Treating the right patient at the right time: Access to specialist consultation and noninvasive testing

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The Council of the Canadian Cardiovascular Society commissioned working groups to examine issues of access to, and wait times for, various aspects of cardiovascular care. The present article summarizes the deliberations on targets for medically acceptable wait times for access to cardiovascular specialist evaluation and on the performance of non-invasive testing needed to complete this evaluation. Three categories of referral indications were identified: those requiring hospitalization due to substantial ongoing risk of mortality and morbidity; those requiring an expedited early review in an ambulatory setting; and, finally, a larger category in which delays of two to six weeks can be justified. The proposed wait times will provide guidance on the timeliness of care to busy clinicians charged with the care of patients with cardiovascular disease, help policy makers appreciate the clinical challenges in providing access to high quality care, and highlight the critical need for a thoughtful review of cardiology human resource requirements. Wait time implementation suggestions are also included, such as the innovative use of disease management and special need clinics. The times proposed assume that available clinical practice guidelines are followed for clinical coronary syndrome management and for treatment of associated conditions such as hypertension, diabetes, renal disease, smoking cessation and lipid disorders. Although media attention tends to focus on medically acceptable wait times that paid due regard to specific clinical indications and the time-related impact of disease on patients. Furthermore, these access reviews were to include practical implementation recommendations to promote reduced patient morbidity and mortality, and to minimize the personal, financial and work-related stress that can lead to care delays.

Although queues for bypass surgery and the potential impact of their delays have historically attracted the most access-related media attention, the greatest delay-related risk exists at an earlier stage in the care process, before the diagnosis and disease severity have been adequately characterized (1,2). The current report is directed to these very early stages of care, specifically, access to specialist consultation and the noninvasive testing strategies necessary to complete this timely assessment.

Key Words: Access; Canadian Cardiovascular Society; Consultation; Noninvasive testing; Wait times

In 2004, the Council of the Canadian Cardiovascular Society formed a working group (‘Working Group’) to address issues of access to care for a wide range of cardiovascular services in Canada. The intention was not to define maximal limits of wait time acceptability. Rather, the goal was to propose targets for medically acceptable wait times that paid due regard to specific clinical indications and the time-related impact of disease on patients. Furthermore, these access reviews were to include practical implementation recommendations to promote reduced patient morbidity and mortality, and to minimize the personal, financial and work-related stress that can lead to care delays.

The current report is directed to these very early stages of care, specifically, access to specialist consultation and the noninvasive testing strategies necessary to complete this timely assessment.

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In this review process, a full electronic review of literature was performed in a quest for guidance on the issue of specialist access. While clinical practice may be guided by published best clinical practices, there are little data available on timing aspects of care, except in the most acute cardiac conditions. For this reason, the specialist access timing recommendations contained herein are largely based on the expert opinions of the Working Group. Studies identified in literature reviews that bear on the general issues of access and noninvasive testing are cited herein.

### HOSPITAL-BASED REFERRAL AND TESTING

Timely access to specialist referral and noninvasive assessment are generally available to patients directly admitted to hospital after presenting to an emergency department with acute symptoms of putative cardiac origin. Early specialist access in these cases may be motivated more by diagnostic uncertainty than by identifiable risk. There is, however, an important group of patients with referral indications who do require in-hospital care for the very real risk of death and disability that can persist even after initiation of definitive therapy. Preference for a hospital environment exists for these indications even though specialists may be available for outpatient assessment on short notice. The top portion of Table 1 ("Hospital-based referral and testing") lists these priority cardiac indications.

### EXPEDITED CONSULTATION

The term 'expedited consultation' is applied when clinical circumstances require assessment and treatment within a matter of a few days, and not necessarily in the hospital setting. Such conditions are outlined in the lower portion of Table 1 ("Expeditied consultation"). Although some cardiology specialist practices have the short-term flexibility to accommodate these referrals, most do not due to complex and variable professional demands. An expedited consultation request usually requires direct discussion between the referring doctor and the specialist to clarify the level of diagnostic certainty, the clinical need and the most appropriate course of action. Options for expedited consultation include:

- Assessment by a specialized multidisciplinary team, eg, for heart failure (3);
• Referral to another specialist who is able to accommodate the time target;
• Referral to a rapid assessment chest pain clinic; and
• Urgent specialist evaluation performed in an emergency department or suitable outpatient area.

