseau de cardiologie de Franche Comté</td>
</tr>
<tr>
<td>REACH</td>
<td>Reduction of Atherothrombosis for Continued Health</td>
</tr>
<tr>
<td>REGLOR-SCA ST+</td>
<td>REGistre LORain des Syndromes Coronariens Aigus avec surélévation du segment ST</td>
</tr>
<tr>
<td>RENAU</td>
<td>RÉseau Nord Alpin des Urgences</td>
</tr>
<tr>
<td>RESCA + 31</td>
<td>Recueil des SCA (Haute Garonne) [ACS Registry (Haute Garonne)]</td>
</tr>
<tr>
<td>RESCUe</td>
<td>RÉSeau Cardiologie Urgence (Rhône-Alpes)</td>
</tr>
<tr>
<td>RESURCOR</td>
<td>Réseau des Urgences Coronaires (Rhône-Alpes)</td>
</tr>
<tr>
<td>RICO</td>
<td>Registre des infarctus de Côte d’Or [Côte d’Or infarct registry]</td>
</tr>
<tr>
<td>RSSMG</td>
<td>Regroupement des sociétés savantes de Médecine Générale</td>
</tr>
<tr>
<td>SAMU</td>
<td>Service d'Aide Médicale Urgente [Emergency Medical Assistance - EMA]</td>
</tr>
<tr>
<td>SFAR</td>
<td>Société Française d’Anesthésie et de Réanimation – [French Society of Anaesthesia and Intensive Care]</td>
</tr>
<tr>
<td>SFC</td>
<td>Société Française de Cardiologie</td>
</tr>
<tr>
<td>SFD</td>
<td>Société Française de Diabétologie – [French Language Diabetes Society]</td>
</tr>
<tr>
<td>SFDRMG</td>
<td>Société Française de Documentation et de Recherche en Médecine Générale</td>
</tr>
<tr>
<td>SFGG</td>
<td>Société Française de Gériatrie et Gériotologie – [French society for geriatrics and gerontology]</td>
</tr>
<tr>
<td>SFMG</td>
<td>Société française de médecine générale [French General Medical Society]</td>
</tr>
<tr>
<td>SFMU</td>
<td>Société française de médecine d’urgence [French Society for Emergency Medicine]</td>
</tr>
<tr>
<td>SFT</td>
<td>Société française de tabacologie [French society on Smoking Addiction]</td>
</tr>
<tr>
<td>SFTG</td>
<td>Société de formation thérapeutique du généraliste [Society for Therapeutic Education of General Practitioners]</td>
</tr>
<tr>
<td>SPI</td>
<td>Blood Systolic Pressure Index</td>
</tr>
<tr>
<td>SMUR</td>
<td>Service Mobile d’Urgence et de Réanimation [Mobile Emergency and Resuscitation service]</td>
</tr>
<tr>
<td>TA</td>
<td>Tabacologie ambulatoire [Outpatient smoking clinic/consultation]</td>
</tr>
<tr>
<td>UFCV</td>
<td>Union de Formation et d'évaluation en médecine Cardio-Vasculaire [Union for Training and Assessment in cardiovascular medicine]</td>
</tr>
<tr>
<td>UNAFORMEC</td>
<td>Union nationale des Associations de formation médicale continue [National union of associations for continuous medical training]</td>
</tr>
<tr>
<td>UNR Santé</td>
<td>Union Nationale des Réseaux de santé [National union of health networks]</td>
</tr>
<tr>
<td>URCET</td>
<td>Unité de Rééducation Cardiaque et d’Éducation Thérapeutique [Cardiac rehabilitation and therapeutic education unit]</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
4. Review of practices, priority objectives and list of indicators for each stage

Stage 1: From pain to reperfusion

REVIEW OF PRACTICES\textsuperscript{6,7}

- There is a significant improvement in the management of myocardial infarction in the acute phase, thanks to advances in treatments and to cooperation between emergency doctors and cardiologists.
- Calling the emergency medical assistance as soon as myocardial infarction is suspected enables the patient to enter the optimal care cycle.
- \(\frac{3}{4}\) of infarct patients benefit from an optimal care cycle (call to the emergency medical assistance – direct transfer to the interventional cardiology centre).
- Pain-relieving medication is insufficient in the acute phase.
- Particular attention should be paid to optimising the diagnosis, especially in elderly patients and in women.
- Set up of practices follow up (practice registries, observational studies, surveys, etc.) contributes to improving MI management with improved reperfusion rates.

PRIORITY OBJECTIVES

Any delay in diagnosis and treatment in the acute phase of a myocardial infarction is a loss of chance for the patient. What is needed therefore is to:

\(\Rightarrow\) ensure that patients enter the optimal care cycle by directly calling SAMU (emergency medical assistance)

\(\Rightarrow\) develop the follow-up of practices (surveys, practice registries, etc.) in order to measure and improve in particular reperfusion rates and times.

SHARED AND CONSENSUAL CLINICAL PRACTICE INDICATORS

<table>
<thead>
<tr>
<th>Shared and Consensual Clinical Practice Indicators</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rate of calls to the emergency medical assistance as a first step</td>
<td>APP, A&amp;E, IC, CD</td>
</tr>
<tr>
<td>2. Rate of appropriate treatment with platelet aggregation inhibitor</td>
<td>APP, SMUR, A&amp;E, IC</td>
</tr>
<tr>
<td>3. Rate of treatment for intense pain with morphine derivatives</td>
<td>APP, SMUR, A&amp;E, IC</td>
</tr>
<tr>
<td>4. Rate of patients being referred directly to ICC</td>
<td>APP, SMUR, SAMU, A&amp;E</td>
</tr>
<tr>
<td>5. Rate of patients undergoing a reperfusion strategy</td>
<td>APP</td>
</tr>
<tr>
<td>6. Time to angioplasty</td>
<td>APP, IC</td>
</tr>
<tr>
<td>7. Time to thrombolysis</td>
<td>APP, SMUR, A&amp;E</td>
</tr>
</tbody>
</table>

It is proposed to perform an analysis of these indicators in sub-groups of women, elderly patients and elderly women to establish where practices are being carried out in these populations and to consider suitable professional actions.

Other indicators proposed for interpreting the results of the acute pathway and to help improve practices

<table>
<thead>
<tr>
<th>Other indicators proposed for interpreting the results of the acute pathway and to help improve practices</th>
<th>APP, CD, IC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, sex</td>
<td></td>
</tr>
<tr>
<td>Time “from onset of pain to making the call to emergency medical assistance as a first step” by the patient or by a third party caller</td>
<td>APP, CD, IC</td>
</tr>
<tr>
<td>Median time from onset of chest pain to 1st medical contact</td>
<td>APP, SMUR, SAMU, A&amp;E, IC</td>
</tr>
<tr>
<td>Median time for SAU recording - ECG of the ACS-ST+</td>
<td>A&amp;E</td>
</tr>
<tr>
<td>Median time for SAU recording - ECG of patients with chest pain</td>
<td>A&amp;E</td>
</tr>
<tr>
<td>Median length of stay in A&amp;E for cases of ST+ transferred for primary angioplasty</td>
<td>A&amp;E</td>
</tr>
<tr>
<td>Rate of patients regulated by SAMU but not medicalised</td>
<td>SAMU</td>
</tr>
<tr>
<td>Median time from calling SAMU to arrival of SMUR for ACS ST+</td>
<td>SAMU, SMUR</td>
</tr>
<tr>
<td>Median time from calling SAMU to arrival of SMUR for chest pain</td>
<td>SAMU, SMUR</td>
</tr>
<tr>
<td>Median time from arrival of SMUR to ECG for ACS ST+</td>
<td>SMUR</td>
</tr>
<tr>
<td>Rate of risk scores (Grace, EMMACE or SRI) recorded</td>
<td>APP, A&amp;E, IC, CD</td>
</tr>
</tbody>
</table>

\textsuperscript{6} Appendice III A. 3, B 13, C. 107, D. 149

\textsuperscript{7} Validation by Professional Consensus of the French National MI Task Force
Stage 2: From reperfusion to discharge from the healthcare establishment

REVIEW OF PRACTICES

- Drug prescribing in line with the most recent guidelines has improved considerably.
- Particular attention should be paid to optimising treatment, especially in elderly patients and in women who have had a myocardial infarction.
- The proportion of diabetic patients and smokers is significant, and the management of these risk factors represents a major prognostic challenge for these patients.
- Access to post-infarction cardiovascular rehabilitation programmes is inadequate.

PRIORITY OBJECTIVES

- Optimise BASA drug treatment, especially in elderly patients and in women
- Ensure early attention is given to smokers and diabetics in conjunction with the GP (interface between primary care and hospital)
- Optimise access to a programme of cardiovascular rehabilitation
- Develop the follow-up of clinical practices and the collection of shared indicators.

SHARED AND CONSENSUAL CLINICAL PRACTICE INDICATORS

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Rate of patients evaluated for left ventricular function</td>
<td>CD</td>
</tr>
<tr>
<td>9. Rate of patients with appropriate prescription of beta-blockers on discharge</td>
<td>CD, CR</td>
</tr>
<tr>
<td>10. Rate of patients with appropriate prescription of platelet aggregation inhibitors on discharge</td>
<td>CD, CR</td>
</tr>
<tr>
<td>11. Rate of patients with appropriate prescription of statin on discharge</td>
<td>CD, CR</td>
</tr>
<tr>
<td>12. Rate of patients with appropriate prescription of ACEIs on discharge</td>
<td>CD, CR</td>
</tr>
<tr>
<td>13. Rate of patients prescribed cardiovascular rehabilitation</td>
<td>CD, CR, GP, CO</td>
</tr>
<tr>
<td>14. Rate of patients assisted with smoking cessation</td>
<td>CD, CR, GP, CO, TA</td>
</tr>
<tr>
<td>15. Rate of patients receiving specialist diabetes advice on severe hyperglycaemia</td>
<td>CD, DDE, CR, DO, CO, GP</td>
</tr>
</tbody>
</table>

It is proposed to perform an analysis of these indicators in subgroups of women, elderly patients and elderly women to establish where practices are being carried out in these populations and to consider suitable professional actions.

Other indicators proposed for interpreting the results post-infarction and to help improve practices

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of patients in whom therapeutic education (TPE) measures were implemented (by whatever methods and whatever the location: cardiovascular rehabilitation programmes, educational programmes, consultations/sessions or workshops on therapeutic education or secondary prevention or compliance support, diabetes consultation, smoking cessation assistance/consultation, dietary consultation, etc.)</td>
<td>CR, GP, CO, PMP, TA, DO</td>
</tr>
<tr>
<td>Rate of authorised TPE programmes implemented</td>
<td>CR, GP, CO, PMP, TA, DO</td>
</tr>
</tbody>
</table>

Criteria for the proper organisation of the cardiology department drawn up by professionals help improve the care cycle:

- Protocol for cooperation between the cardiology department and the department of endocrinology and diabetology
- Clinical protocol for the screening and management of blood glucose anomalies in the acute phase
- Clinical protocol for the management of diabetic coronary disease patients
- Clinical protocol for the management of coronary disease patients who smoke

8 Appendix III A, 3, C. 108, D. 149, 153
7 Validation by Professional Consensus of the French National MI Task Force
Stage 3: Post-infarction follow-up at 1 year

REVIEW OF PRACTICES9,7
- The control of cardiovascular risk factors is inadequate
- Post-infarction cardiovascular rehabilitation and therapeutic education programmes make an effective contribution to the reduction of recurrences and deaths and to improving quality of life.
- Myocardial infarction BASA treatment some time after discharge can be optimised
- 30-day mortality has fallen by 60% in 15 years
- It should be possible to reduce 1st-year post-myocardial infarction mortality even further.

PRIORITY OBJECTIVES FOR IMPROVING PROFESSIONAL PRACTICES
- Improve and evaluate the control of the risk factors in post-infarction patients
- Optimise the patient's overall care cycle in conjunction with his/her primary care doctor: drug treatment, non-drug treatment and patient education
- Develop the follow-up of clinical practices and the collection of shared indicators.

SHARED AND CONSENSUAL CLINICAL PRACTICE INDICATORS – DATA SOURCES

<table>
<thead>
<tr>
<th>Short-term follow-up</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Rate of patients receiving information on using the emergency medical assistance</td>
<td>CR, GP, PMP, CO</td>
</tr>
<tr>
<td>17. Rate of patients investigated for chest pain and/or the use of nitrates</td>
<td>GP, PMP, CO</td>
</tr>
<tr>
<td>18. Rate of patients undergoing cardiovascular rehabilitation programmes</td>
<td>CR, CO, GP</td>
</tr>
<tr>
<td>19. Rate of patients whose blood pressure was monitored</td>
<td>CR, GP, PMP, CO</td>
</tr>
<tr>
<td>20. Rate of patients evaluated for tolerance to BASA treatment</td>
<td>GP, PMP, CO</td>
</tr>
<tr>
<td>21. Rate of patients receiving information about the need for regular physical exercise</td>
<td>CR, GP, PMP, CO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medium-term follow-up (3-6 months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. Rate of patients monitored for active tobacco use</td>
</tr>
<tr>
<td>23. Rate of patients having a lipid and blood glucose assessment</td>
</tr>
<tr>
<td>24. Rate of patients having their weight monitored</td>
</tr>
<tr>
<td>25. Rate of patients having their physical exercise monitored</td>
</tr>
<tr>
<td>26. Rate of patients examined for peripheral artery occlusion disease (PAOD)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Follow-up at 1 year</th>
<th>Data sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>27. Rate of patients receiving appropriate beta-blocker treatment</td>
<td>CO, GP</td>
</tr>
<tr>
<td>28. Rate of patients receiving appropriate aspirin treatment</td>
<td>CO, GP</td>
</tr>
<tr>
<td>29. Rate of patients receiving appropriate treatment with platelet aggregation inhibitor apart from aspirin</td>
<td>CO, GP</td>
</tr>
<tr>
<td>30. Rate of patients receiving appropriate treatment with statin</td>
<td>CO, GP</td>
</tr>
<tr>
<td>31. Rate of patients receiving appropriate treatment with ACEI</td>
<td>CO, GP</td>
</tr>
<tr>
<td>32. Rate of patients having their diet monitored</td>
<td>CR, CO, GP, PMP</td>
</tr>
<tr>
<td>33. Rate of correspondence between the GP and the cardiologist at 1 year</td>
<td>CO, GP</td>
</tr>
</tbody>
</table>

30-day post-myocardial infarction mortality rate, optional | APP, CR, GP, CO |

9 Appendix III A. 3, C. 109, D. 149, 153
7 Validation by Professional Consensus of the French National MI Task Force
5. Proposed CPI benchmarks for assessing the clinical quality* of the myocardial infarction care cycle

**ACCESS:** CPI benchmarks
- entry into the optimal emergency pathway by calling the emergency call centre (1)
- direct referral to ICC (4)
- cardiovascular rehabilitation (18)

**RISK FACTORS**
Primary prevention

**EFFICACY – SAFETY:** CPI benchmarks
- reperfusion rates and times (5, 6, 7)
- appropriate BASIC prescription on discharge (9, 10, 11, 12)
- appropriate BASIC treatment at 1 year (28, 29, 30, 31, 32)

**IMPACT - MORBIDITY**
Assessment at 1 year

* The evaluation concerns the 3 ESA quality dimensions: Efficacy, Safety and Access
6. Fact sheets about clinical practice indicators

1. Rate of calls to the emergency medical assistance as a first step in the acute phase

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* patients for whom SAMU was contacted as a first step on the appearance of the symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of ACS ST+ or LBBB* patients with chest pains for less than 12 hours</td>
</tr>
</tbody>
</table>

Data  
APP – A&E – IC – CD  
For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification  
A prompt call to SAMU emergency medical assistance by the patient or by a third-party caller enables a patient suspected of presenting an acute coronary syndrome to benefit from the best care pathway in terms of speed of diagnosis and treatment, thus helping to reduce mortality. Entry into the care pathway occurs as soon as SAMU takes the call.

