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## **Victorian Cardiac Clinical Network Response to Coroners Report. Court Ref 2006 002298**

The Victorian Cardiac Clinical Network (VCCN) strongly supports the performance of percutaneous coronary intervention (PCI) at sites without cardiac surgery on-site (CSOS) *providing* the Cardiac Society of Australia and New Zealand (CSANZ) guidelines are adhered to.

### **Rationales Supporting PCI Centres without On-Site Surgery**

In Victoria public hospitals performing PCI without CSOS are Box Hill, Frankston, Western, Northern and Ballarat. All these hospitals are within 60 minutes ambulance travel time of a tertiary hospital with cardio-thoracic surgery. If these hospitals were denied the ability to perform PCI the adverse consequences to the Victorian health system would be substantial. Hospitals with CSOS would obviously need to accommodate a significantly higher PCI load which in turn would require a substantial and expensive increase in staff and infra-structure such as beds, cardiac catheterisation laboratories and radiological equipment.

Furthermore PCI, and in particular emergency PCI, is now a time-dependant and important aspect of treatment of heart attacks. Loss of the above hospitals which are mainly in the more peripheral metropolitan areas would seriously compromise emergency treatment of heart attacks because patients in outer metropolitan areas and Ballarat would have to travel longer distances to receive their time-dependant emergency care. Alternatively if cardiac surgical units were developed at hospitals without CSOS this would entail considerable expense and would also have the disadvantage of diluting the cardiac surgical experience at all hospitals possibly to levels that are insufficient to maintain standards.

In America and Europe, as well as elsewhere in the world including Australia, there is considerable experience of PCI without CSOS. A recently reported overseas study of 18,500 patients undergoing elective PCI at centres with and without CSOS showed no significant mortality or safety differences between the 2 groups. In both groups the mortality was < 1% (**reference**). The need for emergency coronary artery by-pass surgery was 0.2% in centres with CSOS and 0.1% in centres without CSOS. These results clearly indicate that in the right circumstances PCI can be safely performed in hospitals without CSOS.

Unfortunately similar data are not available in Victoria. However, in Victoria, we are in the process of introducing a PCI registry under the auspices of the VCCN and the Department of Health. All Victorian public hospitals performing PCI have agreed to enter data into this

registry which we anticipate will commence in early 2013. In due course therefore we will be able to determine if PCI is being performed safely in hospitals without CSOS and if the data indicates that this is not the case we will be able to initiate corrective action. As co-leads of the VCCN however, we have a detailed knowledge of what goes on in our cardiac hospitals and we are not aware of any major systemic problems in the performance of PCI in our public or private hospitals.

Serious complications requiring emergency cardiac surgery can occasionally occur during the performance of PCI or indeed coronary angiography but fortunately they are extremely rare. It is important to note that even when such a complication occurs in a hospital with CSOS this does not necessarily mean that surgery will be performed earlier than if the complication had occurred at a hospital without CSOS. In many instances the cardiac theatres in hospitals with CSOS may be occupied at the time the complication occurred and may not be available for 3-4 hours. Paradoxically cardiac surgery is sometimes available earlier if a complication occurs in a hospital without CSOS because there is the opportunity to ring around to see what cardiac theatres are available.

Of course not all complications occurring as a result of PCI or coronary angiography require surgery. Indeed only a small minority do. In those that do require surgery most often the patient can be stabilised prior to surgery by measures undertaken in the cardiac catheterization laboratory or intensive care unit such as insertion of an intra-aortic balloon pump if the circulation has been compromised, percutaneous insertion of a pericardial drain tube if pericardial tamponade has occurred and techniques to maintain patency of a coronary artery if acute occlusion has occurred as the result of coronary dissection or the like. It is expected that all interventional cardiologists will have expertise in these life saving procedures and techniques irrespective of whether they are working in a hospital with or without CSOS.