Who is responsible for setting the level of referral urgency? The view is widely held that until a family physician verbally discusses a case with a specialist, a written or faxed consultation request is insufficient to transfer the responsibility for delay-related risk to the specialist. The Working Group encourages the practice of verbal exchanges between primary care physicians and specialists, particularly when compliance with the proposed wait times is not thought to be achievable.

OUTPATIENT SPECIALIST REFERRAL AND NONINVASIVE TESTING

Table 2 outlines the proposed medically acceptable wait times for less urgent, but more common, referral indications. The appropriate timing of indicated noninvasive testing is also provided. A specialist assessment delay of one to two weeks or longer is reasonable for referral indications in this category. It is less clear which upper wait time limits should be placed on the lowest priority indications for specialist referral. Delays in the diagnosis of cardiac disease, and in the subsequent clarification of treatment options and prognosis, often impose profound psychosocial, professional and financial stress on patients quite independently of the risk of death and significant morbidity. There is no objective way to modify medically acceptable wait times to adequately reflect these concerns. For this reason, the strong opinion-based consensus emerged among the Working Group members that six weeks should be adopted as the absolute upper wait time target for lower urgency referral indications. Furthermore, the intervals proposed herein should include the performance of all noninvasive tests required to complete a consultation. The six-week limit would not apply to scheduled follow-up visits, patient-initiated risk-factor assessments or medical review requests, or to job or insurance-related requests for a specialist opinion. Also, there may be exceptions to this six-week limit in the case of a primary specialist referral to a subspecialist. For instance, delays of up to three months may be appropriate when a general cardiologist has assessed a patient and then requests an electrophysiology consultation for certain indications.

PRECONSULTATION NONINVASIVE TESTING AND INFORMATION TRANSFER

Consultation efficiency is, in part, determined by effective pre-referral screening and appropriate data exchange between the referring physician and the consultant. The minimum information accompanying new referrals should include:
• The details of the most recent cardiac investigations or procedures;
• Copies of the most recent cardiovascular consultations;
• The indication for reassessment, if a patient has been previously evaluated; and
• A current list of medications, noncardiac diseases and allergies.

For many referral indications, members of the Working Group believed that consultants would prefer to see, or at least discuss, the patient before arranging for noninvasive testing (other than basic blood work, electrocardiography and a chest x-ray), even at the cost of potentially delaying completion of the consultative process. Clearly, there are some exceptions to this. For patients with congestive heart failure (CHF)-related indications for specialty referral, increasing general practitioner access to echocardiography has been shown to result in improved diagnostic certainty and the adoption of treatment strategies more in keeping with treatment guidelines (4). On the other hand, the routine use of transthoracic echocardiography for indications such as assessment for noncardiac surgery is of limited value (5).

The potential does exist for unnecessary noninvasive tests being performed during the specialist assessment waiting period in a well-meaning attempt by referring physicians to secure a more favourable queue position for their patients. The avoidance of unnecessary noninvasive testing in the preconsultation period would result in better access to testing by patients in need. Unnecessary testing may be minimized by more effective communication at the time of referral.

