# A survey of primary percutaneous coronary intervention for patients with ST segment elevation myocardial infarction in Canadian hospitals

Dennis T Ko MD MSc[1,2], Linda R Donovan BScN MBA[2], Thao Huynh MD MSc[3], Stéphane Rinfret MD MSc[4], Derek Y So MD[5], Michael P Love MD[6], Diane Galbraith RN[7], Jack V Tu MD PhD[1,2]; for the Canadian Cardiovascular Outcomes Research Team (CCORT)

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**BACKGROUND:** Historically, access to primary percutaneous coronary intervention (PCI) for the treatment of patients with ST segment elevation myocardial infarction (STEMI) has been limited in Canada. Recent studies have identified innovative strategies to improve timely access and reduce reperfusion time. Accordingly, the contemporary use of primary PCI treatment in Canada was ascertained.

**METHODS:** A cross-sectional survey of all 38 Canadian hospitals that were capable of performing PCI procedures was conducted from June 2007 to November 2007. The survey focused on the practice of primary PCI for patients with STEMI and whether the hospitals had implemented internal strategies to reduce 'door-to-balloon' times. Analyses were performed at the level of geographical regions.

**RESULTS:** Overall, 71% of PCI hospitals (27 of 38) provided around-the-clock primary PCI for patients with STEMI, but the proportion of PCI hospitals offering this service varied widely, from 33% to 100% across regions. All Canadian PCI hospitals provided around-the-clock rescue PCI treatment to STEMI patients who had failed fibrinolytic therapy. In terms of strategies that are associated with reduced reperfusion time, it was observed that only 42% of PCI hospitals (16 of 38) provided feedback on door-to-balloon time to the emergency department and to the cardiac catheterization laboratories within one week of the primary PCI procedure. Overall, 24% of the hospitals had not adopted any of the four identified strategies to improve door-to-balloon time.

**CONCLUSION:** Although the majority of Canadian hospitals with PCI capability provide around-the-clock primary PCI for patients with STEMI, significant variations in this practice exist across the country. Canadian PCI hospitals have not consistently adopted strategies that are associated with improved door-to-balloon time.

**Key Words:** *Door-to-balloon time; Primary percutaneous coronary intervention; ST segment elevation myocardial infarction*

## Une enquête sur les interventions coronaires percutanées primaires pour les patients présentant un infarctus du myocarde avec élévation du segment ST dans les hôpitaux canadiens

**HISTORIQUE :** Par le passé, l'accès à l'intervention coronaire percutanée (ICP) primaire au Canada pour le traitement des patients atteints d'un infarctus du myocarde avec élévation du segment ST (IMÉST) était limité. Des études récentes ont permis de repérer des stratégies novatrices pour améliorer l'accès opportun et réduire le temps de reperfusion. C'est pourquoi les auteurs ont évalué le recours actuel aux ICP primaires au Canada.

**MÉTHODOLOGIE :** De juin à novembre 2007, les auteurs ont mené une enquête transversale auprès des 38 hôpitaux canadiens en mesure d'effectuer des ICP. L'enquête était axée sur la pratique des ICP primaires pour les patients atteints d'un IMÉST et sur le recours ou non à des stratégies internes par l'hôpital pour réduire le délai entre l'arrivée à l'hôpital et le ballonnet. Les auteurs ont procédé à des analyses selon les régions géographiques.

**RÉSULTATS :** Dans l'ensemble, 71 % des hôpitaux effectuant des ICP (27 des 38) offraient des ICP en tout temps pour les patients atteints d'un IMÉST, mais la proportion d'hôpitaux offrant ce service variait de manière considérable selon les régions, soit de 33 % à 100 %. Tous les hôpitaux canadiens effectuant des ICP offraient une ICP de secours en tout temps aux patients atteints d'IMÉST qui ne réagissaient pas à la thérapie aux fibrinolytiques. Pour ce qui est des stratégies associées à une diminution du délai de reperfusion, les auteurs ont observé que seulement 42 % des hôpitaux effectuant des ICP (16 sur 38) informaient le département d'urgence et les laboratoires de cathétérisme cardiaque du délai entre l'arrivée et le ballonnet dans la semaine suivant l'ICP primaire. Dans l'ensemble, 24 % des hôpitaux n'avaient adopté aucune des quatre stratégies établies pour réduire le délai entre l'arrivée à l'hôpital et le ballonnet.