*Recent or presumed recent LBBB
2. Rate of appropriate treatment with platelet aggregation inhibitor

Appropriate prescription* of platelet aggregation inhibitor(s) in patients with ACS ST+ or LBBB**

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of ACS ST+ or LBBB** patients with</td>
<td>Total number of ACS ST+ or LBBB** patients</td>
</tr>
<tr>
<td>• aspirin and another platelet aggregation inhibitor*, or</td>
<td></td>
</tr>
<tr>
<td>• only one platelet aggregation inhibitor apart from aspirin, if a contraindication is noted in the medical file, or the patient is already on aspirin or was put on aspirin by the 1st medical contact, or</td>
<td></td>
</tr>
<tr>
<td>• aspirin alone if there is a contraindication to any other platelet aggregation inhibitor (in particular an unfavourable risk/benefit ratio noted in the medical file), or</td>
<td></td>
</tr>
<tr>
<td>• no platelet aggregation inhibitor with contraindications noted in the medical file or patient refusal noted in the file</td>
<td></td>
</tr>
</tbody>
</table>

Data

APP – SMUR – A&E – IC – CD

For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification

The use of platelet aggregation inhibitor(s) reduces mortality due to myocardial infarction.

Clopidogrel or Prasugrel or Ticagrelor are currently the platelet aggregation inhibitors used in combination with aspirin in the absence of any contraindications. There are calls for other platelet aggregation inhibitors validated in this indication to be placed on the market.

*This indicator has been validated by professional consensus of the French national MI Task Force*

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 18, 21, 31, 35, 37, 40, 49, 53
C. Indicators: 95, 107, 110, 112, 113, 114, 115, 117
D. Other: 129, 152, 175, 168

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription means there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
** Recent or presumed recent LBBB
### 3. Rate of treatment with morphine derivatives for intense pain

Rate of ACS ST+ or LBBB* patients with persistent pain and VAS ≥ 60 mm or NS ≥ 6 treated with morphine derivatives

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* patients with persistent intense chest pain (VAS ≥ 60 mm or NS ≥ 6) treated with morphine derivatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of ACS ST+ or LBBB* patients with persistent intense chest pain (VAS ≥ 60 mm or NS ≥ 6)</td>
</tr>
</tbody>
</table>
| Data | APP – SMUR – A&E – IC – CD  
For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).  
This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector. |
| Justification | Management of pain in the acute phase of an ACS ST+ or LBBB is essential from an ethical point of view, also because pain is associated with sympathetic activation, which produces vasoconstriction and increases the cardiac workload. Immediate recourse to titrated intravenous morphine derivatives is justified in cases of intense pain (VAS ≥ 60 mm or NS ≥ 6). |

This indicator has been validated by professional consensus of the French national MI Task Force

**Additional information**

Reference tools for the evaluation of pain in adults capable of communication are the visual analogue scale (VAS) and the numerical scale (NS), and when these cannot be used, the simple 5-point verbal scale.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 17, 28, 30, 37, 40
C. Indicators 103, 107
4. Rate of patients being referred directly to ICC

Rate of patients with ACS ST+ or LBBB* who have been referred directly to an interventional cardiology centre with available technical resources

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* (with chest pain less than 12 hours old) referred directly to a ICC with available technical resources for angioplasty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of ACS ST+ or LBBB* patients with chest pains for less than 12 hours</td>
</tr>
</tbody>
</table>

Data

APP – SMUR – SAMU – A&E

For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audit of patient files in each sector.

Justification

All patients with ACS ST+ or LBBB need to have an emergency coronary thrombectomy. Therefore they need to be sent as soon as possible to an interventional cardiology centre for a diagnostic and interventional coronary angiography, irrespective of whether the thrombolysis had been performed or not. In particular, this indicator enables the optimal care path to be evaluated (call to SAMU – SMUR – direct transfer to ICC).

This indicator has been validated by professional consensus of the French national MI Task Force

Références bibliographiques (Annexe III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 17, 37, 40
C. Indicators: 107, 115
D. Other: 126, 159

* Recent or presumed recent LBBB
### 5. Rate of patients undergoing a reperfusion strategy in the acute phase

Rate of patients with ACS ST+ or LBBB* patients taken into the care cycle within 12 hours following the start of symptoms and receiving early coronary reperfusion therapy

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* patients receiving coronary reperfusion therapy (angioplasty or thrombolysis) within 12 hours following the start of symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of ACS ST+ or LBBB* patients taken into the care cycle within 12 hours following the start of symptoms</td>
</tr>
</tbody>
</table>

**Exclusion criteria:**
- Contraindications and non-indications to the reperfusion techniques **justified** in the medical file
- Patient refusal

**Data**

**APP –**

For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

**Justification**

The advantage in terms of mortality and morbidity of early reperfusion (by angioplasty or thrombolysis) in patients with ACS ST+ is currently acknowledged unanimously. Any patient admitted to the care cycle within 12 hours after the start of symptoms should be given coronary reperfusion therapy, either by angioplasty or by thrombolysis.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Bibliographic references (Appendix III)**

A. **Method:** 1, 2, 3, 4, 5, 6, 7, 8
B. **Guidelines:** 11, 17, 26, 29, 31, 37, 38, 40, 43
C. **Indicators:** 107, 112, 113, 114, 115, 117

* Recent or presumed recent LBBB
6. **Time to primary angioplasty in the acute phase**

The median time from first medical contact to the first balloon inflation/first thromboaspiration for ACS ST+ or LBBB* patients who have had an angioplasty

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Time between first medical contact (FMC) and the time of the first balloon expansion or first thromboaspiration for patients who have had a primary angioplasty during the 12 hours following the start of the pain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusion criteria</td>
<td>postponement of the angioplasty for reasons documented in the medical file (temporary contraindication, patient refusal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>No denominator</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Data</th>
<th>APP – IC</th>
</tr>
</thead>
</table>
For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

<table>
<thead>
<tr>
<th>Justification</th>
<th>The advantage in terms of mortality and morbidity of early reperfusion (by angioplasty or thrombolysis) in patients with ACS ST+ is currently acknowledged unanimously.</th>
</tr>
</thead>
</table>

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

The FMC is the moment when the doctor first arrives at the point of care, enabling a qualifying ECG to be carried out and, if indicated, the administration of reperfusion therapy. The time when the qualifying ECG is carried out and the time when the first device for reopening the artery is introduced should be noted by the cardiologists, in addition to the time of the puncture usually collected (currently used techniques: balloon, thromboaspiration, direct stenting). It is nevertheless advisable to make a note of the following times: start of pain, arrival on site – first medical contact, qualifying ECG, arrival on the catheterisation ward.

Primary angioplasty should be carried out:

- if the time between the start of pain and the first medical contact is less than 2 hours and the time from FMC to balloon inflation/thromboaspiration is estimated at < 90 minutes
- if the time between the start of pain and the first medical contact is more than 2 hours and the time from FMC to balloon inflation/thromboaspiration is estimated at < 120 minutes

In all other cases, thrombolysis is recommended.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 17, 26, 29, 31, 37, 38, 40, 43, 49  
C. Indicators: 70, 91, 92, 107, 112, 113, 114, 115, 117

* Recent or presumed recent LBBB
### 7. Time to thrombolysis in the acute phase

Median time from first medical contact to thrombolysis for patients ACS ST+ or LBBB* thrombolysed

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Time from first medical contact (FMC) and the thrombolytic agent injection for patients having had thrombolysis within 12 hours of the start of pain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusion criteria:</td>
<td>postponement of the thrombolysis for reasons documented in the medical file (temporary contraindication, patient refusal)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>No denominator</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Data</th>
<th>APP – SMUR – A&amp;E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For it to be capable of being interpreted at geographical area level, this indicator should cover patients taken into the care cycle by SAMU as well as those brought in by the emergency services or even those coming directly into cardiology (APP).</td>
</tr>
<tr>
<td></td>
<td>This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.</td>
</tr>
</tbody>
</table>

| Justification | The advantage in terms of mortality and morbidity of early reperfusion (by angioplasty or thrombolysis) in patients with ACS ST+ is currently acknowledged unanimously. |

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

The FMC is the moment when the doctor first arrives at the point of care, enabling a qualifying ECG to be carried out and, if indicated, the administration of reperfusion therapy. The thrombolysis may be performed either in hospital or outside.

The thrombolysis should be performed by an experienced team within less than 30 minutes after the first medical contact.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 17, 26, 29, 37, 38, 40, 43, 49
C. Indicators: 69, 90, 107, 112, 113, 114, 115, 117

* Recent or presumed recent LBBB
8. **Rate of patients evaluated for left ventricular function while hospitalised**

Rate of ACS ST+ or LBBB* patients having their left ventricular function assessed while hospitalised

<table>
<thead>
<tr>
<th>Numerator</th>
<th>ACS ST+ or LBBB* patients having their left ventricular function evaluated by echography, angiography or scintigraphy during their hospitalisation, recorded in the medical file.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of ACS ST+ or LBBB patients*</td>
</tr>
<tr>
<td>Data</td>
<td>CD – CR</td>
</tr>
<tr>
<td>Justification</td>
<td>Evaluation of left ventricular function is recommended with all infarctions as it determines the treatment and the prognosis. If there is any left ventricular dysfunction, this will need to be re-evaluated later.</td>
</tr>
</tbody>
</table>

*Recent or presumed recent LBBB*
9. Rate of patients with appropriate prescription for beta-blockers on discharge

Rate of ACS ST+ or LBBB* patients with appropriate** prescription for beta-blockers on discharge

Numerator  Number of ACS ST+ or LBBB* patients
- with a prescription for beta-blockers on discharge, or
- without a prescription for beta-blockers, with a contraindication recorded in the medical file
- without a prescription for beta-blockers, with a documented intolerance and a prescription for ivabradine
- or patient refusal recorded in the medical file

Denominator  Number of ACS ST+ or LBBB* patients

Data  CD – CR
This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification  Treatment with Beta-blockers reduces the mortality from myocardial infarction.

This indicator has been validated by professional consensus of the French national MI Task Force

Bibliographic references (Appendix III)
A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 9, 10, 17, 37, 38, 41

* Recent or presumed recent LBBB
** “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription means there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
10. Rate of patients with appropriate prescription for platelet aggregation inhibitors on discharge

Rate of ACS ST+ or LBBB* patients with appropriate** prescription for aspirin and/or another platelet aggregation inhibitor on discharge

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* patients with, on discharge,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• aspirin and another platelet aggregation inhibitor*, or</td>
</tr>
<tr>
<td></td>
<td>• only one platelet aggregation inhibitor apart from aspirin if a</td>
</tr>
<tr>
<td></td>
<td>contraindication to aspirin is recorded in the medical notes, or</td>
</tr>
<tr>
<td></td>
<td>• aspirin alone, if there is a contraindication to any other platelet</td>
</tr>
<tr>
<td></td>
<td>aggregation inhibitor (in particular an unfavourable risk/benefit ratio noted in the</td>
</tr>
<tr>
<td></td>
<td>medical file), or</td>
</tr>
<tr>
<td></td>
<td>• no platelet aggregation inhibitor with contraindications or patient refusal</td>
</tr>
<tr>
<td></td>
<td>recorded in the file</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Total number of ACS ST+ or LBBB* patients</th>
</tr>
</thead>
</table>

Data  CD – CR

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification  Taking this combination of treatments reduces the mortality from myocardial infarction.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information  Clopidogrel or prasugrel or ticagrelor are currently the platelet aggregation inhibitors recommended in combination with aspirin in the absence of any contraindications. There is a call for other platelet aggregation inhibitors validated in this indication to be placed on the market.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 18, 21, 31, 35, 37, 38, 49, 53
D. Other: 120, 152

** “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription means there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
* Recent or presumed recent LBBB
### 11. Rate of patients with appropriate prescription for statin on discharge

Rate of ACS ST+ or LBBB\(^*\) patients with appropriate** prescription for a statin on discharge

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB(^*) patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• with a prescription on discharge comprising a statin</td>
</tr>
<tr>
<td></td>
<td>• without a prescription for a statin but with a contraindication or patient refusal recorded in the medical file</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of ACS ST+ or LBBB(^*) patients</th>
</tr>
</thead>
</table>

**Data**

CD – CR
This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

**Justification**

Taking a statin reduces the risk of mortality and recurrences in patients who have had a myocardial infarction.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

Target objective in cases of dyslipidaemia: LDL-cholesterol < 1 g/l.
Serious adverse events are uncommon (< 1%), consisting essentially of rhabdomyolysis and myalgia, elevated levels of transaminases (ASAT and ALAT) and CPK. Checking the transaminase levels is vital at least once during the three months following the start of the treatment. If the initial determination of the CPK level before the commencement of treatment is not scientifically justified (except in certain at-risk situations), any unexplained muscle symptom appearing during treatment should lead to a CPK determination. This monitoring applies to fibrates, statins and ezetimibe, either alone or in combination with statins.

**Bibliographic references (Appendix III)**

- **A. Method:** 1, 2, 3, 4, 5, 6, 7, 8
- **B. Guidelines:** 10, 14, 17, 37, 38, 41, 44, 57
- **C. Indicators:** 74, 99, 100, 108, 112, 113, 114, 115, 116, 117

---

\(^*\) Recent or presumed recent LBBB

\(^**\) “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription means there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
12. **Rate of patients with appropriate prescription of angiotensin converting enzyme inhibitor on discharge**

Rate of ACS ST+ or LBBB* patients, with appropriate** prescription for ACEI or ARA-II

| Numerator | Number of ACS ST+ or LBBB* patients with altered left ventricular function  
|           | - with a prescription for an angiotensin converting enzyme inhibitor or ARA-II if there is a contraindication to ACEIs (do not accept as a contraindication moderate renal insufficiency, i.e. a creatinine clearance > 30 ml/min)  
|           | - without a prescription for an angiotensin converting enzyme inhibitor or ARA-II but with a contraindication to ACEIs and ARA-II, OR a patient refusal recorded in the medical file (do not accept as a contraindication moderate renal insufficiency, i.e. a creatinine clearance > 30 ml/min) |
| Denominator | Number of ACS ST+ or LBBB* patients with altered left ventricular function |

Data  
CD – CR  
This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector

Justification  
Taking this treatment reduces serious cardiovascular events and mortality due to myocardial infarction, including in patients with altered left ventricular function.