PRECONSULTATION TREATMENT

For patients with established cardiac disease, clinical practice guidelines are readily available for treatment of diabetes, hypertension and hyperlipidemia, as is the appropriate medical management after acute myocardial infarction, stable angina, atrial arrhythmia, heart failure and postintervention care. If these easy-to-follow guidelines were adhered to and smoking cessation strategies were initiated during the waiting period, the medical consequences of delays in specialist referral and testing would be reduced. Creative ways to achieve guideline compliance before consultation include:
• Encouraging primary care continuing medical education event organizers to include a discussion of all relevant clinical practice guidelines and a presentation of the wait time targets proposed herein;
• Encouraging regional primary care clinical practice guideline ‘power users’ to establish prereferral clinics;
• Encouraging the development of disease management programs, particularly for patients with ischemic heart disease, atrial fibrillation and CHF (3,6,7); and
• Asking cardiologists, on receipt of referral requests, to inform primary care physicians of the existence of relevant guidelines and how to access them.

ALTERNATIVES TO SPECIALIST REFERRAL

In regions with an inadequate number of cardiovascular specialists, general internists and even family physicians with additional training in cardiology have been called on to deal with the unmet demand for cardiac assessments. The quality of this alternative referral route is variable, but may not be the optimal strategy in some cases. For patients with CHF, cardiologists have been shown to exhibit a greater level of adherence to clinical practice guidelines than family physicians or internal medicine specialists (8-10). In addition, greater guideline compliance following cardiology referral is evident in elderly patients with acute coronary syndromes...
<table>
<thead>
<tr>
<th>Indication</th>
<th>Priority categories</th>
<th>MAWT</th>
<th>Comment on MAWT</th>
<th>Indication-specific treatment-to-target recommendations</th>
<th>Noninvasive testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest pain</td>
<td>Stable angina</td>
<td>4 weeks</td>
<td>The observation of strongly positive stress test results should lead to immediate telephone contact with the consultant as more urgent invasive testing may be indicated. This MAWT requires considerable discretion as there may be important modifiers based on patient anxiety levels and career implications.</td>
<td>Acetylsalicylic acid, beta-blockers, lipid-lowering medications, nitrates</td>
<td>The MAWT should include performance of the tests below (exercise treadmill test, and exercise or pharmacological imaging study), when appropriate. Waits for regular or nuclear stress tests should not exceed two weeks because there are frequently personal and professional implications of prolonged waits once a stress test is proposed.</td>
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<td></td>
<td>• Exercise treadmill testing – for the chest pain indications (above), consultation is commonly initiated after the treadmill testing due to the presence of a positive test or confounding factors.</td>
<td>• Exercise or pharmacological imaging study (echocardiographic or nuclear). To be considered in the presence of exercise limitations, ECG abnormalities or other confounding factors.</td>
</tr>
<tr>
<td></td>
<td>Atypical chest pain</td>
<td>6 weeks</td>
<td>This limit may not always be appropriate in women because presenting symptoms of serious disease are frequently atypical. If a stress test has been performed with no evidence of ischemia, and risk factors have been appropriately modified, the need for consultation could be reassessed.</td>
<td>• Exercise or pharmacological imaging study (echocardiographic or nuclear). To be considered in the presence of exercise limitations, ECG abnormalities or other confounding factors.</td>
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<tr>
<td>NYHA class I or II heart failure</td>
<td>Valvular heart disease</td>
<td>2–4 weeks</td>
<td>Depending on level of symptoms</td>
<td>Beta-blockers, ACE inhibitors, statins, acetylsalicylic acid</td>
<td>Echocardiography – there is evidence to support routine ordering of echocardiography by referring physicians with this indication. It should be performed before consultation and within one week of ordering the test.</td>
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<td></td>
<td>With aortic stenosis</td>
<td>1–2 weeks</td>
<td>Depending on clinical course</td>
<td>• Exercise or pharmacological imaging study (echocardiographic or nuclear). To be considered in the presence of exercise limitations, ECG abnormalities or other confounding factors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>With deterioration</td>
<td>4 weeks</td>
<td>This is a very common clinical problem effectively handled by many family physicians and internists.</td>
<td>• Exercise or pharmacological imaging study (echocardiographic or nuclear). To be considered in the presence of exercise limitations, ECG abnormalities or other confounding factors.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nonischemic heart disease</td>
<td>6 weeks</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Dizziness or syncope</td>
<td>Recurrent syncope</td>
<td>–</td>
<td>Committee opinions vary widely as nature and consequences of symptomatic episodes must be factored in. Telephone discussion between referring physician and cardiologist is desirable. Often a simple review of the baseline ECG will give valuable diagnostic clues well before full assessment (eg, long QT, WPW, Brugada syndrome).</td>
<td>Identify potentially proarrhythmic medications</td>
<td>Considering urgency and range of diagnostic possibilities, no tests should be mandated before consultation, apart from an ECG. The tests may include: • Ambulatory ECG (Holter or loop recorder) – MAWT: 2 weeks • Echocardiography – MAWT: 2 weeks • Stress test – after consultation, if needed • Tilt-table – after consultation, urgency to be determined.</td>
</tr>
<tr>
<td>Orthostatic hypotension</td>
<td>Orthostatic hypotension</td>
<td>6 weeks</td>
<td>–</td>
<td>–</td>
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</tr>
<tr>
<td>Atrial fibrillation</td>
<td>Chronic or recurrent</td>
<td>6 weeks</td>
<td>More urgent consultation and treatment with uncontrolled rates</td>
<td>Anticoagulation (in all cases; if contraindication, this is indication for urgent telephone consultation)</td>
<td>Ambulatory ECG (Holter or loop recorder) – when diagnosis is suspected, but not confirmed. To be performed within the above 6-week MAWT total. Echocardiography – evidence supporting routine prereferral testing is weak.</td>
</tr>
<tr>
<td>Heart murmurs</td>
<td>Initial discovery – asymptomatic</td>
<td>6 weeks</td>
<td>–</td>
<td>Bacterial endocarditis prophylaxis for lesions prone to infection</td>
<td>Chest x-ray</td>
</tr>
<tr>
<td></td>
<td>Chronic – asymptomatic</td>
<td>6 weeks</td>
<td>–</td>
<td>–</td>
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*Continued on next page*
Access to specialist consultation