**CONCLUSION :** Même si la majorité des hôpitaux canadiens effectuant des ICP procédaient à des ICP primaires en tout temps pour les patients atteints d'un IMÉST, on constate des variations importantes dans cette pratique au pays. Les hôpitaux canadiens effectuant des ICP n'ont pas toutes adopté des stratégies associées à une réduction du délai entre l'arrivée à l'hôpital et le ballonnet.

Coronary artery disease, which often manifests as an acute myocardial infarction, is one of the leading causes of death in Canada (1). It is estimated that more than 40,000 patients are hospitalized with an acute myocardial infarction each year and, of these, one-third to one-half suffer an ST segment elevation myocardial infarction (STEMI) (2,3). Primary percutaneous coronary intervention (PCI) has been demonstrated to be more effective than fibrinolytic therapy (4,5). Systematic reviews of randomized trials evaluating primary PCI have demonstrated absolute reductions of 2% for mortality, 4% for myocardial infarction and 1% for stroke compared with fibrinolytic therapy for treatment of patients with STEMI (5). However, primary PCI is not widely available in many areas of Canada because access to hospitals with this capability within an accepted timeframe has been limited (6,7). In addition, primary PCI has traditionally been performed by centres with invasive capabilities during regular working hours, as opposed to around the clock.

Improving timely access to primary PCI for STEMI patients has been the goal of many international cardiology organizations and the

[1]*Division of Cardiology, Schulich Heart Centre, Sunnybrook Health Sciences Centre, University of Toronto;* [2]*Institute for Clinical Evaluative Sciences, Toronto, Ontario;* [3]*Division of Cardiology, McGill University Health Centre;* [4]*Department of Medicine, Centre Hospitalier de l'Université de Montréal, Université de Montréal, Montréal, Québec;* [5]*Division of Cardiology, University of Ottawa Heart Institute, Ottawa, Ontario;* [6]*Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia;* [7]*Division of Cardiology, Faculty of Medicine, University of Alberta, Edmonton, Alberta*

*Correspondence: Dr Dennis T Ko, Institute for Clinical Evaluative Sciences G1 – 06, 2075 Bayview Avenue, Toronto, Ontario M4N 3M5. Telephone 416-480-4055 ext 7835, fax 416-480-6048, e-mail dennis.ko@ices.on.ca*

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focus of many recent high-profile studies (8-12). The convergence of these initiatives has expanded the availability of primary PCI to more patients, and has helped to identify new strategies to improve door-to-balloon time and patient outcomes. For example, some Canadian PCI hospitals have implemented local initiatives such as providing around-the-clock service, expedited transfer systems or prehospital STEMI diagnoses to improve access to primary PCI (11,13). Given the changes in the use of primary PCI, we sought to examine contemporary primary PCI practices for STEMI patients across Canada, and evaluate whether Canadian hospitals have adopted strategies to optimize door-to-balloon time.

## METHODS

### Study design

A cross-sectional survey of physicians at Canadian PCI hospitals was conducted from June 2007 to November 2007 using a Web-based survey instrument. All Canadian hospitals that have the capacity to perform PCI procedures were invited to participate and the respondents to the survey are shown in Appendix 1. Two hospitals in Ontario (Hôtel-Dieu Grace Hospital [Windsor] and Thunder Bay Regional Health Sciences Centre [Thunder Bay]) were not surveyed because PCI was just being established at the time of the study. An interventional cardiologist or a cardiologist familiar with STEMI protocols at each hospital was contacted by e-mail to explain the goals and purposes of the study, and to request the hospital's participation. The survey was designed to determine the contemporary use of primary PCI for patients with STEMI, the use of emergent rescue PCI for patients who failed to reperfuse with fibrinolytic therapy and whether the hospitals had implemented internal strategies that have been demonstrated to reduce door-to-balloon times.