*This indicator has been validated by professional consensus of the French national MI Task Force*

Additional information  
Aspects of monitoring treatment with ACEIs: blood potassium and blood creatinine/creatinine clearance

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 10, 17, 37, 38, 49  

* Recent or presumed recent LBBB  
** "Appropriate" prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription means there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
### 13. Rate of patients prescribed cardiovascular rehabilitation

**Rate of MI patients* prescribed cardiovascular rehabilitation following a myocardial infarction**

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of MI patients*:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with a prescription for cardiovascular rehabilitation</td>
</tr>
<tr>
<td></td>
<td>without a prescription, with a documented contraindication or patient refusal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of MI* patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>* ACS with ST+ or LBBB and non-ST+ ACS</td>
</tr>
</tbody>
</table>

**Data**

- CD – CR
- CO, GP: First consultation with primary care doctor

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

This good practice indicator may be collected in a healthcare establishment or in the short term during post-infarction follow-up by the care team at the healthcare establishment, by the cardiologist, or by the primary care doctor; each discipline selects indicators pragmatically from among all the indicators with a view to improving their practice.

**Justification**

Post-infarction cardiovascular rehabilitation improves the patient’s quality of life and in the medium term results in a 26% reduction in cardiovascular mortality and a 20% reduction in mortality from all causes.

A cardiovascular rehabilitation programme ensures patients access: to an exercise training programme, to therapeutic optimisation, to multidisciplinary therapeutic education and to the monitoring of risk factors. This full care cycle takes account of the patient’s mental state and his/her personal, social and family concerns.

This indicator has been validated by professional consensus of the French national MI Task Force

**Additional information**

A cardiovascular rehabilitation programme is currently recommended with a high level of proof for all patients after an acute coronary syndrome (Guidelines GERS-SFC, 2011)

In practice, it is necessary to check that the risk has been stratified before entering the patient in an exercise training programme. In the absence of any complications, a stress evaluation under treatment, limited by the symptoms, may be carried out 5 to 7 days after the heart attack, while the maximal test, without treatment, requires a wait of 4 weeks.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 17, 19, 22, 23, 37, 48, 52, 55
C. Indicators: 82, 86
D. Other: 126, 134, 153, 156, 173
14. **Rate of patients assisted with smoking cessation**

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Rate of MI* patients who smoke offered assistance with smoking cessation following an MI:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- smoking cessation prescribed AND appropriate prescription for nicotine replacements</td>
</tr>
<tr>
<td></td>
<td>- OR patient refusal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of MI* patients who are smokers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*ACS with ST+ or LBBB, non-ST+ ACS</td>
</tr>
</tbody>
</table>

**Data**

- CD – CR
- GP1, CO: First consultation with the GP or cardiologist
- TA: consultation with the smoking cessation outpatients clinic

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator may be collected in the relevant healthcare establishment or during the post-infarction follow-up in the short term, by the care team in the healthcare establishment, by the cardiologist, by the smoking cessation adviser and by the primary care doctor; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

**Justification**

Total and final cessation of the use of tobacco in all its forms decreases the risk of a recurrence of myocardial infarction and mortality, with the best cost/benefit ratio in cardiovascular prevention.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

Following an acute coronary syndrome, management of the process of quitting the use of tobacco should start as early as in the Coronary Intensive Care Unit. All patients who are smokers will be given information about the risks associated with tobacco use (cardiovascular risks in particular) and the expected benefits that come with quitting, and assistance with quitting tobacco use will be offered:

- Firstly, in dependent patients: nicotine replacements\(^1\) in the immediate aftermath of an ACS (patch, chewing-gum, lozenges, inhaler, chewing-tablets).

In practice, in the absence of specific guidelines and targeted studies on adapting treatment, the initial dose of nicotine to be prescribed is assessed on the basis of the daily cigarette consumption, with in practice 1 mg of nicotine/cigarette.

- Secondly: other type of medicinal aid to smoking cessation (bupropion LP, varenicline);\(^2\)

- Complementary treatments if necessary: behavioural and cognitive therapies, anxiolytic and/or antidepressant treatments.

Comprehensive customised drug and non-drug monitoring in conjunction with the primary care doctor should be organised.

\(^1\) Flat-rate provision in accordance with the National Health Insurance list. [http://www.ameli.fr/professionnels-de-sante/medecins/exercer-au-quotidien/prescriptions/substituts-nicotiniques.php](http://www.ameli.fr/professionnels-de-sante/medecins/exercer-au-quotidien/prescriptions/substituts-nicotiniques.php)

\(^2\) bupropion LP, varenicline are medicinal products placed on the watchlist on 04 May 2011 [http://sante-medecine.commentcamarche.net/faq/5225-la-liste-des-77-medicaments-mis-sous-surveillance-par-l-aflssaps; bupropion does not qualify for National Health Insurance reimbursement](http://sante-medecine.commentcamarche.net/faq/5225-la-liste-des-77-medicaments-mis-sous-surveillance-par-l-aflssaps; bupropion does not qualify for National Health Insurance reimbursement)

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 22, 36, 37, 41, 42, 45, 50, 52, 61, 62
C. Indicators: 96, 98, 99, 112, 113, 114, 115, 117
D. Other: 124, 153, 161
**15. Rate of patients receiving specialist diabetes advice on severe hyperglycaemia**

Rate of MI patients* with severe hyperglycaemia (blood sugar > 180 mg/dl or 10.0 mmol/l - HbA1c ≥ 8%) receiving specialist diabetes advice following an MI

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Rate of MI patients* with severe hyperglycaemia (blood sugar &gt; 180 mg/dl or 10.0 mmol/l – HbA1c ≥ 8%) for whom specialist diabetes advice is requested OR where the patient refuses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of MI* patients with severe hyperglycaemia (HbA1c ≥ 8%) *ACS with ST+ or LBBB, non-ST+ ACS</td>
</tr>
</tbody>
</table>
| Data | CD – DDE – CR  
GP – CO: First consultation with the primary care doctor or cardiologist  
DA: consultation with the diabetes specialist |

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator may be collected in a healthcare establishment or, in the short term, during post-infarction follow-up by the care team at the healthcare establishment, by the cardiologist, by the diabetologist or by the primary care doctor; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

| Justification | Immediately following a myocardial infarction and in the longer term, monitoring of blood sugar levels is a major prognostic factor. |

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

In metropolitan France, the prevalence among adults aged between 18 and 74 years of fasting hyperglycaemia and/or antidiabetic treatments (oral or insulin) is 4.7%, of which 1.3% are not treated with antidiabetics. A major increase in the prevalence of treated diabetes estimated at +5.7% per year was reported between 2000 and 2005, with an increase in geographical disparities in prevalence. Diabetic patients (known or discovered) should be subject to suitable drug and non-drug follow-up in conjunction with the primary care doctor.

Very unbalanced diabetes (blood sugar > 180 mg/dl or 10.0 mmol/l – HbA1c ≥ 8%), is one of those clinical situations for which recourse to advice from a diabetes specialist is recommended (Consensus SFD-SFC, 2011).

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 20, 22, 23, 24, 25, 52, 61, 62, 67  
C. Indicators: 72  
D. Other: 133, 153, 172
### 16. Rate of patients receiving information on using the emergency medical assistance

Rate of post-infarction patients* receiving information about the signs suggestive of a myocardial infarction (recurrence) and about the need to call SAMU (the emergency medical assistance) if these signs appear

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* informed about the signs suggestive of a myocardial infarction and of the need to call SAMU (emergency medical assistance) in the event of these signs occurring, making a note in the medical file.</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
* ACS with ST+ or LBBB and non-ST+ ACS |
| Data | GP: First consultation with primary care doctor  
CA, PMP: cardiologist and/or paramedical professionals attending to the patient in the first year post-infarction  
CR: cardiovascular rehabilitation  
This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.  
This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor and by the cardiologist; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice. |
| Justification | The call to SAMU (emergency medical assistance) ensures that the patient enters the best care pathway in terms of speed of diagnosis and treatment, thus helping to reduce mortality. |

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**  
The post-infarction patient (and ideally his/her family and friends) should be given information/training, by whatever means and in whatever location, on recognising the signs suggestive of a recurrence and the need to call SAMU (emergency medical assistance) in the event that these signs occur. This information/training forms part of the comprehensive drug and non-drug care cycle.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 38, 39, 40, 52, 61, 62, 65  
C: Indicators: 98, 109, 115  
D. Other: 153
17. Rate of post-infarction patients investigated for chest pain and/or the use of nitrates

Rate of post-infarction patients* having their medical history taken to detect any occurrence, since leaving the healthcare establishment, of chest pain(s) and/or the use of glyceryl trinitrate or nitrate derivatives

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* having their medical history taken to detect any occurrence, since leaving the healthcare establishment, of chest pain(s) and/or the use of glyceryl trinitrate or nitrate derivatives and noted in the medical file</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
* ACS with ST+ or LBBB and non-ST+ ACS |

Data
GP: First consultation with primary care doctor  
CO, PMP: cardiologist and/or paramedical personnel attending to the patient in the first year post-infarction  
CR: cardiovascular rehabilitation

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

Justification
The occurrence of chest pain(s), whether or not they necessitated the use of nitrate derivatives, should be routinely investigated as they could be indicative of an insufficiency or a failure of treatment compliance or the possible recurrence of an acute coronary syndrome (ischaemia).

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information
The post-infarction patient (and ideally his family and friends) should be given information/training, by whatever means and in whatever location, on recognising the signs suggestive of a recurrence, as well as how to react appropriately in the event that these signs occur. This information/training forms part of the comprehensive drug and non-drug care path.

Bibliographic references (Appendix III)
A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 19, 28, 37, 52, 61, 62, 65  
C: Indicators: 103, 109  
D. Other: 153
### 18. Rate of post-infarction patients undergoing cardiovascular rehabilitation programmes

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* who have undergone a cardiovascular rehabilitation programme while hospitalised or as an outpatient</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
*ACS with ST+ or LBBB, non-ST+ ACS |

#### Data
- CR: cardiovascular rehabilitation
- CO – GP: First or second consultation with the cardiologist and/or the GP

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the GP, the paramedical professional or by the cardiologist; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

#### Justification
Post-infarction cardiovascular rehabilitation allows 26% reduction in cardiovascular mortality and a 20% reduction in mortality from all causes. The cardiovascular rehabilitation programme ensures patients are afforded access: to a physical fitness programme, to therapeutic optimisation, to multidisciplinary therapeutic education and to the monitoring of risk factors. This full care cycle takes account of the patient’s mental state and his/her personal, social, family and job concerns and helps improve the patient’s quality of life.

*This indicator has been validated by professional consensus of the French national MI Task Force*

#### Additional information
A cardiovascular rehabilitation programme is currently recommended with a high level of proof for all patients after an acute coronary syndrome (Guidelines GERS-SFC, 2011)

In practice, it is necessary to check that the risk has been stratified before entering the patient in an exercise training programme. In the absence of any complications, a stress evaluation under treatment, limited by the symptoms, may be carried out 5 to 7 days after the heart attack, while the maximal test, without treatment, requires a wait of 4 weeks

#### Bibliographic references (Appendix III)
- A. Method: 1, 2, 3, 4, 5, 6, 7, 8
- B. Guidelines: 10, 17, 19, 22, 23, 37, 39, 48, 52, 55, 61, 62, 65
- C: Indicators: 68, 86, 82, 101, 109
- D. Other: 134, 139, 144, 146, 153, 168, 173, 176
19. Rate of patients whose blood pressure was monitored post-infarction

Rate of post-infarction patients* whose blood pressure was monitored at each consultation

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* whose blood pressure is measured and monitored at each consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of post-infarction patients*</td>
</tr>
<tr>
<td></td>
<td>*ACS with ST+ or LBBB, non-ST+ ACS</td>
</tr>
<tr>
<td>Data</td>
<td>GP: consultation with the GP during the year post-infarction</td>
</tr>
<tr>
<td></td>
<td>CO: consultation with the cardiologist</td>
</tr>
<tr>
<td></td>
<td>CR: cardiovascular rehabilitation</td>
</tr>
<tr>
<td></td>
<td>PMP: paramedical professionals involved in caring for the patient</td>
</tr>
</tbody>
</table>

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor, the cardiologist or the paramedical professionals; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

Justification Monitoring the blood pressure by way of secondary prevention helps reduce cardiovascular events and mortality.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

The treatment care path for cardiovascular risk depends on the GP, with the ability to call on the opinions of specialists (in particular cardiologists and endocrinologists). The blood pressure goal depends on the patient’s profile. The commonly accepted goal in France is an SBP < 140 mm Hg and a DBP < 90 mm Hg, and 135 mm Hg and DBP < 85 mm Hg with self-monitoring (national information campaign of January 2012, whose target between now and 2015 is that 70% of treated hypertensive patients will be controlled). A guide for healthcare professionals is available on the Internet (cf. Appendix III D. 135).

Achieving the target requires, in particular, that patients also make a contribution, and that it be set in the context of an overall drug and non-drug care cycle.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 9, 10, 27, 32, 33, 37, 38, 39, 41, 48, 52, 56, 61, 62, 65, 135
C. Indicators: 68, 72, 78, 98, 109, 116
D. Other: 135, 137, 153, 158, 128
### 20. Rate of post-infarction patients evaluated for tolerance to BASA treatment

Rate of post-infarction patients* assessed for tolerance to BASA treatment

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Rate of post-infarction patients* assessed for tolerance to BASA treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta-blockers, Antiplatelet drugs or platelet aggregation inhibitors (aspirin and/or clopidogrel, prasugrel, ticagrelor or another platelet aggregation inhibitor), Statins, ACEI or ARA-II</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of post-infarction patients*</th>
</tr>
</thead>
<tbody>
<tr>
<td>*ACS with ST+ or LBBB, non-ST+ ACS</td>
<td></td>
</tr>
</tbody>
</table>

Data

- GP: First GP consultation
- CR: cardiovascular rehabilitation
- CO +/- other medical professionals (geriatricians, etc.) involved in the care of the patient
- PMP: Paramedical professionals involved in caring for the patient

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor and by all medical and paramedical professionals caring for these patients; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

Justification

Poor tolerance and ignorance about the treatment are just some of the factors behind patients’ poor compliance that need to be investigated. Compliance is essential for the treatment to be effective. Achieving recommended treatment objectives should be seen in the context of an overall drug and non-drug care cycle.

This indicator has been validated by professional consensus of the French national MI Task Force

Bibilographic references (Appendix III)

- A. Method: 1, 2, 3, 4, 5, 6, 7, 8
- B. Guidelines: 16, 38, 39, 41, 46, 52, 61, 62, 65
- C. Indicators: 109, 116
- D. Other: 145, 153

Professional Consensus of the French National MI Task Force
### 21. Rate of patients receiving information about the need for regular post-infarction physical exercise

Rate of post-infarction patients* who have been informed about the need to engage in regular physical exercise at the first consultation

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* who have been given information about the need to take appropriate regular physical exercise (except in the case of documented inability to take exercise and comorbidities)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of post-infarction patients*</td>
</tr>
<tr>
<td></td>
<td>*ACS with ST+ or LBBB, non-ST+ ACS</td>
</tr>
</tbody>
</table>

**Data**

- GP: First GP consultation
- CR: Cardiovascular rehabilitation
- PMP: Paramedical professionals involved in caring for the patient
- CO: Consultation with the cardiologist in the first year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor, the cardiologist or the paramedical professionals; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

**Justification**

Immediately after the infarction, the patient should be informed and reassured about his capacity for resuming an active life. A sedentary existence is a known factor in recurrence. Engaging in 30 minutes’ moderate physical exercise a day, adjusted for the patient’s age and general condition, reduces the risk of recurrence and mortality.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

Achieving the target requires, in particular, that patients also make a contribution. It should be set in the context of an overall drug and non-drug care cycle.