Table 2—continued
Medically acceptable wait times (MAWTs) for outpatient referral and noninvasive testing

<table>
<thead>
<tr>
<th>Indication</th>
<th>Priority categories</th>
<th>MAWT</th>
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<th>Noninvasive testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment for noncardiac surgery*</td>
<td>Need for urgent noncardiac surgery</td>
<td>Before optimal surgical date</td>
<td>Such as cancer, unstable vascular disease, abdominal or orthopedic disease</td>
<td>–</td>
<td>Routine testing is not indicated before consultation</td>
</tr>
<tr>
<td>Other</td>
<td>4 weeks</td>
<td></td>
<td>Planned nonurgent noncardiac surgery</td>
<td>–</td>
<td>Not routinely needed, but report should be faxed to cardiologist's office with referral request when event recording or echocardiography has been performed</td>
</tr>
<tr>
<td>Palpitations</td>
<td>Intermittent</td>
<td>6 weeks</td>
<td>Hemodynamically stable and unsustained</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>supraventricular tachycardia documented</td>
<td></td>
<td></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Other</td>
<td>6 weeks</td>
<td></td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Pregnancy-related assessment</td>
<td>Prepregnancy</td>
<td>6 weeks</td>
<td>Management and family counselling before or during pregnancy in adults</td>
<td>–</td>
<td>Apart from ECG, not indicated before consultation</td>
</tr>
<tr>
<td>Pregnancy with known structural heart disease</td>
<td>2 weeks</td>
<td></td>
<td>with congenital heart disease or significant valvular heart disease</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Noninvasive testing</td>
<td>–</td>
<td>6 weeks</td>
<td>can be complex and is often best managed through multidisciplinary specialized clinics</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>*Known coronary artery or structural heart disease. ACE Angiotensin-converting enzyme; CHF Congestive heart failure. ECG Electrocardiogram; NYHA New York Heart Association; WPW Wolff-Parkinson-White syndrome</td>
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<td></td>
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</tr>
</tbody>
</table>

(11), and it has been confirmed that cardiologists are more likely than general internists to promote more focused investigation strategies in patients with complex presentations (12).