### Strategies to reduce door-to-balloon time

Strategies shown by Bradley et al (8) to reduce door-to-balloon time include having emergency department physicians activate the catheterization laboratory (reduction of 8.2 min), having a single call to a central page operator to activate all members of the catheterization laboratory team (reduction of 13.8 min), having the emergency department activate the catheterization laboratory while the patient is en route to the hospital (reduction of 15.4 min), expecting staff to arrive in the catheterization laboratory within 20 min of being paged (reduction of 19.3 min), and providing staff in the emergency department and the catheterization laboratory with real-time data feedback regarding door-to-balloon times and outcomes within one week of patient presentation (reduction of 8.6 min) (8). These processes are well accepted and have been implemented in more than 1000 hospitals in the United States and worldwide as part of a quality improvement initiative, known as the D2B Alliance (14).

### Regional analysis

For each question, descriptive statistics were used to calculate the number of responses and the proportions in each response category. Responses were grouped initially by Canadian province. Because some provinces have only a single PCI hospital and the goal was to examine and contrast regional patterns, Saskatchewan and Manitoba were combined into one group, and New Brunswick, Nova Scotia and Newfoundland were combined into another group. In large metropolitan cities (Toronto, Ontario and Montreal, Quebec) that had three or more PCI hospitals, the hospitals were grouped together to examine potential regional variations in major cities.

## RESULTS

### Survey response

Thirty-eight hospitals across Canada that were capable of performing PCI were surveyed. These hospitals combined to have a total of 96 cardiac catheterization laboratory rooms. Neither Prince Edward Island nor the three Canadian territories had invasive facilities to perform PCI. A 100% response rate was obtained for the completion of the survey during the study period.

### Primary PCI and rescue PCI for patients with STEMI

Seventy-one per cent of the PCI hospitals (27 of 38) provided around-the-clock primary PCI treatment for patients with STEMI but the rate of service varied widely across Canada (Table 1). All PCI hospitals in British Columbia, Alberta and Quebec offered around-the-clock primary PCI, while a smaller proportion of hospitals did so in the other provinces. Similarly, the availability of around-the-clock primary PCI treatment in all PCI hospitals in Montreal was in sharp contrast to the fact that none of the hospitals in Toronto provided around-the-clock PCI service at the time of the survey (Table 1). Many PCI hospitals had implemented strategies to improve access for STEMI patients presenting outside of their own hospitals – 68% of PCI hospitals routinely received transferred patients for primary PCI from local non-PCI hospitals (with and without formal contracts between the PCI and non-PCI hospitals), and 26% of PCI hospitals routinely received patients for primary PCI directly from the emergency medical services ambulance, whereby closer local non-PCI hospitals were bypassed.

Around-the-clock rescue PCI was universally provided in all Canadian centres for patients who failed to reperfuse with fibrinolytic therapy.

### Strategies to reduce door-to-balloon time

Although several strategies have been associated with reduced door-to-balloon time, only a minority of hospitals across Canada had adopted these strategies (Table 2). Overall, 42% of the hospitals provided rapid feedback of door-to-balloon time (within one week) to the emergency department and the cardiac catheterization laboratory for quality improvement, and 63% of the hospitals expected staff to arrive in the catheterization laboratory within 30 min of being paged. For activation of cardiac catheterization laboratories, 24% of hospitals had emergency room physicians activate the cardiac catheterization laboratories, while one hospital (3%) used a single call system to activate the entire catheterization laboratory team. Of the four surveyed strategies shown to reduce door-to-balloon time, 34% of the PCI hospitals had adopted two of the strategies, 32% had adopted one of the strategies and 24% had not adopted any.

## DISCUSSION

In the present cross-sectional survey, we documented substantial variations in the provision of primary PCI for patients with STEMI across Canada. The majority of PCI hospitals in Canada currently provide around-the-clock primary PCI service. Some hospitals have also broadened their geographical coverage to include STEMI patients initially presenting to non-PCI hospitals. In contrast, some PCI hospitals continue to provide primary PCI only to patients presenting to their own emergency department during regular working hours. For example, all hospitals in Montreal provided around-the-clock primary PCI service, while all hospitals in Toronto provided restricted service at the time of the survey. Despite the growing body of evidence demonstrating the link between door-to-balloon time and outcomes, we determined that the majority of hospitals had not implemented internal strategies that have been associated with improved door-to-balloon time.