**Bibliographic references (Appendix III)**

- A. Method: 1, 2, 3, 4, 5, 6, 7, 8
- B. Guidelines: 10, 22, 37, 38, 41, 42, 55, 61, 62, 65, 67
- C. Indicators: 68, 82, 109, 116
- D. Other: 153, 156
22. Rate of post-infarction patients monitored for active smoking

Rate of post-infarction patients* investigated for active smoking

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* investigated for active smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of post-infarction patients*</td>
</tr>
<tr>
<td>Data</td>
<td>CR: cardiovascular rehabilitation GP, CO: consultations with the primary care doctor in the first year post-infarction TA: outpatient consultation with the smoking cessation clinic PMP: paramedical professionals involved in the first year post-infarction</td>
</tr>
</tbody>
</table>

This collection can be prospective and continuous; practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the GP, the paramedical professional, the smoking cessation clinic or by the cardiologist; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

Justification  Quitting smoking completely and for good reduces mortality by 36% and recurrences at 5 years by 32%, with the best cost/benefit ratio in cardiovascular prevention.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

In France, around 20% (or 430/2392) of the patients are still smokers 18 months after an ACS, and this percentage has remained virtually unchanged since 1995. Patients who still smoked were encouraged to stop using tobacco and support measures will be offered to them routinely. They will be given information about the risks associated with smoking (cardiovascular risks in particular) and the expected benefits that come with quitting, and assistance with smoking cessation will be offered:
- recommended drug treatment (nicotine replacements:¹ patch, chewing-gum, lozenges, inhaler, chewing-tablets; other:² bupropion LP, varenicline).
- non-drug support measures, and in some cases specialist counselling.

¹ Flat-rate provision in accordance with the National Health Insurance list. http://www.ameli.fr/professionnels-de-sante/medecins/exercer-au-quotidien/prescriptions/substituts-nicotiniques.php
² Bupropion LP, varenicline are drug products placed on the watchlist on 04 May 2011 2011 http://sante-medecine.commentcamarche.net/faq/5225-la-liste-des-77-medicaments-mis-sous-surveillance-par-l-afssaps; bupropion does not qualify for National Health Insurance reimbursement

In practice, assessing the initial nicotine dose to prescribe may be simply determined from the daily number of cigarettes smoked: 1 mg of nicotine/cigarette. Nicotine replacement products will be adjusted depending on the efficacy of the treatment in terms of the reduction in the tobacco consumption, symptoms associated with quitting tobacco consumption and the patient’s tolerance/compliance.

Comprehensive post-infarction follow-up seeks to ensure that the patient has quit smoking for good and is protected from exposure to passive smoking, regularly monitoring his/her weight and waist circumference, and providing information and training on diet and physical exercise. There are tools available, such as: the study by Berlin et al. from 2011, and the AHRQ guidelines updated in 2009, based on the 2008 clinical practice guidelines.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 22, 36, 37, 38, 41, 45, 48, 50, 52, 59
C. Indicators: 68, 98, 109, 115, 116, 117
D. Other: 119, 121, 124, 128, 136, 153, 155, 167, 170
23. Rate of patients having a lipid and blood glucose assessment 3 to 6 months post-infarction

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* having their LDL-cholesterol and fasting blood-glucose (or HbA1c (glycosylated haemoglobin) in the case of diabetic patients) checked 3 to 6 months after discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of patients seen in consultation during the course of the year post-infarction*</td>
</tr>
</tbody>
</table>

*ACS with ST+ or LBBB, non-ST+ ACS

Data

GP, CA: consultations with the primary care doctor in the first year post-infarction

DA: consultation by the diabetes specialist in the first year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

Justification

In post-infarction patients it is important to monitor the metabolic risk factors (LDL-cholesterol level < 1 g/l and HbA1c < 7% in diabetics) and to screen for possible diabetes. An HbA1c (glycosylated haemoglobin) level < 7% in the years following a diagnosis of diabetes is currently acknowledged as being associated with a reduction in microvascular, neurological, as well as macrovascular complications.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

Screening relies on investigation for lipid abnormalities, which determines the concentrations of TC, TG, HDL-C and LDL-C. Dyslipidaemia is defined by: HDL-C < 0.40 g/l (1 mmol/l), LDL-C > 1.60 g/l (4.1 mmol/l), TG > 1.5 g/l (1.7 mmol/l). An LDL-C level < 1 g/l is recommended by way of secondary prevention.

The definition of diabetes currently accepted in France is that of the WHO. Published definitions:
- a blood sugar level higher than 1.26 g/l (7 mmol/l) after 8 hours‘ fasting (WHO and ADA 2010) and checked twice;
- or the presence of symptoms of diabetes (polyuria, polydypsia, weight loss) associated with a blood sugar level (in venous plasma) greater than or equal to 2 g/l (11.1 mmol/l) (WHO and ADA 2010);
- or a blood sugar level greater than or equal to 2 g/l (11.1 mmol/l) 2 hours after a 75 g glucose drink (criteria proposed by the WHO and ADA 2010).
- HbA1c ≥ 6.5% (ADA 2010, WHO 2011).

The target HbA1c in diabetics is customised according to age and the history of complications, to optimise the balance between the risk of developing complications in the future, the risk of severe hypoglycaemias, treatment constraints and the benefit of a quality of life that is acceptable to and by the patient. Post-infarction diabetes screening is carried out under stable conditions and in the context of the patient’s actual lifestyle and diet.

Achieving the target requires, in particular, that patients also make a contribution, and that it be set in the context of an overall drug and non-drug care cycle.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 14, 23, 24, 25, 37, 39, 44, 51, 52, 61, 62, 65
C. Indicators: 72, 80, 98, 109
D. Other: 169
24. Rate of patients having their weight monitored

Rate of post-myocardial infarction patients* whose weight is monitored

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-myocardial infarction patients* whose weight is measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of post-infarction patients*</td>
</tr>
<tr>
<td></td>
<td>*ACS with ST+ or LBBB, non-ST+ ACS</td>
</tr>
</tbody>
</table>

Data
- GP, CO: consultations with the primary care doctor in the first year post-infarction
- PMP: paramedical professionals involved in caring for the patient

This collection may be prospective and continuous (practice registries, databases, observational studies) or based on a snap sample (or retrospective in the case of a survey: auditing of medical files).

This good practice indicator is valid throughout the post-infarction follow-up by the GP, the cardiologist or the paramedical professionals; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

Rationale
- Any increase in body fat in the abdominal region increases the risk of developing other risk factors (hypertension, type 2 diabetes, dyslipidaemia), cardiovascular risk and mortality.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

Body weight should be measured regularly, at least three times in the post-infarction year. Height should be measured at the first consultation. The patient’s weight and height should be recorded in their medical file in order to calculate their BMI and monitor its development.

Definitions in adults: overweight: BMI ≥ 25 kg/m²; obesity ≥ 30 kg/m². If the BMI is between 25 and 35 kg/m², it is recommended to measure the waist, half-way between the last rib and the top of the iliac crest. A large waist circumference, ≥ 80 cm in women and ≥ 94 cm in men, is a risk factor for diabetes and cardiovascular disease, regardless of the BMI.

Recommended target in adults:
- overweight without any associated comorbidity or excessive waistline: avoid putting on additional weight
- overweight with associated comorbidities: lose weight
- obesity: weight loss by 5 to 15% at a rate of 1 to 2 kg per month; adjust by way of secondary prevention according to the patient’s age, comorbidities and choice.

The HAS has published practical leaflets on diet and physical exercise to help doctors provide guidance for their patients.

Achieving the target requires, in particular, that patients also make a contribution, and that it be seen as part of a comprehensive long-term care cycle, together with the primary care doctor.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 15, 38, 42, 52, 61, 62
C. Indicators: 79, 98
## 25. Rate of patients having their post-infarction physical activity monitored 3 to 6 months after discharge

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* whose physical activity is assessed 3 to 6 months after discharge (except in the case of documented incapacity for physical activity and comorbidities)</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
*ACS with ST+ or LBBB, non-ST+ ACS |

**Data**
- GP: consultation with the GP during the first year post-infarction
- CO: consultation with the cardiologist in the first year post-infarction
- PMP: paramedical professionals involved in caring for the patient
- CR: cardiovascular rehabilitation

This collection can be prospective and continuous: practice registries, databases, observational study or retrospective and targeted when carrying out a survey: audit of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor, the cardiologist or the paramedical professionals; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

### Justification
A sedentary lifestyle is a known factor in recurrence. Engaging in 30 minutes’ moderate physical exercise a day, adjusted for the patient’s age and general condition, reduces the risk of recurrence of ACS and mortality.

*This indicator has been validated by professional consensus of the French national MI Task Force*

### Additional information
Achieving the target requires, in particular, that patients also make a contribution. It should be set in the context of an overall drug and non-drug care cycle.

### Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 10, 22, 37, 38, 39, 41, 52, 55, 61, 62, 65, 67  
C: Indicators: 68, 86, 109, 116  
D. Other: 128, 168
# 26. Rate of post-infarction patients examined for peripheral artery occlusive disease (PAOD)

Rate of post-infarction patients* examined for peripheral artery occlusive disease by measuring their systolic pressure index (SPI)

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients* examined for peripheral artery occlusive disease by measurement of their SPI</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
*ACS with ST+ or LBBB, non-ST+ ACS |

**Data**

- GP, CO: consultations with the primary care doctor in the first year post-infarction
- CR: cardiovascular rehabilitation

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the primary care doctor and by all medical and/or paramedical professionals caring for these patients; each discipline selected indicators pragmatically from among all the indicators with a view to improving their practice.

**Justification**

Smoking is the primary risk factor for PAOD. Secondary prevention is useful and effective for reducing cardiovascular risk of a low SPI and for improving the patient’s quality of life. Measuring the SPI is simple and quick and may be performed either in hospital or on an outpatient basis. It should be done routinely in patients aged from 40-50 years, especially after a myocardial infarction and/or in the presence of cardiovascular risk factors.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

The history-taking interview (looking for antecedents of clinical manifestations of ischaemia occurring either on effort or at rest, episodes of acute ischaemia, amputation) and clinical examination (feeling the pulse, measuring the SPI) all make it possible to assess the stage of the PAOD.

The optimum care pathway for PAOD in post-infarction patients comprises: quitting smoking, prescribing statins to reduce the hypercholesterolaemia, antihypertensives for controlling the hypertension, including ACEI and ARA-II and platelet aggregation inhibitors, but also a balanced diet and a supervised physical rehabilitation and, ideally, therapeutic education.

The stages of PAOD defined in the ALD 2007 guide are:
- asymptomatic exercise ischaemia: SPI < 0.9 or lack of pulse with no clinical signs of ischaemia
- symptomatic exercise ischaemia: SPI < 0.9 or lack of pulse with clinical signs of ischaemia
- chronic permanent ischaemia: combination of decubitus pains or trophic disorders for at least two weeks, with an ankle systolic blood below 50 mm Hg or 30 mm Hg at the toe. This requires hospitalisation.

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 58, 63, 64
C. Indicators: 85
D. Other: 165
27. Rate of patients receiving appropriate beta-blocker treatment at 1 year

Rate of post-infarction patients receiving appropriate* beta-blocker treatment 1 year after discharge from the healthcare establishment

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients 1 year after discharge from the healthcare establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• with a prescription for beta-blocker, or</td>
</tr>
<tr>
<td></td>
<td>• without a prescription for beta-blocker, with a documented contraindication (arteritis, diabetes or left ventricular dysfunction not acceptable as contraindications)</td>
</tr>
<tr>
<td></td>
<td>• without a prescription for beta-blockers, with a documented intolerance and a prescription for ivabradine</td>
</tr>
<tr>
<td></td>
<td>• or patient refusal recorded in the medical file</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of patients surviving at 1 year post-infarction</th>
</tr>
</thead>
</table>

Data

GP: consultation with the GP at 1 year post-infarction
CO: consultation with the cardiologist at 1 year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification

Long-term beta-blocker treatment after myocardial infarction has shown a gain in terms of morbidity and mortality and should be continued. A review of the patient’s appropriate prescription in conjunction with the cardiologist is proposed to assess the risk-benefit analysis.

This indicator has been validated by professional consensus of the French national MI Task Force

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 16, 37, 38, 39, 41, 42, 48, 61, 62, 65
C. Indicators: 68, 77, 105, 109, 116
D. Other: 128, 174

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription where there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
28. Rate of patients receiving appropriate aspirin treatment at 1 year

Rate of post-infarction patients with appropriate* aspirin treatment 1 year after discharge from the healthcare establishment

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of post-infarction patients 1 year after discharge from the healthcare establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with a prescription for aspirin, or</td>
</tr>
<tr>
<td></td>
<td>without a prescription for aspirin, with a documented contraindication or patient refusal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Denominator</th>
<th>Number of patients surviving at 1 year post-infarction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>GP: consultation with the GP at 1 year post-infarction</td>
</tr>
<tr>
<td></td>
<td>CO: consultation with the cardiologist at 1 year post-infarction</td>
</tr>
</tbody>
</table>

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification

Long-term treatment with aspirin has shown a gain in terms of morbidity and mortality and should be continued for life.

This indicator has been validated by professional consensus of the French national MI Task Force

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 16, 22, 37, 38, 39, 41, 42, 48, 61, 62, 65
C. Indicators: 68, 76, 98, 104, 109
D. Other: 128, 174

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription where there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
29. Rate of patients receiving appropriate treatment with a platelet aggregation inhibitor (apart from aspirin) at 1 year

Rate of post-infarction patients receiving appropriate* treatment with a platelet aggregation inhibitor (apart from aspirin) 1 year after discharge from the healthcare establishment

Numerator

Number of post-infarction patients at 1 year after discharge from the healthcare establishment
- with a prescription and an indication for a platelet aggregation inhibitor (apart from aspirin),
- without a prescription for a platelet aggregation inhibitor (apart from aspirin), with a documented contraindication or patient refusal
- without a prescription for a platelet aggregation inhibitor (apart from aspirin), in the absence of an indication

Denominator

Number of patients surviving at 1 year post-infarction

Data

GP: consultations with the GP at 1 year post-infarction
CO: consultation with the cardiologist at 1 year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification

Reviewing the appropriate prescription for a platelet aggregation inhibitor makes it possible to assess, together with the cardiologist, the risk-benefit ratio of continuing the treatment beyond 1 year.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

Treatment with a platelet aggregation inhibitor (apart from aspirin) beyond one year is envisaged if an active stent has been placed. Clopidogrel or prasugrel or ticagrelor are currently the platelet aggregation inhibitors used in combination with aspirin in the absence of any contraindications. There are calls for other platelet aggregation inhibitors validated in this indication to be placed on the market.

