

## EDITORIAL

# Guidelines for acute coronary syndromes: translating the evidence to best practice

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Defining and implementing 'best practice' in the care of patients presenting with an acute coronary syndrome (ACS) is one of the major challenges facing emergency and cardiology services throughout Australia. The revised guidelines<sup>1</sup> summarized in this issue of the *Journal*,<sup>2</sup> combined with the original guidelines published in 1996,<sup>3</sup> enable us to define current 'best practice'. A critique of the guidelines for practice in Australia was provided in the editorial that accompanied the revised guidelines.<sup>4</sup> However, as more guidelines are published and revised, it is pertinent to ask: what is the purpose of these guidelines and what impact do they have on clinical practice? In his recent editorial concerning the value of guidelines,<sup>5</sup> the chairman of the ACS working party noted that guidelines are unlikely to be integrated into medical practice if clinicians do not perceive them as filling a need.<sup>6</sup> Since the original guidelines were published,<sup>3</sup> evidence specific to ACS patients has indicated that there is an urgent need to translate guideline recommendations into clinical practice. Armed with this evidence, emergency and cardiology services should be undertaking quality initiatives to improve the management of ACS patients.

### IS THERE A NEED TO TAKE THESE GUIDELINES SERIOUSLY?

The guidelines incorporate contemporary information on the diagnosis and management of ACS into a set of recommendations that define the boundaries of the highest quality contemporary care.<sup>1</sup> Publication of these guidelines is an appropriate response of the profession to evidence of the marked variation in care of ACS patients that has been observed internationally,<sup>7</sup> regionally<sup>8</sup> and at a local level.<sup>9</sup> Furthermore, there is evidence that those patients at highest risk are less likely to receive effective therapy.<sup>10,11</sup> Because this variation impacts significantly on ACS patient outcomes,<sup>12,13</sup> consumers, funding agencies and professional organizations are becoming more concerned. Thus, clinicians and the services they help to run need to review their effectiveness in translating the clinical trial evidence and guideline recommendations to optimal care. This requires an ability and

willingness on the part of the clinician or service to measure current practice, a knowledge of what to measure and, if practice is suboptimal, appropriate modification of practice.

### WHAT DOMAINS OF CARE SHOULD BE MEASURED?

The original and revised guidelines include over 100 specific recommendations; thus, it has been difficult for interested clinicians to define the best measures to improve patient outcomes. For patients with ST elevation myocardial infarction, consensus for key outcome indicators (initial aspirin use, time to thrombolysis and failure to provide a reperfusion strategy to eligible patients) has been established rapidly.<sup>14</sup> However, it has taken longer to define similar key outcome indicators for other ACS patients. The initial and long-term use of effective pharmacological interventions is emerging as an important starting point.<sup>15,16</sup> The high level of evidence for the efficacy of these agents is summarized in Table 1. Furthermore, there is general agreement with USA<sup>17</sup> and European<sup>18</sup> guideline working parties. The World Health Organization's Monitoring Trends and Determinants in Cardiovascular Disease (MONICA) project has identified that the decline in cardiovascular mortality is strongly linked with the uptake of preventive pharmacological therapies.<sup>19</sup> There is widespread evidence that these simple, cheap interventions are not being used according to the guidelines.<sup>8–13</sup> Furthermore, as outlined below, evidence is accruing that systems introduced to increase medication compliance markedly improve outcomes for ACS patients.

Measurement of other strategies that could enhance patient outcomes, such as efforts to reduce inappropriate discharge from the emergency department and appropriate use of diagnostic and revascularization strategies, deserve scrutiny. To date, however, there is insufficient evidence that the systems designed to ensure compliance with these strategies are cost-effective and/or improve patient outcomes. Consequently, more research is required before key

**Table 1** Therapy that reduces MI and/or death acutely or in long-term follow up of ACS patients

Therapy	Reduction of MI		Level of evidence		
	Acute	Long term	Australia	USA*	Europe
Aspirin	+	+	E1	1A	A
Beta-blocker	+	+	E1	1B	B
Heparin					
Unfractionated	+	–	E1	1B	B
Low molecular weight	+	–	E1	1B	A
Direct antithrombin	+	–	E1	1B	A
Glycoprotein 11b/111a inhibitors	+	–	E1	NS	A
Lipid lowering therapy					
≥ 4 mmol/L	–	+	E1	1A	NS
< 4 mmol/L	–	+	E2	1C	NS
ACE inhibitor					
At risk	–	+	E1	1A	NS
All patients	–	+	E2	NS	NS