If provided in a timely fashion, primary PCI is associated with improved clinical outcomes compared with fibrinolytic therapy for the treatment of STEMI patients (4). Some data suggest that higher mortality rates of myocardial infarction patients presenting during off-hours or on weekends were due, in part, to the lower use of invasive procedures (15,16). These types of findings may have motivated many Canadian PCI hospitals to improve access to primary PCI. However, we observed that some PCI hospitals continue to offer primary PCI for STEMI patients on a restricted basis. We did not explore the reasons for the discrepancy in care in our survey, but it is possible that local barriers such as geography, traffic, availability of trained personnel and

**TABLE 1**
**Primary percutaneous coronary intervention (PCI) and rescue PCI for patients with ST segment elevation myocardial infarction (STEMI) across Canada**

| | Participating hospitals/responses, n (%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ON | | QC | | |
| Access to primary PCI for STEMI patients | Canada overall (n=38) | BC (n=4) | AB (n=3) | SK and MB (n=3) | Overall (n=12) | Toronto (n=4) | Overall (n=13) | Montreal (n=6) | NB, NS, NF (n=3) |
| Catheterization laboratory hours of operation for primary PCI | | | | | | | | | |
| Regular hours, 10–12 h/day, Monday to Friday | 10 (26) | – | – | 1 (33) | 7 (58) | 4 (100) | – | – | 2 (67) |
| 24 h/day, Monday to Friday | – | – | – | – | – | – | – | – | – |
| 24 h/day, 7 days/week | 27 (71) | 4 (100) | 3 (100) | 2 (67) | 4 (33) | – | 13 (100) | 6 (100) | 1 (33) |
| Primary PCI routinely provided to STEMI patients that are: | | | | | | | | | |
| Transferred from local hospitals | 23 (61) | 2 (50) | 3 (100) | 2 (67) | 4 (33) | 1 (25) | 11 (85) | 5 (83) | 1 (33) |
| Transferred from local hospitals based on formal contracts | 13 (34) | 1 (25) | 1 (33) | – | 3 (25) | – | 8 (62) | 4 (67) | – |
| Transported via EMS bypass | 8 (21) | 1 (25) | 2 (67) | – | 1 (8) | – | 4 (31) | – | – |
| Transported via EMS bypass based on formal contracts | 7 (18) | – | 2 (67) | – | 2 (17) | – | 3 (23) | – | – |
| STEMI patients transferred or transported to the: | | | | | | | | | |
| Emergency department | 1 (3) | – | – | 1 (33) | – | – | – | – | – |
| Coronary care unit | 7 (18) | – | 1 (33) | 2 (67) | 2 (17) | 1 (25) | – | – | 2 (67) |
| Cardiac catheterization laboratory | 31 (82) | 3 (75) | 3 (100) | 3 (100) | 8 (67) | 3 (75) | 12 (92) | 6 (100) | 2 (67) |
| **Rescue PCI for STEMI patients who failed fibrinolytics** | | | | | | | | | |
| Catheterization laboratory hours of operation for rescue PCI | | | | | | | | | |
| Regular hours, 10–12 h/day, Monday to Friday | – | – | – | – | – | – | – | – | – |
| 24 h/day, Monday to Friday | – | – | – | – | – | – | – | – | – |
| 24 h/day, 7 days/week | 38 (100) | 4 (100) | 3 (100) | 3 (100) | 12 (100) | 4 (100) | 13 (100) | 6 (100) | 3 (100) |
| Rescue PCI routinely provided to STEMI patients that are: | | | | | | | | | |
| Transferred from local hospitals | 34 (89) | 3 (75) | 3 (100) | 3 (100) | 12 (100) | 4 (100) | 11 (85) | 5 (83) | 2 (67) |
| Transferred from local hospitals based on formal contracts | 10 (26) | 1 (25) | – | 1 (33) | 4 (33) | 2 (50) | 4 (31) | 2 (33) | – |
| Rescue PCI patients transferred or transported to: | | | | | | | | | |
| Emergency department | 1 (3) | – | – | 1 (33) | – | – | – | – | – |
| Coronary care unit | 13 (34) | – | – | – | 9 (75) | 4 (100) | 1 (8) | – | 3 (100) |
| Cardiac catheterization laboratory | 31 (82) | 4 (100) | 3 (100) | 3 (100) | 8 (67) | 3 (75) | 11 (85) | 6 (100) | 2 (67) |

*AB Alberta; BC British Columbia; EMS Emergency medical services; MB Manitoba; NB New Brunswick; NF Newfoundland; NS Nova Scotia; ON Ontario; QC Quebec; SK Saskatchewan*

availability of hospital beds after primary PCI for transferred patients may have played a role (6).