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 16, 21, 31, 35, 37, 38, 39, 41, 42, 48, 61, 62, 65
C: Indicators: 68, 76, 104, 109, 110, 116
D. Other: 123, 128, 148, 166, 174

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription where there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
30. Rate of patients receiving appropriate statin treatment at 1 year

Rate of post-infarction patients with appropriate* statin treatment 1 year after discharge from the healthcare establishment

Numerator  Number of post-infarction patients 1 year after discharge from the healthcare establishment
- with a prescription comprising a statin
- without a prescription for statin but with a documented contraindication or patient refusal

Denominator  Number of patients surviving at one year post-infarction

Data  GP: consultation with the GP at 1 year post-infarction
     CO: consultation with the cardiologist at 1 year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

Justification  Taking a statin by way of secondary prevention reduces the risk of mortality and recurrences in patients who have had a myocardial infarction.

This indicator has been validated by professional consensus of the French national MI Task Force

Additional information

Target objective in cases of dyslipidaemia: LDL-cholesterol < 1 g/l.
Serious adverse events are uncommon (< 1%), consisting essentially of rhabdomyolysis and myalgia, elevated levels of transaminases (ASAT and ALAT) and CPK. Checking the transaminase levels is vital at least once during the three months following the start of the treatment. If the initial determination of the CPK level before the commencement of treatment is not scientifically justified (except in certain at-risk situations), any unexplained muscle symptom appearing during treatment should lead to a CPK determination. This monitoring applies to fibrates, statins and ezetimibe, either alone or in combination with statins.

Bibliographic references (Appendix III)
A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 16, 37, 38, 39, 41, 42, 44, 48, 57, 61, 62, 65
C: Indicators: 68, 98, 109, 116
D. Other: 128, 174

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription where there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
### 31. Rate of patients receiving appropriate treatment with a ACEI

Rate of post-infarction patients receiving appropriate* treatment with Angiotensin converting enzyme inhibitor or ARA-II

| Numerator | Number of post-infarction patients 1 year after discharge from the healthcare establishment
|           | ▪ with a prescription for an ACEI, or ARA-II if ACEIs are contraindicated
|           | ▪ without a prescription for either a ACEI or ARA-II, but with a documented contraindication to ACEIs and to ARA-II or a patient refusal
|           | ▪ moderate renal insufficiency, i.e. creatinine clearance > 30 ml/min, is not acceptable as a contraindication

| Denominator | Number of surviving patients at 1 year post-infarction with impairment of left ventricular function

| Data | GP: GP consultations in the first year post-infarction
|     | CO: consultation with the cardiologist in the first year post-infarction
|     | This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

| Justification | ACEI treatment reduces serious cardiovascular events and mortality due to myocardial infarction.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
B. Guidelines: 10, 16, 37, 38, 41, 42, 48, 61, 62, 65
C. Indicators: 68, 72, 75, 109, 116
D. Other: 128, 174

* “Appropriate” prescription refers to a prescription where there is a corresponding indication, and the lack of a prescription where there is a corresponding contraindication, or no indication or a refusal on the part of the patient.
**32. Rate of post-infarction patients having their diet monitored**

**Rate of post-infarction patients whose diet is followed up at least once during the post-infarction year**

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Rate of post-infarction patients whose diet is followed up at least once during the post-infarction year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of post-infarction patients</td>
</tr>
</tbody>
</table>

**Data**

CR: cardiovascular rehabilitation  
GP: consultation with the GP during the first year post-infarction  
CO: consultation with the cardiologist in the first year post-infarction  
PMP: dieticians and paramedical professionals involved in caring for the patient

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

This good practice indicator is valid throughout the post-infarction follow-up by the GP, the cardiologist and/or the paramedical professionals; each discipline or profession selected indicators pragmatically from among all the indicators with a view to improving their practice.

**Justification**

As secondary prevention, following rules regarding lifestyle and diet (balanced diet, quitting smoking, and physical exercise) improves the quality of life and reduces the risk of myocardial infarction recurring and mortality. The benefit to the patient starts in the first year of follow up and achieves a 22% reduction in mortality at 4.7 years. After the dietary assessment in the first year, an assessment every 1 or 2 years appears desirable to ensure that the recommended diet is being maintained.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Additional information**

Secondary prevention guidelines: limit the intake of saturated fatty acids; increase the consumption of omega 3 polyunsaturated fatty acids, increase the consumption of fruit and vegetables (fibre and natural micronutrients); limit dietary cholesterol with an omega 6/omega 3 ratio < 5 (ANC-Lipides 2010 – French recommended daily allowances), reduce salt consumption (< 6 g/day, PNNS – French national programme on nutrition and health, WHO), limit alcohol consumption to 1 or two glasses of wine or beer/day (French Cardiology Society) and do not encourage abstainers to consume alcohol, even in moderate quantities, on a regular basis, as any regular consumption places that person at risk of cancer from the first glass of wine (French National Cancer Institute). The High Council for Public Health encourages scientific research in order to define the risk attributable to the consumption of small quantities of alcohol in terms of cardiovascular disease and/or cancer and, if applicable, to examine the risk/benefit ratio of consuming small doses of alcohol (HCSP 2009).

In diabetics, reduce the intake of fats, above all saturated fats and refined sugars.

Patients’ active involvement in managing their risk factors is vital and they should be given customised education regarding diet, treatment compliance, weight watching and regular endurance training.

**In practice**, dietary advice should be adjusted for age and the patient’s risk profile by emphasizing cardiovascular prevention in the case of young people, and a balanced diet and prevention of undernourishment in the case of the elderly.

French dietary assessment tools have been published (e.g. validated questionnaire published by Laviole and Paillard. 2005 – a simplified questionnaire is in process of being drawn up by this team – or the score published by the team of Dr Héricotte, Sylvie Caspar-Bauguil et al. 2010 - Marc Baudet et al. 2006).

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 10, 12, 37, 38, 41, 42, 47, 48, 52, 54, 60, 61, 62, 65, 66, 67, 141  
C: Indicators: 68, 98, 109, 111, 116  
D. Other: 122, 125, 128, 130, 131, 132, 142, 144, 157, 162, 164
33. **Rate correspondence between the primary care doctor and the cardiologist for the post-infarction follow-up**

Rate of post-infarction patients* given a letter by their primary care doctor referring them for a visit to the cardiologist during the year post-infarction

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of patients for whom the primary care doctor has written to the cardiologist prior to the check-up during the first year post-infarction*</th>
</tr>
</thead>
</table>
| Denominator | Number of post-infarction patients*  
| | *ACS ST+ or LBBB, non-ST+ ACS |

**Data**

GP: consultation with the GP during the first year post-infarction  
CO: consultation with the cardiologist in the first year post-infarction

This collection can be prospective and continuous: practice registries, databases, observational study, or retrospective and targeted when carrying out surveys: audits of patient files in each sector.

**Justification**

Exchanging information is vital for coordinating follow-up and care, for sharing the patient’s progress, assessing the risk-benefit ratio for reviewing appropriate drug prescriptions (including platelet aggregation inhibitors other than aspirin) and non-drug prescriptions, and for referring the patient, if necessary, for specialist care.

*This indicator has been validated by professional consensus of the French national MI Task Force*

**Bibliographic references (Appendix III)**

A. Method: 1, 2, 3, 4, 5, 6, 7, 8  
B. Guidelines: 65  
C. Indicators: 98, 109
34. 30-day mortality rates  Optional

Rate of ACS ST+ or LBBB patients who died in the 30 days following initial admission to the healthcare establishment

Type of indicator: The indicator in question is a clinical impact indicator

The mortality rate from all causes is a classic public health indicator that can be monitored for epidemiological purposes or for information purposes within a care team. The risk-adjusted 30-day mortality rate is an outcome indicator which conveniently complements the clinical practice indicators. However, collecting the mortality rate is a long and difficult task, as it necessitates following up patients after they have been discharged from the healthcare establishment. Moreover, for comparisons between teams (benchmarking), this rate has to be risk-adjusted, which requires the collection and processing of all the elements necessary for establishing an actual risk score. On account of these practical difficulties, the mortality rate is not used initially as a shared indicator of improvements in practices. The frequency of risk distribution, whatever scoring system is used, is an indispensable tool for qualifying and above all comparing the patients included. For teams wishing to collect this indicator, the Task Force proposes to use at least the Simple Risk Index (SRI) (cf. Appendix III, D, references 118, 163, 140)

With a view to improving practices, it would seem appropriate to analyse the mortality associated with cardiovascular events. The latter, after risk-adjustment, will make it possible to measure the impact in terms of mortality for the cardiovascular care cycle as a whole. This indicator should be interpreted with regard to survival and quality of life.

This indicator has been validated by professional consensus of the French national MI Task Force

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of ACS ST+ or LBBB* patients who died in the 30 days following initial admission to the healthcare establishment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>Number of patients admitted with a diagnosis of myocardial infarction (ACS ST+ or LBBB*)</td>
</tr>
<tr>
<td>Data</td>
<td>APP (acute phase care pathway). This collection may be prospective and continuous (practice registries, databases, observational studies) or based on a snap sample (retrospective when conducting surveys: auditing of medical files). In order for this indicator to be interpretable and compared (over time or with a view to benchmarking), it should ideally be risk-adjusted (cf. following chapter “Risk and mortality scores”). Proposed use of risk scores for calculating the probability of death: 30-day mortality adjusted at least to the SRI or to EMMACE, hospital mortality adjusted to the GRACE score).</td>
</tr>
</tbody>
</table>

Bibliographic references (Appendix III)

A. Method: 1, 2, 3, 4, 5, 6, 7, 8
C. Indicators: 73, 83, 84, 87, 88, 89, 102
D. Other: 109, 118, 163, 140

Professional Consensus of the French National MI Task Force

* Recent or presumed recent LBBB
7. Risk and mortality scores

Many risk scores have been validated for myocardial infarction, including TIMI (Thrombolysis In Myocardial Infarction http://www.timi.org) (154, 147, 143, 138, 163), KILLIP (154), GRACE (Global Registry of Acute Coronary Events) (147, 143), EMMACE (Evaluation of the Methods and Management of Acute Coronary Events) (138) and SRI (Simple Risk Index) (163).

The clinical value of using risk scores is to enable risk to be stratified (118) for the purpose of adapting treatment. Risk scores are based, at the very least, on such parameters as age, systolic blood pressure and heart rate. These scores also help in estimating theoretical/expected risk-adjusted mortality. This theoretical/expected mortality can be calculated per patient, and then estimated for the study population. A comparison can then be made between the theoretical/expected mortality and the actual/observed mortality. Three risk scores have been validated for cases of ACS ST+ and non-ST+ for many populations (140): GRACE (147, 143), EMMACE (138) and SRI (163).

Proposed use of risk scores for calculating the probability of death:

Hospital mortality

GRACE (Global Registry of Acute Coronary Events) (147, 143)
- Use the automatic calculator available online at www.outcomes-umassmed.org/grace/
- Individual risk: enter the data for each patient into the calculator. Each patient’s risk score and probability of death is displayed automatically.
- Collective risk: The probability of death of the population is obtained by calculating the mean of the individual probabilities of death.

30-day mortality

1. EMMACE (Evaluation of the Methods and Management of Acute Coronary Events) (138)
   - Use the logarithmic formula to directly calculate the 30-day probability of death (P30) (and not the risk score): P30 = 1/1+exp [-6.914+(0.081 × age)+(0.016 × heart rate)-(0.016 × SBP)]
   - Individual risk: Enter the data for age, systolic blood pressure and heart rate for each patient in an Excel spreadsheet. By applying the formula the probability of death can be calculated for each patient.
   - Collective risk: The probability of death of the population is obtained by calculating the mean of the individual probabilities of death.

2. SRI (Simple Risk Index) (163)
   - Use the formula: Heart rate (beats per minute) × (age/10)²/SBP (in mm Hg).
   - Individual risk: Enter the data for age, systolic blood pressure and heart rate for each patient in an Excel spreadsheet. Apply the formula to calculate the risk score for each patient. The probability of death of each patient from the calculated risk score is obtained by referring to the table below:

<table>
<thead>
<tr>
<th>Risk index Group risk</th>
<th>30-day death risk (absolute)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 12.5</td>
<td>1</td>
</tr>
<tr>
<td>12.5-17.5</td>
<td>2</td>
</tr>
<tr>
<td>17.5-22.5</td>
<td>3</td>
</tr>
<tr>
<td>22.5-30</td>
<td>4</td>
</tr>
<tr>
<td>&gt; 30</td>
<td>5</td>
</tr>
</tbody>
</table>

Table taken from the publication by Morrow et al. 2001 (163)

- Collective risk: The probability of death of the population is obtained by calculating the mean of the individual probabilities of death.

SBP: Systolic blood pressure
Interpreting risk-adjusted mortality rates – Discussion

With a view to improving practices, it would seem appropriate to analyse the mortality associated with cardiovascular events. After risk-adjustment, the latter will reflect the impact of cardiovascular care, excluding any associated comorbidities and/or accidents.

The existence of a significant difference measured at 30 days between the actual mortality rate and the expected mortality rate should lead the professionals involved to analyse the principal stages of the patient’s management, from the first symptoms right until his/her death. The shared clinical practice indicators that measure the quality of clinical practices throughout the care cycle are very useful for this analysis, in terms of the time between the onset of pain and the medical treatment, starting reperfusion by whatever technique (thrombolysis or angioplasty), treatment received prior to hospital admission and treatments prescribed on discharge from the healthcare establishment and actually taken, the commencement of cardiovascular rehabilitation and therapeutic education and the patient’s adherence to a changed lifestyle (follow-up of drug and non-drug treatment, including quitting smoking, physical exercise, etc.).