Perhaps a more efficient alternative to asking physicians with less cardiovascular training to handle complex assessments is the adoption of regional disease management programs, with design and operations input from regional cardiology programs, and operating with published treatment algorithms that follow published clinical practice guidelines. Rapid assessment chest pain clinics, for example, have proven effective in expediting consultation with reduction in hospital admissions for patients with atypical pain syndromes (1,13,14).

The important issue of cardiology human resources is being separately addressed by the Canadian Cardiovascular Society. The society has found a significant shortfall in the number of cardiovascular specialists, with 21% of consulting cardiologists reporting outpatient consultation waits of more than three months (15). In other jurisdictions, both nationally and internationally, this shortfall has been addressed by different methods. The Access to Specialist Group strongly recommends that these innovative methods be investigated, particularly the advanced access approaches involving regional multidisciplinary teams grounded in clinical practice guideline compliance. There is promise that these techniques may significantly reduce wait times, improve both patient and provider satisfaction, and reduce risk in patients awaiting consultation.

COMPLIANCE WITH WAIT TIME INTERVALS

The timelines proposed herein should be posted and readily available in the offices of cardiologists and referring physicians. It is hoped that the present dissemination will lead to their acceptance, adoption and adherence. No unifying solution was identified for a case in which regional circumstances prevented a cardiologist from complying with these timelines. It was believed, however, that specialists have an obligation to let referring doctors know if they are unable to see a patient within the safe access target times outlined in the present paper. It is then the expectation that a physician-to-physician discussion should take place to better characterize the wait-related risk and to explore investigation and treatment options.

A thorough evaluation is urgently needed in cardiology to address the training positions needed to develop an adequate number of subspecialty cardiologists. But apart from training and recruitment, are there other steps that can be taken to improve access to specialist referral? The Working Group identified three areas worthy of consideration. First, it is thought that a national discussion is overdue on the legal and professional obligations of specialists to perform more routine follow-up testing and consultation. For example, does a patient who has been successfully revascularized and is clinically stable after a myocardial infarction, with secondary prevention measures in place, need recurrent visits to the cardiovascular specialist, often with repeated follow-up echocardiography and treadmill testing? Will freeing our cardiology clinics from these 'walking well', by returning them to their primary caregivers, free space for more timely consultations for those in greatest need? The issue is complex because diligent specialists are not always confident that important issues such as medication and lifestyle modification are monitored adequately by primary care physicians, who are in short supply in many regions. Most specialists would agree, however, that the accumulated demands of 'old patients' and postdischarge care expectations render specialists progressively less available to patients who require new investigation the longer a cardiologist is in practice. Second, there may be ways that operations and scheduling efficiencies can be improved in individual and group practices, for example, through the use of new...
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Electronic medical record and communication technology. Improved integration and transfer of clinical assessments and diagnostic testing information would expedite care and minimize morbidity. Finally, there should be a coordinated assault on the dearth of information available on the access to specialist problem. Governments, research organizations and clinical specialty groups should encourage innovation in service delivery models, including the prospective collection of meaningful outcome-focused data to inform policy, practice and funding.

CONCLUSIONS

The potential for significant delays exists at many points in the process of care after a patient develops clinically evident cardiac disease. It is likely that the patient is most vulnerable to important delay-related risk in the earliest phases before the cardiac illness has been adequately characterized. Indication-based, medically acceptable wait times are proposed for a broad range of referral indications, and suggestions are included as to how these times may be adopted in clinical practice. Where resources appear incompatible with these time limit suggestions, effective communication among physicians is needed to clarify risk and define appropriate care plans. Although it is hoped that the recommendations and targets proposed herein will reduce the magnitude of the specialty access problem, it is clear that a critical shortage in cardiology human resources exists and demands an urgent systematic review by professional societies, universities and health ministries.

REFERENCES