Medical therapies are shown that have been demonstrated to improve acute and long-term outcomes of acute coronary syndrome (ACS) patients. Furthermore, there is high concordance between the Australian,<sup>1,3</sup> USA<sup>17</sup> and European<sup>18</sup> guidelines. +, Treatment effective; A (= E1), supported by two or more random controlled trials (RCT); B, supported by one RCT (= E2) or supported by good cohort or case confirmed studies (= E3); C (= E4), supported by expert opinion. \*The US guidelines also specify final recommendation regarding use, as follows: class I, evidence and/or general agreement for use; class II, conflicting evidence for use; class III, agreement and/or evidence that treatment is not useful and/or may be harmful. MI, myocardial infarction; ACE, angiotensin-converting enzyme inhibitor; NS, not stated.

outcome indicators can be recommended to improve these domains of care. No doubt useful indicators will evolve and gain acceptance over time.

Progress in this regard will probably depend on appropriate case selection using validated risk stratification algorithms. All contemporary guidelines strongly recommend the use of these algorithms to facilitate triage and therapeutic decision-making.<sup>1,17,18</sup> These algorithms provide an estimate of prognosis and are derived from multivariate analyses of clinical and laboratory variables from large clinical outcome trials. Before widespread application, these algorithms should be validated in similar patient cohorts and ideally compared with other, similar algorithms. It should be noted that the ‘simplified risk assessment algorithm’ included in the current guidelines<sup>1</sup> was not derived or validated in this manner and thus I believe that it should not be used. Evaluation of prognosis is complex. Attempts to simplify the process are commendable; however, as guidelines are supposed to be a distillation of current evidence, the ‘simplified risk assessment algorithm’ should have been validated before being recommended. All guideline committees agree that troponins have been an important advance in risk stratification of ACS patients. The increasing availability of point-of-care testing for troponin levels is likely to facilitate rapid assessment, especially in rural areas. However, their use needs to be evaluated

in clinical trials and, if cost-effective and safe, needs stringent quality control.

## HOW SHOULD GUIDELINE RECOMMENDATIONS BE TRANSLATED TO BEST PRACTICE?

The publication of evidence-based guidelines is merely the first step in translating trial evidence to clinical practice. Having defined the key indicators of care, action depends on individuals and their institutions. In the National Health & Medical Research Council of Australia handbook outlining implementation and dissemination strategies,<sup>20</sup> the following key questions have been identified. What is our current level of performance? What is my individual level of compliance? If it is not acceptable, what are the barriers to achieving an acceptable level of performance? What steps can be taken to address these barriers? Can we prioritize the steps and develop a plan of action? Does the plan make sense? Can we implement and evaluate the plan?

Given the variation observed in key indicators of ACS patient outcomes described earlier, all emergency and cardiology services should be initiating processes to measure their performance. Before doing so, the effectiveness of interventions should be reviewed, because the measurements can be linked to

and facilitate the quality improvement process. Traditional interventions, such as didactic lectures on the content of the guidelines, have proved to be ineffective.<sup>21</sup> In contrast, data feedback by peer review organizations<sup>15</sup> and introduction of clinical pathways, standardized order sets, multidisciplinary teams or physician champions<sup>22</sup> have proved to be effective. Administrative support, especially in hospital practice, is essential to facilitate measurement processes and overcome the myriad of barriers to change. Consequently, there has been a major focus on the application of a systemic, collaborative approach, to re-engineer care.<sup>23–26</sup> It is pleasing to note that the Clinical Support Systems Project,<sup>27</sup> initiated by the Health Policy Unit of the Royal Australasian College of Physicians, will provide local, Australian expertise to match the US experience.

## A CALL TO ACTION

Consumers and funding agencies are becoming more concerned by the prevalence of medical errors and their impact on outcomes. In the future, omissions in the care of ACS patients will be viewed as medical error, not just a 'missed opportunity' for prevention of events. Medical errors are excusable; however, ignoring them is inexcusable.<sup>28</sup> The current guidelines are a useful starting point to address this issue, but much more has to be done before consumers and funding agencies can be reassured. To make this a reality, every emergency and cardiology service in Australia needs to take up the challenge of defining and implementing best practice in the care of ACS patients.

M. A. FITZPATRICK  
*The Nepean Hospital*  
*Sydney, NSW*  
*Australia*

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