The analysis will reveal any areas of weakness, which will serve as a basis for remedial actions. The impact of these targeted actions will be measured by the changes in the clinical practice indicators in the care pathway, including the mortality rate. No comparison of the 30-day mortality rate can be made until after adjustment to the risk in the populations concerned (expected/observed at time T, between healthcare establishments at time T, any time comparison, etc.).
8. List of proposed items for clinical practice indicators collection

<table>
<thead>
<tr>
<th>Admitted to the care cycle in the acute phase (pre-admission or post-admission)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Time of onset of pain/first symptoms</td>
</tr>
<tr>
<td>- Call to SAMU emergency medical assistance in first instance (yes, no)</td>
</tr>
<tr>
<td>- Time of call to SAMU emergency medical assistance</td>
</tr>
<tr>
<td>- Time of arrival on scene</td>
</tr>
<tr>
<td>- Time of first medical contact: in practice estimated by the time of the qualifying ECG</td>
</tr>
<tr>
<td>- Type of ACS (ACS with ST+ or LBBB; non-ST+ ACS)</td>
</tr>
<tr>
<td>- Patient put on aspirin (yes, no, CI, refused, patient already on platelet aggregation inhibitor)</td>
</tr>
<tr>
<td>- Patient put on another platelet aggregation inhibitor: clopidogrel, prasugrel or ticagrelor (yes, no, CI, refused, patient already on platelet aggregation inhibitor)</td>
</tr>
<tr>
<td>- Evaluation of pain by VAS or NS (yes, no)</td>
</tr>
<tr>
<td>- If VAS ≥ 60 mm or NS≥ 6, patient treated with morphine (yes, no, CI, refused)</td>
</tr>
<tr>
<td>- Direct referral to an ICC with a technical support centre available (yes, no)</td>
</tr>
<tr>
<td>- Arrival time at ICC or on catheterisation ward</td>
</tr>
<tr>
<td>- Reperfusion given (yes, no, CI, refused)</td>
</tr>
<tr>
<td>- Time of primary angioplasty: time of first balloon inflation or first thromboaspiration or direct stenting, and otherwise puncture time</td>
</tr>
<tr>
<td>- Thrombolytic agent injection time</td>
</tr>
<tr>
<td>- Left ventricular ejection fraction (LVEF) in % (&lt; or &gt; 40%)</td>
</tr>
<tr>
<td>- Evaluation of left ventricular function (echocardiography, angiography or scintigraphy) (yes, no)</td>
</tr>
<tr>
<td>- LVEF altered (yes, no)</td>
</tr>
<tr>
<td>- GRACE score calculated (yes, no)</td>
</tr>
<tr>
<td>- Discharged with beta-blocker (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with ivabradine (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with aspirin (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with clopidogrel (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with statin (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with Angiotensin converting enzyme inhibitor (ACEI) (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with ARA-II (yes, no, CI, intolerance, refused)</td>
</tr>
<tr>
<td>- Discharged with prescription for cardiovascular rehabilitation (yes, no, absolute CI, refused, lack of available cardiovascular rehabilitation centre)</td>
</tr>
<tr>
<td>- Active smoking (yes, no)</td>
</tr>
<tr>
<td>- Number of cigarettes consumed per day:</td>
</tr>
<tr>
<td>- Passive smoking (yes, no)</td>
</tr>
<tr>
<td>- Prescription for smoking cessation products (yes, no, not applicable - patient is a non-smoker-)</td>
</tr>
<tr>
<td>- Evaluation of the patient’s mental state (yes, no, refused)</td>
</tr>
<tr>
<td>- Depression/anxiety diagnosed</td>
</tr>
<tr>
<td>- Appropriate prescription for nicotine substitutes (yes, no, CI, not applicable -patient a non-smoker-, refused)</td>
</tr>
<tr>
<td>- Blood glucose measured (yes, no)</td>
</tr>
<tr>
<td>- Blood glucose value on admission:</td>
</tr>
<tr>
<td>- Historical fasting blood glucose value:</td>
</tr>
<tr>
<td>- HbA1c measured (yes, no)</td>
</tr>
<tr>
<td>- Value of HbA1c:</td>
</tr>
<tr>
<td>- Diabetes (yes, no)</td>
</tr>
<tr>
<td>- Severe hyperglycaemia during or with regression of the ACS (yes, no)</td>
</tr>
<tr>
<td>- Diabetologist’s advice requested in hospital or during the 3 months post-infarction (yes, no, not indicated, refused)</td>
</tr>
<tr>
<td>- Referred for specialist management in a hospital or post-infarction ambulatory setting: consultation with smoking cessation clinic, diabetes clinic, dietician, therapeutic education, assistance with compliance or therapeutic education programme or cardiovascular rehabilitation programme (yes, no, not indicated, refused, not available)</td>
</tr>
</tbody>
</table>

 HAS / Pilot Programmes Department – Clinical impact / March 2012

50/85
Follow-up until 1 year post-infarction

**Short-term follow-up**
- Date of myocardial infarction
- Date of discharge from healthcare establishment
- Type of myocardial infarction (ACS ST+, ACS with LBBB, non-ST+ ACS, unspecified)
- Chest pain and/or nitrate use (yes, no)
- Patient informed about signs suggestive of myocardial infarction (yes, no)
- Patient informed of the need to call the emergency medical assistance if such signs occur (yes, no)
- Cardiovascular rehabilitation programme arranged (yes, no, absolute CI, not available)
- Fasting blood glucose tested (yes, no)
- Fasting blood glucose value:
  - HbA1c measured (yes, no)
  - Value of HbA1c:
  - Diabetes (yes, no)
  - Severe hyperglycaemia during the ACS (yes, no)
  - Diabetologist’s advice requested in hospital or during the 3 months post-infarction (yes, no, not indicated, refused)
  - Referred for specialist management in a hospital or ambulatory setting: consultation with smoking cessation clinic, diabetes clinic, dietician, therapeutic education, assistance with compliance or therapeutic education programme or cardiovascular rehabilitation programme (yes, no, not indicated, refused, not available)
  - Blood pressure measured during consultations (yes, no)
  - Patient shown how to measure own blood pressure (yes, no, refused)
  - Search for elements of tolerance to BASA treatment (beta-blocker or ivabradine, antiplatelet drugs / platelet aggregation inhibitor (aspirin and/or clopidogrel or prasugrel or ticagrelor), statin, ACEI or ARA-II) (yes, no)
  - Patient informed about the need to engage in regular physical exercise (yes, no, CI, refused)

**Medium-term follow-up (between 3 and 6 months post-infarction)**
- Active smoking (yes, no)
- Number of cigarettes consumed per day:
- Plan to quit smoking (yes, no, not applicable -patient a non-smoker-)
- Passive smoking (yes, no)
- Prescription for smoking cessation products (yes, no, not applicable -patient a non-smoker-)
- Evaluation of the patient’s mental state (yes, no, refused)
- Depression/anxiety diagnosed
- Appropriate prescription for nicotine substitutes (yes, no, CI, not applicable --patient a non-smoker, refused)
- Referred for specialist management in a hospital or ambulatory setting: consultation with smoking cessation clinic, diabetes clinic, dietician, therapeutic education, assistance with compliance or therapeutic education programme or cardiovascular rehabilitation programme (yes, no, not indicated, refused, not available)
- Height:
- Weight:
- BMI monitored (yes, no)
- Waist circumference measured (yes, no)
- Checked for peripheral artery occlusive disease (yes, no)
- Systolic pressure index (SPI) measured (yes, no)
- Fasting LDL cholesterol measured (yes, no)
- Fasting blood glucose or glycosylated haemoglobin in a diabetics measured (yes, no)
- Information about physical exercise (yes, no, done within the framework of a therapeutic education setting)
- stress ECG (yes, no, CI)
- Patient engages in regular physical activity for at least 30 min per day (yes, no, CI, refused)

**Follow-up at 1 year**
- Evaluation of LVEF (echocardiography, angiography or scintigraphy) (yes, no)
- LVEF in %: (< or > 40%)
- LVEF altered (yes, no)
- Treatment with beta-blocker (yes, no, CI, intolerance, refused)
- Treatment with ivabradine (yes, no, CI, intolerance, refused)
- Treatment with aspirin (yes, no, CI, intolerance, refused)
- Treatment with another platelet aggregation inhibitor (clopidogrel, prasugrel or ticagrelor) (yes, no, CI, intolerance, refused)
- Treatment with ACEI (yes, no, CI, intolerance, refused)
- Treatment with ARA-II (yes, no, CI, intolerance, refused)
- Dietary assessment (including alcohol consumption) (yes, no, refused)
- Correspondence between GP and cardiologist (yes, no)

**At 30 days post-infarction**

- Patient died (yes, no, not known)
- Date of death
- Cause of death
- Heart rate, age, systolic blood pressure documented (yes, no)
- SRI (Simple Risk Index) calculated (yes, no)
- Mortality adjusted for expected risk
- Mortality adjusted for observed risk

To interpret an observed mortality rate, it is essential to compare it with the expected mortality rate taking into account the risk factors of the study population. There are three valid risk scores. The most simple score can be calculated using the formula: SRI (Simple Risk Index) = Heart rate × \((\text{age}/10)^2\)/Systolic blood pressure. The corresponding expected mortality is obtained from a table (cf. section on “Risk and mortality scores”).
APPENDICES

All these tools are available and downloadable on the HAS website

www.has-sante.fr
Appendix 1. Proposed tools

1.1 Proposed case report forms

1.1.1 Case report form for ACS in an outpatient setting – Transmission
1.1.2 Case report form for A&E
1.1.3 Case report form for CARDIOLOGY

ACUTE CORONARY SYNDROME: PROPOSED CARDIOLOGY COMMON REGISTRY FORM

Surname__________________________Forename__________________________INSEE__/__/__/__/__/__/__/__
Age: __________ □ M □ F Date of birth ____________/__/____
ARRIVAL DATE: ____________/__/____ Direct transfer SAMU/SMUR-ICCC □ YES, time ____________/____ □ NO

Initial diagnosis
□ ST+ □ non-ST+ □ with haemodynamic instability
start of symptoms date ____________/____ time ____________/____
qualifying ECG date ____________/____ time ____________/____

History
Myocardial infarction □ YES □ NO
angioplasty □ YES □ NO bypass □ YES □ NO

On arrival
APO / heart failure □ YES □ NO Arrhythmia (VT/VF) □ YES □ NO
State of shock □ YES □ NO
Glycaemia done □ YES □ NO HbA1c done □ YES □ NO

Risk factors
Renal failure □ YES □ NO Active smoker □ YES □ NO
Known/recently diagnosed diabetic □ YES □ NO Passive smoker □ YES □ NO
Physical exercise □ YES □ NO Hypertension □ YES □ NO
Hypercholesterolaemia □ YES □ NO Dyslipidaemia □ YES □ NO
Weight: Height: BMi: Waist size:
GRACE score: Waist circumference:

Coronary angiography
Done: □ YES □ NO
No. vessels affected (lesions significant if > 50%)
□ 0 □ Not significant □ 1 □ 2 □ 3 □ Common trunk
Coronary angioplasty □ YES □ NO Thromboaspiration □ YES □ NO
Stenting □ YES □ NO Coronary bypass □ YES □ NO

Transfer to CICU
Transfer to cath □ YES □ NO date: ____________/____ time ___________/____
Puncture □ YES □ NO date: ____________/____ time ___________/____
Balloon/other technique □ YES □ NO date: ____________/____ time ___________/____

Transfer to cardio (discharged from CICU) □ YES □ NO date: ____________/____ time ___________/____

Beta-blocker □ YES □ NO CI expressed □ NO with no explanation in medical file
Aspirin □ YES □ NO CI expressed □ NO with no explanation in medical file
Ant-Gp2b3a □ YES □ NO CI expressed □ NO with no explanation in medical file
Anticoagulant □ YES □ NO CI expressed □ NO with no explanation in medical file
Clopidogrel / Prasugrel / Ticagrelor □ YES □ NO CI expressed □ NO with no explanation in medical file
Hospitalised for hyperglycaemia □ YES □ NO Nicotine replacements, if smoker □ YES □ NO □ patient refusal
Thrombolytics □ YES □ NO date: ____________/____ time ___________/____

Treatment on discharge
LVESF measured □ YES □ NO
Beta-blocker □ YES □ NO CI expressed □ NO with no explanation in medical file
Aspirin □ YES □ NO CI expressed □ NO with no explanation in medical file
Clopidogrel / Prasugrel / Ticagrelor □ YES □ NO CI expressed □ NO with no explanation in medical file
Statin □ YES □ NO CI expressed □ NO with no explanation in medical file
Antialdosterone □ YES □ NO CI expressed □ NO with no explanation in medical file
CBE/ARD □ YES □ NO CI expressed □ NO with no explanation in medical file
Calcium inhibitor □ YES □ NO Nicotine replacements, if smoker □ YES □ NO □ patient refusal

Final diagnosis
Q-wave infarction □ YES □ NO Non-Q-wave infarction □ YES □ NO
Unstable angina □ YES □ NO Other associated diagnosis □ YES □ NO namely: ___________________

Discharge
Patient made aware of rules on lifestyle and diet (during stay or on discharge) □ YES □ NO
Rehabilitation scheduled or under way □ YES □ NO Family circle trained in resuscitation □ YES □ NO
Authorisation for follow-up □ YES □ NO Consultation with smoking clinic (if smoker) □ YES □ NO
Consultation with diabetes clinic (if diabetic) □ YES □ NO DEATH □ YES □ NO Cause: ___________

DATE OF DISCHARGE ____________/____/____

HAS / Pilot Programmes Department – Clinical impact / March 2012

58/85
1.1.4 Ambulatory follow-up form – 1st year post-infarction

1. Time since myocardial infarction (ACS ST+, ACS with LBBB, non-ST+ ACS)?
   - □ 1 month
   - □ 3 months
   - □ 6 months
   - □ 1 year
   - □ > 1 year
   - □ Not known

2. Do you know the signs suggestive of a recurring myocardial infarction?
   - □ Yes
   - □ No

3. Do you know that the emergency services must be called immediately in the event of a recurrence?
   - □ Yes
   - □ No

4. Have you felt any chest pains and/or have you taken any nitrate?
   - □ Yes
   - □ No
   - □ Don’t know

5. Have you taken part in a cardiovascular rehabilitation programme?
   - □ Yes
   - □ No
   - □ Time after infarction
   - □ Don’t know

7. Active tobacco user
   - □ Yes
   - □ No
   - □ Number of cigarettes/day
   - □ Never smoked
   - □ Thinking of quitting
   - □ If quit, since when

8. Have you measured your weight?
   - □ Yes
   - □ No
   - □ BMI calculated
   - □ Waist circumference measured

9. Screening for peripheral artery occlusive disease (PAOD)
   - □ Yes
   - □ No
   - □ SPI measured

10. Blood pressure measured
    - □ Yes
    - □ No

11. Blood glucose tested
    - □ Yes
    - □ No

12. Lipid assessment carried out
    - □ Yes
    - □ No

13. Do you do 30 minutes of regular physical exercise?
    - □ Yes
    - □ No

14. Do you know about the post-infarction diet?
    - □ Yes
    - □ No

15. Do you follow the instructions for the post-infarction diet?
    - □ Yes
    - □ No
16. Do you take any of the following medications:
Post-infarction recommended BASA therapy?