Besides increased hours of operation, improving access to primary PCI can also be achieved by increasing the geographical coverage for patients who might not otherwise be eligible for the procedure. We observed that some jurisdictions have implemented systems of routine transfer of patients from non-PCI hospitals and have even established bypass protocols to enable patients to be transported directly from the ambulance to a PCI-capable centre for primary PCI. In fact, the cities of Ottawa, Ontario and Calgary, Alberta have recently described their successful implementations of expedited regional transfer systems for STEMI patients who present outside of their hospitals (11,13). Their experience highlights the need for a multidisciplinary approach involving many stakeholders, including PCI hospitals, non-PCI hospitals, emergency medical services and emergency departments (11,13).

Although substantial efforts have been made across Canada to improve primary PCI access, it is somewhat surprising that many hospitals do not have a process to consistently track data on door-to-balloon time and provide rapid feedback of these data for quality improvement purposes. Door-to-balloon time has been a key focus of many research efforts because delays in door-to-balloon time have consistently been demonstrated to be associated with worse outcomes (17-20). Indeed, it is estimated that each 15 min increase in door-to-balloon time is associated with 6.3 more deaths per 1000 patients treated (20). Given the remarkable relationship between time delays and outcomes, current guidelines from national societies recommend a door-to-balloon time of 90 min or less for all STEMI patients treated by primary PCI (21). This measure has also been incorporated as a core quality indicator by the Canadian Cardiovascular Outcomes Research Team/Canadian Cardiovasular Society and the Acute Myocardial Infarction Quality Indicator Panel (22). Therefore, the lack of tracking of critical time intervals in current PCI hospitals may signal a significant opportunity for quality improvement.

We also found that Canadian hospitals have not consistently adopted strategies shown to improve door-to-balloon time. Several key strategies have been identified, ranging from ones with minimal resource requirements, such as activation of the cardiac catheterization laboratory by emergency department physicians rather than restricting this to cardiologists and a single call activation by a single operator, to more resource-intensive processes such as stipulating that the catheterization laboratory team arrive within 20 min to 30 min of the page or call (8). It is important to recognize that we surveyed these established strategies to obtain a 'snapshot' of the processes of care associated with improving door-to-balloon time. It is possible that some hospitals may have implemented other successful strategies to reduce their door-to-balloon time beyond the ones that we surveyed.

Several limitations of our study merit consideration. First, we conducted a cross-sectional survey from June 2007 to November 2007. It is likely that some hospitals have increased the availability of primary PCI services or implemented more strategies to reduce door-to-balloon time in the interim since the time of our survey. However, we believe our observation of significant variations in the provision of primary PCI and the observation that many hospitals have not consistently implemented strategies to improve door-to-balloon time likely remain. Second, the survey data were reported by a single respondent at the hospital and we did not independently validate these data.