### **Availability of Cardiac Theatres and ICU Beds**

In addition to the need for a cardiac theatre, patients requiring emergency surgery will also require a postoperative intensive care (ICU) bed. However the need to obtain such a bed is less immediate than the need to obtain a cardiac theatre. Typically an emergency cardiac operation takes in the order of 4 to 5 hours and if an ICU bed is not immediately available at the time of the emergency it is usually possible to arrange an ICU bed in that hospital before the operation is completed. Therefore the immediate lack of an ICU bed in the relevant hospital should not delay emergency surgery if a theatre is available.

### **Role of Adult Retrieval Victoria**

If a complication requiring surgery has occurred at a hospital without CSOS then following stabilisation the patient will require specialised ambulance transport to the receiving hospital. We have met with Ambulance Victoria (AV) and Adult Retrieval Victoria (ARV) have assured the VCCN that they are able to respond promptly and to transfer expeditiously critically ill patients requiring cardiothoracic services including patients requiring circulatory support such as an intra-aortic balloon pump during transfer.

### **Comments on Coroner's Recommendations**

We agree with the recommendations of the coroner that all hospitals performing PCI should have a director or head of interventional cardiology experienced in that discipline (*Coroner's recommendation 1*). To our knowledge, this is the case in all hospitals performing PCI in Victoria. However, we do not consider it necessary for that person to also be overall head of cardiology at that hospital.

The Victorian Cardiac Clinical Network supports the proposal for the Department of Health to liaise with the Intensive Care Advisory Committee regarding access to ICU beds for emergency cardiac surgical patients in the context of the overall supply of intensive care beds in the state (*Coroner's recommendation 2*).

With respect to issues concerning emergency transfer of patients from stand-alone regional PCI units to a tertiary cardiothoracic unit, we point out that all stand-alone PCI units in Victoria have written arrangements with tertiary cardiothoracic units including back-up arrangements to ensure that patients requiring emergency cardiac surgery have ready and timely access to cardiothoracic surgery and to an intensive care bed post surgery (*Coroner's recommendation 3*).

With respect to issues related to the time taken to find a bed in the receiving hospital and how this impacts on overall transfer time ( *Coroner's recommendation 4 and 5*), we believe that the current arrangements in place between hospitals without CSOS and receiving cardiothoracic units and with AV and ARV are satisfactory. We point out that unlike many units elsewhere in Australia that perform PCI without CSOS, all units in Victoria are within 60 minutes travel time of tertiary cardiothoracic surgical units.

Although many interventional cardiologists at hospitals performing PCI without CSOS are also cross-credentialed to perform PCI at tertiary hospitals with high-volume cardiothoracic units, a number of cardiologists are not. We do not consider that this should be a necessary requirement (*Coroner's recommendation 1 and 6*) for the following reasons. The stated need for this requirement is that it would allow interventional cardiologists to have greater exposure to management of complications than they would otherwise have in their own practice. Even allowing for the fact that hospitals with CSOS tackle more difficult cases than hospitals without SOS, the rate of serious complications is so low that and even if such cardiologists spent 2 months a year in a hospital with CSOS - as suggested in the coroner's report - we think it unlikely that this would significantly improve their ability to manage complications in their own hospitals. Implementation of this requirement would pose many practical difficulties both for the hospitals and the cardiologists concerned and in all likelihood would be disruptive to established PCI programs. We do not believe the arguably marginal benefits of this requirement are sufficient to justify the considerable difficulties in its implementation. We think a better approach to the issue is to ensure that hospitals without onsite cardiac surgery only credential cardiologists to perform PCI who have undergone a training program that satisfies the CSANZ guidelines for training in coronary angioplasty. A requirement of these guidelines is that trainees are exposed to a high volume PCI program with CSOS.

We would like to thank the coroner for directing her findings to the Victorian Cardiac Clinical Network, and providing us with the opportunity of responding to her comments and recommendations.

Yours sincerely,



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**Reference:** Aversano T, Lemmon CL, Liu L Outcomes of PCI at Hospitals with or without On-Site Cardiac Surgery. N Engl J Med 2012;366:1792-802.