<table>
<thead>
<tr>
<th>Medication</th>
<th>Yes</th>
<th>No</th>
<th>CI</th>
<th>Intolerance</th>
<th>Refused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta-blocker / ivabradine as appropriate*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intolerance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Refused</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspirin as appropriate*</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intolerance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Refused</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other platelet aggregation inhibitor as appropriate (clopidogrel/prasugrel/ticagrelor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intolerance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Refused</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statin as appropriate*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intolerance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Refused</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACEI / ARA-II as appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Intolerance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Refused</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Screening for depression (2 validated Whooley questions)
- Have you been feeling down, depressed or hopeless?
  - Yes                                                                 | No  |
- Have you been bothered by a lack of pleasure or interest in doing things?
  - Yes                                                                 | No  |

18. Do you have a job?
- Yes                                                                   | No  |

19. Relationship with cardiologist(s)
  - Letters received
    | Interventional cardiology centre | Cardiology |
    | Yes                             | Yes        |
    | No                              | No         |
  - Letter regarding the 1-year post-infarction follow-up addressed to cardiology outpatients
    | Yes                             | No         |

* Treatment as appropriate: ongoing treatment, possibly with the dose adjusted and/or subject to contraindication (CI), intolerance or patient refusal, as noted in the medical file. A "No" answer means that one of the treatments has been stopped without the doctor's approval (intolerance or other cause to be investigated, compliance to be motivated, therapeutic education to be considered with the patient).
1.1.5 Proposed shared report forms for “Assessment at 1 year post-infarction: indicators of results and indicators of access to specialised care”

<table>
<thead>
<tr>
<th>Result indicators</th>
<th>Number of patients followed up at 1 year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients on appropriate BASA treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients who have quit smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients engaging in regular physical activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated diabetic patients with a blood glucose level in line with the guidelines (HbA1c &lt; 7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated dyslipidaemia patients with a lipid level in line with the guidelines (LDL-cholesterol &lt; 1 g/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obese or overweight patients with a BMI that has returned to the guideline value (BMI &lt; 25 kg/m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treated hypertension patients with a blood pressure in line with the guidelines (SBP &lt; 140 mm Hg and DBP &lt; 90 mm Hg and SBP &lt; 135 mm Hg and DBP &lt; 85 mm Hg with self-monitoring)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active patients who have gone back to work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients with cardiovascular complications (recurrence, stroke, heart failure, arrhythmia)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unscheduled readmissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Post-infarction mortality rate (risk-adjusted) at 1 year</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicators of access in the first year post-infarction</th>
<th>Number of patients followed up at 1 year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calls to the emergency medical assistance as a first step in the event of a recurrence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients undergoing cardiovascular rehabilitation programmes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients undergoing therapeutic education programmes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients attending a smoking cessation clinic (in the case of smokers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients attending a diabetes clinic, in the case of dysglycaemia patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients seeking dietary advice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patients consulting a cardiologist</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result indicators and the indicators of access to specialised programmes complement clinical practice indicators (CPIs). Some have been chosen as CPIs (reperfusion rates and waiting times, number of calls to the emergency medical assistance as a first step, number of patients undergoing cardiovascular rehabilitation, 30-day mortality) but not all CPIs are result indicators. The result indicators and indicators of access to specialised programmes should be interpreted in the context of the patient, of professional practices and of the environment (geographical situation/constraints, human resources and equipment).
1.2 Proposals for memos

1.2.1 Optimal care pathway for the treatment of a suspected ACS

CALL TO SAMU
Emergency call centre 15 112

Treatment of a suspected ACS in outpatients

Suspected ACS
history taking, clinical examination

 +/- 12- or 18-lead ECG

CALL TO SAMU
Emergency call centre 15 112

 +/- aspirin (150 to 325 mg)

Transmission on arrival of SMUR
1.2.3 For SAMU – Emergency medical assistance

**Referral by SAMU of a patient presenting a suspected ACS**

- **ST+ ACS**
  - ST+ or recent LBBB
  - High risk
  - Intermediate risk unstable and stable
  - Decision on revascularisation (primary angioplasty or thrombolysis)
  - Optimal referral recommended

- **non-ST+ ACS**
  - Low risk
  - Monitoring in A&E

**Management and referral of a suspected SCA ST+ by SAMU**

- **Symptoms – qualifying ECG ≤ 120 min**
  - Estimated time required to transfer to an interventional cardiology centre (CCI)?
  - Contraindications to thrombolysis (TL)?
  - Time since start of symptoms – qualifying ECG?
  - Signs of severity (BP < 100, HR > 100, heart failure, ventricular arrhythmia, state of shock, cardiorespiratory arrest)?

- **Symptoms – qualifying ECG > 120 min**

**Time from qualifying ECG – 1st balloon inflation, direct stenting or thromboaspiration**

- Estimated ≤ 90 min [1]
- Estimated > 90 min [1]
- Estimated ≤ 120 min [1]
- Estimated > 120 min [1]

1. Primary angioplasty
2. TL preH
3. CI to TL

---

[1] Time estimate arrived at in consultation with the emergency call centre controller if a transfer is necessary
[2] Direct transfer to the catheterisation room preferred if there are signs of severity
[3] Failure of reperfusion after thrombolysis should lead to rescue angioplasty

ICC: Interventional Cardiology Centre
CICU: Coronary Intensive Care Unit
SSU: Short Stay Unit

In coordination with cardiology department
1.2.4 For SAMU and A&E

### Management and referral of a suspected non-ST+ ACS

**Marker(s) for acute risk and/or abnormal ECG**

**Patients at high risk**
- Refractory angina
- Recurrent ischaemia (angina and 2-mm ST segment depression or T-wave inversion)
- Left ventricular failure or state of shock
- Ventricular arrhythmia

**Unstable patients at intermediate risk**
- GRACE score > 140 and/or
- Elevated troponin (standard threshold defined according to the type of troponin)
- Dynamic modification of the ST segment or T wave

**Stable patients at intermediate risk**
- Diabetes
- Renal failure
- LVEF < 40
- MI or recent angioplasty
- History of bypass surgery
- Intermediate to high GRACE score

**Aspirin + Clopidogrel or other recommended antiaggregant + antithrombotic +/- anti-GPIIbIIIa (elevated troponin)**

**Low-risk patients**
- GRACE score < 140 and/or
  - Normal troponin
  - No recurrent ischaemia
  - Stable haemodynamics
  - Normal ECG

**Conclusions**

**Absence of marker(s) for acute risk and/or normal ECG**

**Indications and contraindications for thrombolysis**

**Indications**
- Prolonged precordial pain
  - For more than 30 min but less than 12 hours
  - Resistant to nitrate derivatives
- Combined with typical electrocardiographic modifications:
  - ST segment elevation ≥ 1 mm in at least 2 standard leads, or
  - ST ≥ 2 mm in at least 2 contiguous precordial leads, or
  - Recent left bundle branch block

**Contraindications**
- Known haemorrhagic diathesis (coagulopathy)
- History of stroke, or severe injury to the central nervous system (aneurism, brain surgery)
- Recent severe trauma (less than 10 days): operation, childbirth, head injury, fracture, etc.
- Prolonged resuscitation
- Recent puncture of a noncompressible or intramuscular vessel
- Severe hypertension not controlled by any treatment
- Recent bacterial endocarditis, pericarditis, aortic dissection
- Acute pancreatitis
- Gastric ulcers with recent or still very symptomatic bleeding
- Severe neoplasia increasing the risk of bleeding
- Severe liver disease
- Long-term anticoagulant treatment with anti-vitamin K
- Severe or potentially dangerous bleeding, whether manifest or recent
1.2.5 For the Emergency Services - A&E

**Referral by A&E of a patient with suspected ACS**

12/18-lead ECG to be performed within 10 minutes

Triage nurse

Read immediately by a senior doctor

Patient history, clinical examination

- **ACS ST+**
  - ST+ or recent LBBB
  - Decision on revascularisation (primary angioplasty or thrombolysis)
  - In coordination with the cardiology department
  - ICC available
  - CICU
  - SSU

- **Non-ST+ ACS**
  - High risk
  - Stable and unstable intermediate risk
  - Exercise stress test or scintigraphy or stress echocardiography within 5 days

- **Low risk**
  - Monitoring in A&E

- Other diagnoses
  - Discharge

**Management and referral of a suspected ACS ST+ to A&E**

- Estimated time required to transfer to an interventional cardiology centre (ICC)?
- Contraindications to thrombolysis (TL)?
- Time since start of symptoms - qualifying ECG?
- Signs of severity (BP < 100, HR > 100, heart failure, ventricular arrhythmia, state of shock, cardiorespiratory arrest)?

**Symptoms – qualifying ECG ≤ 120 min**

- Time from qualifying ECG – 1st balloon inflation, direct stenting or thromboaspiration
  - estimated ≤ 90 min [1]
  - Primary angioplasty
  - TL
  - CI to TL
  - ICC available

- estimated > 90 min [1]
  - TL to CI

**Symptoms – qualifying ECG > 120 min**

- Time from qualifying ECG – 1st balloon inflation, direct stenting or thromboaspiration
  - estimated ≤ 120 min [1]
  - Primary angioplasty
  - TL
  - CI to TL
  - ICC available

- estimated > 120 min [1]
  - TL to CI

[1] Time estimate arrived at in consultation with the emergency call centre controller if a transfer is necessary
[2] Direct transfer to the catheterisation room preferred if there are any signs of severity
[3] Failure of reperfusion after thrombolysis should lead to rescue angioplasty
1.2.6 For Cardiology Departments

Referral of a patient with ACS to cardiology

Patient history, clinical examination
12/18-lead ECG

 ACS ST+

ST+ or Recent LBBB

Non-ST+ ACS

yes

High risk

Low risk

Decision on revascularisation (primary angioplasty or thrombolysis)

In coordination with the cardiology department

 ICC available

CICU

Discharge

Exercise stress test or scintigraphy or stress echocardiography within 5 days

Other diagnoses

Monitoring

Management and referral of a suspected ACS ST+ to cardiology

Estimated time required to transfer to an interventional cardiology centre (ICC)?

Contraindications to thrombolysis (TL)?

Time since start of symptoms - qualifying ECG?

Signs of severity (BP < 100, HR > 100, heart failure, ventricular arrhythmia, state of shock, cardiorespiratory arrest)?

Symptoms – qualifying ECG ≤ 120 min

Symptoms – qualifying ECG > 120 min

Time from qualifying ECG – 1st balloon inflation, direct stenting or thromboaspiration

estimated ≤ 90 min [1]  
Primary angioplasty

[2,3]

estimated > 90 min [1]  
TL

[1] Time estimate arrived at in consultation with the emergency call centre controller if a transfer is necessary

[2] Direct transfer to the catheterisation room preferred if there are any signs of severity

[3] Failure of reperfusion after thrombolysis should lead to rescue angioplasty

HAS / Pilot Programmes Department – Clinical impact / March 2012

64/85
Management and referral of a suspected non-ST+ ACS to cardiology

Marker(s) for acute risk and/or abnormal ECG

- Patients at high risk
  - Refractory angina
  - Recurrent ischaemia (angina and 2-mm ST depression or inverse T-wave)
  - Left ventricular failure or state of shock
  - Ventricular arrhythmia

- Unstable patients at intermediate risk
  - GRACE score > 140 and/or
  - Elevated troponin (standard threshold defined according to the type of troponin)
  - Dynamic modification of the ST segment or T-wave

- Stable patients at intermediate risk
  - Diabetes
  - Renal failure
  - LVEF < 40
  - MI or recent angioplasty
  - History of bypass surgery
  - Intermediate to high GRACE score

- Stable patients
  - Diabetes
  - Renal failure
  - LVEF < 40
  - MI or recent angioplasty
  - History of bypass surgery

- Low-risk patients
  - GRACE score < 140 and/or
  - Normal troponin
  - No recurrent ischaemia
  - Haemodynamically stable
  - Normal ECG

Aspirin + Clopidogrel or other recommended antiaggregant + antithrombotic +/- anti-GPIIbIIIa (elevated troponin)

Immediate transfer

within 24 hours

CICU

within 72 hours

Low-risk patients

Aspirin Analgesia according to VAS/NS

Assessment continued in cardiology

Other diagnosis

Exercise stress test within 5 days

or scintigraphy or stress echocardiography

(as outpatient or as inpatient)

Discharge

Absence of marker(s) for acute risk and/or normal ECG

Management based on coronary angiography

Significant coronary lesions > 50%

Revascularisation not indicated [1]

Surgery 5%

Angioplasty 45% [2]

ACS confirmed

ACS uncertain

Non-significant coronary lesions

Coronary arteries angiographically normal

Anti-ischaemic drug treatment

BASIC: BB, ASA, Statin, CEI, and another appropriate AA [3]

Appropriate ASA

Prevention and treatment of risk factors

[1] lesions not justifying or not lending themselves to revascularisation, neither by surgery nor by angioplasty
[2] virtually all angioplasties being done including placement of stents
[3] the aggregation inhibitors currently used in combination with aspirin are: clopidogrel/prasugrel/ticagrelor
1.2.7 Following an ACS: ACS and diabetes

**Specific management of diabetic patients following an acute coronary syndrome**

**Systematic determination of glycaemia and HbA1c on arrival**

- **Known diabetic patient**
  - Oral antidiabetics: stopped in CICU
  - **Hyperglycaemic patient**
  - insulin: continued

Place on insulin and monitored (Following CICU diabetology/endocrinology – cardiology protocol)

- capillary glycaemia every 2 hours in CICU: target: 140–180 mg/dl (7.7–10 mmol/l)

Information/Education in particular about benefits of monitoring variation in glycaemia, of physical exercise, suitable diet and comprehensive follow-up in conjunction with primary care doctor

Stay at cardiovascular rehabilitation centre

Diabetes consultation, if necessary

Set up comprehensive monitoring in conjunction with primary care doctor

Treatment refined through access to diabetes advice following the ACS

- Glycaemia ≥ 180 mg/dl (10 mmol/l) - HbA1c ≥ 6.5%

1.2.8 Following an ACS: ACS and smoking

**Specific management of patients who are smokers, following an acute coronary syndrome**

- **Patient a smoker?**
  - Passive smoking?
    - no
    - yes

Assess degree of nicotine dependence (Fagerstrom test)

Assess daily consumption (number of cigarettes/day)

Initiate appropriate nicotine replacement (NR) in the department according to the daily cigarette consumption

Information/Education in particular about benefits of quitting tobacco use completely and for good, of support with quitting, and comprehensive follow-up in conjunction with primary care doctor

Arrange for comprehensive follow-up in conjunction with primary care doctor

Consultation with smoking cessation clinic, if necessary

Prescription on discharge of smoking cessation and appropriate NR

HAS / Pilot Programmes Department – Clinical impact / March 2012

66/85
Appendix 2 – Literature search

The updating of the literature search on the topic of myocardial infarction concentrated on the subjects\textsuperscript{10} and types of studies\textsuperscript{11} defined in agreement with the project manager and was limited to French and English-language publications for the period from 2009 to December 2011. Other works published between 1999 and 2009 were included in this update because they were specific to the context of the French care system and/or corresponded to reference studies.

The following sources were searched:
- for international literature: the Medline database and the Cochrane Library;
- for guidelines and indicators: websites publishing guidelines, the websites of learned societies relevant to the area of research and sources specialising in indicators.

Bibliographical databases

The strategy for searching bibliographic databases is formulated using, for each subject, either terms from a thesaurus (keywords) or free terms (from the title or summary). They are combined with the terms describing the types of studies. Table 1 presents the strategy used to search the Medline database.

<table>
<thead>
<tr>
<th>Table 1: Strategy for searching the Medline database</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Terms used</strong></td>
</tr>
<tr>
<td>(acute coronary syndrome OR myocardial infarction OR myocardial ischemia OR ((secondary prevention OR risk factors) AND cardiovascular diseases))/de OR (acute coronary syndrome* OR myocardial infarct <em>)/ti AND (guideline AND implementation))/ti,ab OR (program evaluation OR quality of health care OR outcome and process assessment (health care) OR outcome assessment (health care) OR process assessment (health care) OR guideline adherence OR peer review, health care OR quality indicators, health care OR health care evaluation mechanisms OR utilization review OR clinical audit OR medical audit OR nursing audit OR quality assurance, health care OR total quality management OR reference standards OR health care quality, access, and evaluation OR benchmarking OR united states agency for healthcare research and quality OR management quality circles OR quality control OR accreditation OR registries)/de OR (quality OR pay-for-performance OR (indicator</em> AND (clinical* OR quality OR performance)) OR audit criteria OR core measure* OR program OR registry OR registries)/ti OR (quality improve*)/ti,ab</td>
</tr>
<tr>
<td>01/2009 – 12/2011</td>
</tr>
</tbody>
</table>

In all, 176 publications were included in this document:
- 8 methodological references,
- 60 guidelines and other works produced by institutions, health agencies or professional organisations,
- 49 references to indicators,
- 58 other types of publications.

\textsuperscript{10} Acute coronary syndrome, myocardial infarction, secondary prevention and risk factors in cardiovascular diseases.