**TABLE 2**
**Strategies to reduce door-to-balloon (D2B) time across Canada**

| Strategy | Participating hospitals/responses, n (%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Canada overall (n=38) | BC (n=4) | AB (n=3) | SK and MB (n=3) | ON | | QC | | NB, NS, NF (n=3) |
| | | | | | Overall (n=12) | Toronto (n=4) | Overall (n=13) | Montreal (n=6) | |
| Activates cardiac cath labs during weekdays | | | | | | | | | |
| ED physician in consultation with cardiologist | 18 (47) | 1 (25) | 2 (67) | 1 (33) | 6 (50) | 3 (75) | 6 (46) | 1 (17) | 2 (67) |
| Cardiologist alone | 13 (34) | 2 (50) | 1 (33) | 2 (67) | 3 (25) | 1 (25) | 3 (23) | 2 (33) | 2 (67) |
| ED physician alone* | 9 (24) | 2 (50) | – | 1 (33) | 2 (17) | – | 3 (23) | 2 (33) | 1 (33) |
| Activates cardiac cath labs during nights and weekends | | | | | | | | | |
| ED physician in consultation with cardiologist | 13 (34) | – | 1 (33) | 2 (67) | 3 (25) | 2 (50) | 6 (46) | 2 (33) | 1 (33) |
| Cardiologist alone | 17 (45) | 2 (50) | 2 (67) | 2 (67) | 7 (58) | 2 (50) | 2 (15) | 1 (17) | 2 (67) |
| ED physician alone* | 9 (24) | 3 (75) | – | 1 (33) | 1 (8) | – | 4 (31) | 2 (33) | – |
| After ED physician suspects a STEMI, who is the next physician notified? | | | | | | | | | |
| Cardiologist (may be interventional or noninterventional) | 19 (50) | 3 (75) | 1 (33) | 2 (67) | 7 (58) | 4 (100) | 4 (31) | 1 (17) | – |
| Always an interventional cardiologist | 18 (47) | 1 (25) | 1 (33) | 2 (67) | 4 (33) | – | 8 (62) | 4 (67) | 2 (67) |
| Other | 3 (8) | – | 1 (33) | – | 1 (8) | – | 1 (8) | 1 (17) | 2 (67) |
| Process to activate cardiac cath lab | | | | | | | | | |
| After contact with ED, interventional cardiologist calls cath lab staff or central page operator, who pages cath lab staff | 31 (82) | 1 (25) | 3 (100) | 3 (100) | 11 (92) | 4 (100) | 10 (77) | 5 (83) | 3 (100) |
| The ED activates the cath lab by making 2 calls: one to the interventionalist and another to the central page operator, who pages the cath lab staff | 7 (18) | 3 (75) | – | – | 2 (17) | – | 2 (15) | – | – |
| The ED activates the cath lab by making a single call to the central page or operator, who pages the interventionalist and cath lab team* | 1 (3) | – | – | – | 1 (8) | – | – | – | – |
| There is not a standard process | 1 (3) | – | – | – | – | – | 1 (8) | 1 (17) | – |
| Expected time interval between page and arrival of staff in cath lab: | | | | | | | | | |
| ≤20 min* | 8 (21) | – | – | 1 (33) | 1 (8) | – | 5 (38) | 2 (33) | 1 (33) |
| 21–30 min | 16 (42) | 1 (25) | 2 (67) | 1 (33) | 7 (58) | 1 (25) | 4 (31) | 2 (33) | 1 (33) |
| >30 min | 6 (16) | 2 (50) | 1 (33) | – | 2 (17) | 2 (50) | – | – | 1 (33) |
| No defined time | 8 (21) | 1 (25) | – | 1 (33) | 2 (17) | 1 (25) | 4 (31) | 2 (33) | – |
| Hospital provides real time feedback (within 1 week) to the ED and/or cath lab | | | | | | | | | |
| No | 22 (58) | 4 (100) | 2 (67) | 1 (33) | 8 (67) | 2 (50) | 5 (38) | 2 (33) | 2 (67) |
| Yes* | 16 (42) | – | 1 (33) | 2 (67) | 4 (33) | 2 (50) | 8 (62) | 4 (67) | 1 (33) |
| Method of measuring D2B time | | | | | | | | | |
| Not currently measuring | 2 (5) | – | – | – | – | – | 2 (15) | 1 (17) | – |
| Retrospective chart audit | 7 (18) | 1 (25) | 1 (33) | 1 (33) | 1 (8) | – | 2 (15) | 2 (33) | 1 (33) |
| Prospective review with paper log book | 10 (26) | 2 (50) | – | 1 (33) | 5 (42) | 2 (50) | 1 (8) | 1 (17) | 1 (33) |
| Prospective review with electronic database | 25 (66) | 3 (75) | 2 (67) | 2 (67) | 7 (58) | 2 (50) | 9 (69) | 3 (50) | 2 (67) |

*Responses for each question may not add up to 100% because answers were not mutually exclusive. *Strategies shown to reduce D2B time by Bradley et al (8). AB Alberta; BC British Columbia; Cath lab Catheterization laboratory; ED Emergency department; MB Manitoba; NB New Brunswick; NF Newfoundland; NS Nova Scotia; ON Ontario; QC Quebec; SK Saskatchewan*

However, we believe that surveying interventional cardiologists for a response is appropriate because it is likely that they are the most knowledgeable about the hospital processes and policies for primary PCI. Finally, although the use of primary PCI to treat patients with STEMI is increasing, we currently have no knowledge regarding the proportion of STEMI patients who are receiving primary PCI in Canada.