\textsuperscript{11} Guidelines, professional consensus documents, good practice guides, chronic condition guides, institutional reports and opinions, performance indicators, other types of health quality indicators and audit criteria, systematic reviews, meta-analyses, studies demonstrating the clinical impact of introducing good practice and/or programmes for controlling risk factors, including studies adapted to the French context, practice tools (questionnaires, scores, etc.).
Websites consulted

Agence française de sécurité sanitaire des produits de santé – AFSSAPS
Association de langue française pour l'étude du diabète et des maladies métaboliques – ALFEDIAM
Bibliothèque interuniversitaire santé [Inter-university health library] – BIUS
Bibliothèque médicale Lemanissier [Lemanissier medical library]
Direction de la recherche, des études, de l’évaluation et des statistiques – DREES
Evaluation des technologies de santé pour l'aide à la décision [Evaluation of health technologies as an aid to decision-making] – ETSD
Expertise collective INSERM [INSERM Collective Expert Opinion]
Haut conseil de la santé publique – HCSP
Institut de recherche et documentation en économie de la santé - IRDES
Institut de veille sanitaire – INVS
Ministère du travail, de l’emploi et de la santé [Ministry of labour, employment and health]
Mission nationale d’expertise et d’audit hospitaliers [National mission for expertise and hospital auditing] – MeaH
Projet COMPAQH [Coordination pour la Mesure de la Performance et de l’Amélioration de la Qualité Hospitalière – COMPAQH project Coordination for measuring performance and improving quality in hospitals]
Société française d’anesthésie et de réanimation – SFAR
Société française de gériatrie et gérontologie – SFGG
Société française de médecine générale [French General Medical Society] – SFMG

Adelaide Health Technology Assessment – AHTA
Agency for Healthcare Research and Quality - AHRQ
Alberta Heritage Foundation for Medical Research – AHFMR
Alberta Medical Association – AMA
American College of Cardiology – ACC
American College of Physicians – ACP
American Heart Association – AHA
Australian Council on Healthcare Standards – ACHS
Australian Institute of Health and Welfare – AIHW
Blue Cross Blue Shield Association – BCBS
California Technology Assessment Forum – CTAF
Canadian Agency for Drugs and Technologies in Health – CADTH
Canadian Task Force on Preventive Health Care – CTFPHC
Centers for Disease Control and Prevention - CDC
Centre fédéral d’expertise des soins de santé [Belgian Health Care Knowledge Centre] – KCE
Centre for Clinical Effectiveness – CCE
Centre for Reviews and Dissemination databases
Clinical Evidence
Clinical Knowledge Summaries
Clinical Resource and Audit Group
CMA Infobase
Cochrane Library
College of Physicians and Surgeons of Alberta - CPSA
Department of Health - DH
European Medicines Agency – EMEA
European Society of Cardiology – ESC
Eurosca
Food and Drug Administration – FDA
Guideline Advisory Committee – GAC
Guidelines and Protocols Advisory Committee – GPAC
Guidelines Finder
Guidelines International Network – GIN
Heart Foundation
Horizon Scanning
Institut national d’excellence en santé et en services sociaux [National Institute for Excellence in Health and Social Services] – INESSS
Institute for Clinical Evaluative Sciences – ICES
Institute for Clinical Systems Improvement – ICISI
Institute for Health Economics Alberta – IHE
Institute for Healthcare Improvement – IHI
International Quality Indicators Project – IQIP
Intute Health & Life Sciences – INTUTE
Joint Commission on Accreditation of Healthcare Organizations
Maine health management coalition
Medical Services Advisory Committee – MSAC
National Committee for Quality Assurance – NCQA
National Coordinating Centre for Health Technology Assessment – NCCHTA
National Guideline Clearinghouse – NGC
National Health and Medical Research Council – NHMRC
National Health Service Information Centre
National Health Service – NHS
National Health Service Scotland
National Horizon Scanning Centre – NHSC
National Institute for Health and Clinical Excellence – NICE
National Institutes of Health – NIH
National Quality Measures Clearinghouse
New Zealand Guidelines Group – NZGG
New Zealand Health Technology Assessment – NZHTA
Ontario Health Technology Advisory Committee – OHTAC
Organisation for Economic Co-operation and Development – OECD
QI Project
Royal College of Physicians – RCP
Health Canada
Scottish Intercollegiate Guidelines Network – SIGN
Singapore Ministry of Health
The Clinical Indicators Support Team (NHS Scotland)
Tripdatabase
U.S. Preventive Services Task Force – USPSTF
Veterans affairs, Dep. of Defense Clinical practice guidelines
West Midlands Health Technology Assessment Collaboration – WMHTA
Wisconsin Hospital Association
World Health Organisation
Literature monitoring
The abstracts from the following journals have been examined throughout the project:
- Archives of Cardiovascular Diseases,
- British Medical Journal,
- Chest,
- Circulation,
- European Heart Journal,
- Journal of the American College of Cardiology,
- Journal of the American Medical Association,
- New England Journal of Medicine,
- The Lancet.

In addition, Medline and the websites listed above were monitored until December 2011.
Appendix 3. Bibliographic references

3.1 HAS methodological references (1-8)


3.2 Guidelines and other institutional studies and studies by healthcare agencies or professional organisations on “Myocardial infarction and secondary prevention” (9-67)

List of guidelines

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Body</th>
<th>Title of guidelines</th>
<th>Year</th>
<th>Document URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. ACCF/AHA/SCAI</td>
<td>American College of Cardiology Foundation / American Heart Association / Society for Cardiovascular Angiography and Interventions</td>
<td>Guideline for Percutaneous Coronary Intervention</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>13. AHA</td>
<td>American Heart Association</td>
<td>The American Heart Association's Recommendations for Expanding the Applications of Existing and Future Clinical Registries</td>
<td>2011</td>
<td><a href="http://circ.ahajournals.org/content/123/19/2167.full.pdf+html">http://circ.ahajournals.org/content/123/19/2167.full.pdf+html</a></td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Title of guidelines</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>---------------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>25. ADA</td>
<td>American Diabetes Association</td>
<td>Executive Summary: Standards of Medical Care in Diabetes—2010</td>
<td>2010</td>
<td><a href="http://care.diabetesjournals.org/content/33/Supplement_1/S4.full.pdf+html">http://care.diabetesjournals.org/content/33/Supplement_1/S4.full.pdf+html</a></td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Title of guidelines</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>---------------------</td>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td>39.</td>
<td>AHA/ACCVR</td>
<td>Core Components of Cardiac Rehabilitation/Secondary Prevention Programs: 2007 Update</td>
<td>2007</td>
<td><a href="http://circ.ahajournals.org/cgi/reprint/115/20/2678">http://circ.ahajournals.org/cgi/reprint/115/20/2678</a></td>
</tr>
<tr>
<td>43.</td>
<td>AHA</td>
<td>American Heart Association Recommendation to Develop Strategies to Increase the Number of ST-Segment–Elevation Myocardial Infarction Patients With Timely Access to Primary Percutaneous Coronary Intervention</td>
<td>2006</td>
<td><a href="http://circ.ahajournals.org/cgi/reprint/13/17/2152">http://circ.ahajournals.org/cgi/reprint/13/17/2152</a></td>
</tr>
</tbody>
</table>
### List of other studies by institutions, health agencies and professional organisations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Body</th>
<th>Title of guidelines</th>
<th>Year</th>
<th>Document URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>47. AHA</td>
<td>American Heart Association</td>
<td>The Importance of Population-Wide Sodium Reduction as a Means to Prevent Cardiovascular Disease and Stroke: A Call to Action From the American Heart Association</td>
<td>2011</td>
<td><a href="http://www.medpagetoday.com/upload/2011/1/13/CIR.0b013e31820d0793v1.pdf">http://www.medpagetoday.com/upload/2011/1/13/CIR.0b013e31820d0793v1.pdf</a></td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Title of guidelines</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>---------------------</td>
<td>------</td>
<td>--------------</td>
</tr>
</tbody>
</table>

**Literature monitoring on the theme of infarction and secondary prevention** is at your disposal on the HAS website, Pilot Programmes section, area devoted to myocardial infarction: [http://www.has-sante.fr/portail/jcms/c_736856/ensemble-ameliorons-la-prise-en-charge-de-linfarctus-du-myocarde-idm](http://www.has-sante.fr/portail/jcms/c_736856/ensemble-ameliorons-la-prise-en-charge-de-linfarctus-du-myocarde-idm)
### 3.3 “Myocardial infarction and secondary prevention” indicators (68-117)

List of publications relating to indicators, quality criteria, reports and analyses of quality measures

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Body</th>
<th>Document title</th>
<th>Year</th>
<th>Document URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>68.</td>
<td>ACCF/AHA/AMA-PCPI</td>
<td>American College of Cardiology Foundation, American Heart Association, American Medical Association-Physician Consortium for Performance Improvement</td>
<td>Performance Measures for Adults With Coronary Artery Disease and Hypertension</td>
<td>2011</td>
</tr>
<tr>
<td>69.</td>
<td>ACHS</td>
<td>Australian Council on Healthcare Standards</td>
<td>Acute myocardial infarction (AMI): percentage of patients with an AMI requiring thrombolysis who receive thrombolytic therapy within 1 hour of presentation to the emergency department, as their primary treatment, during the 6 month time period.</td>
<td>2011</td>
</tr>
<tr>
<td>70.</td>
<td>ACHS</td>
<td>Australian Council on Healthcare Standards</td>
<td>Acute myocardial infarction (AMI): percentage of patients with an AMI who receive PTCA as their primary treatment and have balloon inflation within 1 hour of presentation to the emergency department, during the 6 month time period.</td>
<td>2011</td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Document title</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>----------------</td>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td>83.</td>
<td>NHS IC National Health Service Information Centre</td>
<td>Mortality from acute myocardial infarction</td>
<td>2011</td>
<td><a href="https://indicators.ic.nhs.uk/download/NCHOD/Specification/Spec_09B_055DR00++_09_V1.pdf">https://indicators.ic.nhs.uk/download/NCHOD/Specification/Spec_09B_055DR00++_09_V1.pdf</a></td>
</tr>
<tr>
<td>85.</td>
<td>ACCF/AHA/ACR/SCAI/SIR/SVM/SVN/SVS American College of Cardiology Foundation/American Heart Association Task Force on Performance Measures, American College of Radiology, Society for Cardiac Angiography and Interventions, Society for Interventional Radiology, Society for Vascular Medicine, Society for Vascular Nursing, Society for Vascular Surgery</td>
<td>Performance Measures for Adults With Peripheral Artery Disease</td>
<td>2010</td>
<td><a href="http://circ.ahajournals.org/content/122/24/2583.long">http://circ.ahajournals.org/content/122/24/2583.long</a></td>
</tr>
<tr>
<td>89.</td>
<td>CMS/Joint Commission Centers for Medicare &amp; Medicaid Services, The Joint Commission</td>
<td>Acute myocardial infarction: median time from hospital arrival to administration of fibrinolytic therapy in acute myocardial infarction (AMI) patients with ST-segment elevation or left bundle branch block (LBBB) on the electrocardiogram (ECG) performed closest to hospital arrival time.</td>
<td>2010</td>
<td><a href="http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16248">http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16248</a></td>
</tr>
<tr>
<td>90.</td>
<td>CMS/Joint Commission Centers for Medicare &amp; Medicaid Services, The Joint Commission</td>
<td>Acute myocardial infarction: median time from hospital arrival to primary PCI in acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG performed closest to hospital arrival time.</td>
<td>2010</td>
<td><a href="http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16248">http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16248</a></td>
</tr>
<tr>
<td>91.</td>
<td>CMS/Joint Commission Centers for Medicare &amp; Medicaid Services, The Joint Commission</td>
<td>Acute myocardial infarction: percent of patients receiving primary PCI during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less.</td>
<td>2010</td>
<td><a href="http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16249">http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16249</a></td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Document title</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>96. CMS/Joint Commission</td>
<td>Centers for Medicare &amp; Medicaid Services, The Joint Commission</td>
<td>Acute myocardial infarction: percent of patients with a history of smoking cigarettes who receive smoking cessation advice or counselling during the hospital stay.</td>
<td>2010</td>
<td><a href="http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16244">http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16244</a></td>
</tr>
<tr>
<td>97. CMS/Joint Commission</td>
<td>Centers for Medicare &amp; Medicaid Services, The Joint Commission</td>
<td>Acute myocardial infarction: percent of patients with LVSD who are prescribed an ACEI or ARB at hospital discharge.</td>
<td>2010</td>
<td><a href="http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16243">http://qualitymeasures.ahrq.gov/content.aspx?f=rss&amp;id=16243</a></td>
</tr>
<tr>
<td>100 ICSI</td>
<td>Institute for Clinical Systems Improvement</td>
<td>Diagnosis and treatment of chest pain and acute coronary syndrome (ACS): percentage of AMI patients who receive a statin agent within 24 hours of arrival and at discharge from hospital for whom treatment is appropriate.</td>
<td>2010</td>
<td><a href="http://www.qualitymeasures.ahrq.gov/content.aspx?id=34170&amp;search=myocardial+infarction">http://www.qualitymeasures.ahrq.gov/content.aspx?id=34170&amp;search=myocardial+infarction</a></td>
</tr>
<tr>
<td>101 ICSI</td>
<td>Institute for Clinical Systems Improvement</td>
<td>Diagnosis and treatment of chest pain and acute coronary syndrome (ACS): percentage of patients with AMI who are using appropriate cardiac rehabilitation.</td>
<td>2010</td>
<td><a href="http://www.qualitymeasures.ahrq.gov/content.aspx?id=34171&amp;search=myocardial+infarction">http://www.qualitymeasures.ahrq.gov/content.aspx?id=34171&amp;search=myocardial+infarction</a></td>
</tr>
<tr>
<td>104 BMA</td>
<td>British Medical Association</td>
<td>Coronary heart disease: the percentage of patients with coronary heart disease with a record in the previous 15 months that aspirin, an alternative anti-platelet therapy, or an anti-coagulant is being taken (unless a contraindication or side-effects are recorded)</td>
<td>2009</td>
<td><a href="http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&amp;doc_id=14460">http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&amp;doc_id=14460</a></td>
</tr>
<tr>
<td>105 BMA</td>
<td>British Medical Association</td>
<td>Coronary heart disease: the percentage of patients with coronary heart disease who are currently treated with a beta blocker (unless a contraindication or side-effects are recorded)</td>
<td>2009</td>
<td><a href="http://www.qualitymeasures.ahrq.gov/content.aspx?id=27147&amp;search=chd">http://www.qualitymeasures.ahrq.gov/content.aspx?id=27147&amp;search=chd</a></td>
</tr>
<tr>
<td>Acronym</td>
<td>Body</td>
<td>Document title</td>
<td>Year</td>
<td>Document URL</td>
</tr>
<tr>
<td>---------</td>
<td>------</td>
<td>----------------</td>
<td>------</td>
<td>--------------</td>
</tr>
</tbody>
</table>
Literature monitoring on the theme of infarction and secondary prevention is at your disposal on the HAS website, Pilot Programmes section, area devoted to myocardial infarction: http://www.has-sante.fr/portail/jcms/c_736856/ensemble-ameliorons-la prise-en-charge-de-linfarctus-du-myocarde-idm
3.4 Other publications (118-176)