In summary, the treatment of patients with STEMI is undergoing significant change in Canada, with an emphasis on primary PCI as the treatment of choice. We have demonstrated substantial variation in access to primary PCI and adoption of strategies to improve door-to-balloon time across Canada. These data should help stimulate discussion and efforts across Canada to help ensure optimal delivery of primary PCI services.

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## APPENDIX 1
## Cardiac catheterization laboratory survey participants

| Respondent | Hospital | Respondent | Hospital |
|---|---|---|---|
| Dr Anthony Della Siega | Royal Jubilee Hospital, Victoria, British Columbia (BC) | Dr Geoff Puley | Trillium Health Centre – Mississauga Site, Mississauga, ON |
| Dr Ronald Carere | St Paul's Hospital, Vancouver, BC | Dr Derek So | University of Ottawa Heart Institute, Ottawa, ON |
| Dr Gerald Simkus | Royal Columbian Hospital, New Westminster, BC | Dr Mark Eisenberg | Jewish General Hospital, Montréal, Québec (QC) |
| Dr Jacqueline Saw | Vancouver General Hospital, Vancouver, BC | Dr Christian Constance | Hôpital Maisonneuve-Rosemont, Montréal, QC |
| Dr Mouhieddin Traboulsi | Foothills Medical Centre, Calgary, Alberta (AB) | Dr Erick Schampaert | Hôpital Sacré Coeur de Montréal, Montréal, QC |
| Dr Neil Brass | Royal Alexandra Hospital, Edmonton, AB | Dr Stéphane Rinfret | Centre hospitalier de l'Université de Montréal, Montreal; Centre hospitalier universitaire de Sherbrooke/ Hôpital de Fleurimont, Sherbrooke, QC |
| Dr Wayne Tymchak | University of Alberta Hospital, Edmonton, AB | | |
| Dr Andrea Lavoie | Regina General Hospital, Regina, Saskatchewan (SK) | Dr Phillipe L'Allier | Montréal Heart Institute, Montréal, QC |
| | | Dr Richard Harvey | Centre hospitalier universitaire de Sherbrooke/ Hôpital de Fleurimont, Sherbrooke, QC |
| Dr Colin Pearce | Royal University Hospital, Saskatoon, SK | | |
| Dr Farrukh Hussain | St Boniface General Hospital, Winnipeg, Manitoba (MB) | Dr Franco Colizza | Centre hospitalier Pierre-Boucher, Longueuil, QC |
| | | Dr Robert De La Rocheliére | Hôpital Laval, Québec, QC |
| Dr Madhu Natarajan | Hamilton Health Sciences – McMaster University Hamilton, Ontario (ON) | Dr Claude Levesque | Centre de Santé et Services Sociaux de Gatineau, Gatineau, QC |
| Dr Waitak Kong | Kingston General Hospital, Kingston, ON | | |
| Dr Jaffer Syed | London Health Sciences Centre, London, ON | Dr Robert Breton | Hôpital de Chicoutimi, Chicoutimi, QC |
| Dr Chris Li | Rouge Valley Health System (Centenary), Scarborough, ON | Dr Patrick Beliveau | Hôtel-Dieu de Québec, Québec, QC |
| | | Dr Thao Huynh | McGill University Health Centre-Royal Victoria, Montréal, QC |
| Dr Warren Cantor | Southlake Regional Health Centre, Newmarket, ON | | |
| Dr Hahn Hoe Kim | St Mary's General Hospital, Kitchener, ON | Dr Francois Gobeil | Cité de la Santé, Laval, QC |
| Dr Neil Fam | St Michael's Hospital, Toronto, ON | Dr Vernon Paddock | Saint John Regional Hospital, Saint John, New Brunswick |
| Dr Brian Wong | Hôpital Régional de Sudbury Regional Hospital – Memorial Site, Sudbury, ON | Dr Stephen Fort | Queen Elizabeth II Health Sciences Centre, Halifax, Nova Scotia |
| Dr Eric Cohen | Sunnybrook Health Sciences Centre, Toronto, ON | | |
| Dr Chris Overgaard | University Health Network (Toronto General/Western), Toronto, ON | Dr Neil Pearce | General Hospital (Health Sciences Centre), St John's, Newfoundland |

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