

**Appendix 1** to Tam DY, Makhdoum A, Ouzounian M, et al. The state of transcatheter aortic valve implantation training in Canadian cardiac surgery residency programs. *Can J Surg* 2018.

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## **Appendix 1. Study surveys**

### **Program Director**

1. Please enter your study ID:
2. Please select your school - city:

University of British Columbia - Vancouver

University of Alberta - Edmonton

University of Calgary - Calgary

University of Manitoba - Winnipeg

University of Ottawa - Ottawa

University of Toronto - Toronto

Western University - London

McMaster University - Hamilton

McGill University - Montreal

University of Montreal - Montreal

Laval University - Quebec City

Dalhousie University - Halifax

3. How many residents are currently in your program? (Free form)
4. Does your University perform transcatheter aortic valve implantation (TAVI)?

Yes

No

5. How many TAVI programs (ie institutions that perform TAVI) are there at your University?

0

1

2

3

4

>4

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6. What is the estimated volume of TAVI performed in a year at your University?

- <50
- 51-75
- 76-100
- 101-150
- 151-200

7. Is there an adult structural heart fellowship training program (i.e formal TAVI fellowship) at your hospital?

- No
- Yes, for interventional cardiology only
- Yes, for cardiac surgery fellows only
- Yes, for both interventional cardiology and cardiac surgery

8. To your knowledge, are there any other hospitals within your University with an adult structural heart fellowship training program (i.e formal TAVI fellowship)?

- Don't know
- No
- Yes, for interventional cardiology only
- Yes, for cardiac surgery fellows only
- Yes, for both interventional cardiology and cardiac surgery

9. If yes, how many spots annually for **(please account for your hospital only)**.

- Don't know
- Cardiology fellows:
- Cardiac Surgery fellows:

10. How many months do your residents spend in the catheterization lab for coronary angiograms/PCI?

- 0
- 1
- 2
- 3

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4

4+

11. Is there an adult structural heart rotation for your residents?

Yes

No

12. If yes, how long is the rotation? (Free form)

13. Are your residents expected to attend and participate in TAVI rounds?

Yes

No

14. Are your residents seeing TAVI patients in clinics?

Yes

No

15. Are your residents expected to scrub in for transfemoral TAVIs at the hospitals performing TAVI within your university ?

Never

Rarely

Frequently

Always

Other (free text): Please comment if this expectation varies between sites

16. Do your residents generally (please check off the appropriate box).

	Never	Rarely	Sometimes	Frequently	Always
Obtain transfemoral access					
Manipulate the wires					

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Place temporary pacing catheters					
Cross the valve					
Perform balloon valvuloplasty					
Deploy the valve					
Manipulate the C-arm					
Use closure devices (i.e. perclose)					
Perform alternative access (i.e. thoracotomies or hemisternotomies for TA/DA cases)					

TA = transapical, DA = direct aortic

17. Do your residents have access to TAVI simulators?

Yes

No

18. Do you consider TAVI training in your program to be adequate?

Yes

No

19. How strongly do you agree or disagree with the following statement: TAVI technology is important for a trainee's future practice?

Likert Scale (Strongly disagree to Strongly agree)

20. How strongly do you agree or disagree with the following statement: TAVI should be a core competency in Cardiac Surgery Training Programs?

Likert Scale (Strongly disagree to Strongly agree)

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21. How strongly do you agree or disagree with the following statement: TAVI should be formally taught as a fellowship program and not a focus for residency training?

Likert Scale (Strongly disagree to Strongly agree)

22. How strongly do you agree or disagree with the following statement: There is not enough time in the current training curriculum to teach TAVI.

Likert Scale (Strongly disagree to Strongly agree)

23. How strongly do you agree or disagree with the following statement: Residents should have exposure to the principles of TAVI but should not be expected to be competent TAVI operators by the end of residency?

Likert Scale (Strongly disagree to Strongly agree)

24. How strongly do you agree or disagree with the following statement: The technical aspects of performing TAVI may be taught in a competency by design curriculum?

Likert Scale (Strongly disagree to Strongly agree)

25. How strongly do you agree or disagree with the following statement: Our residents are demanding more training in TAVI.

Likert Scale (Strongly disagree to Strongly agree)

26. How strongly do you agree or disagree with the following statement: Wire handling skills are important for cardiac surgery residents.

Likert Scale (Strongly disagree to Strongly agree)

27. What is the biggest barrier to implementing TAVI training in residency? (Free form)

28. Please describe any other aspects of TAVI training that has not been covered so far. (Free form)

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### **Resident Survey**

1. Please enter your study ID:
2. Please select your school - city:

University of British Columbia - Vancouver

University of Alberta - Edmonton

University of Calgary - Calgary

University of Manitoba - Winnipeg

University of Ottawa - Ottawa

University of Toronto - Toronto

Western University - London

McMaster University - Hamilton

McGill University - Montreal

University of Montreal - Montreal

Laval University - Quebec City

Dalhousie University - Halifax

3. Please select your PGY year

1

2

3

4

5

6

7

8

9

10

Recent graduate

4. Does your University perform transcatheter aortic valve implantation (TAVI)?

Yes

No

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5. How strongly do you agree or disagree with the following statement: I found the cath lab rotation to be very useful?

Likert Scale (Strongly disagree to Strongly agree)

6. How strongly do you agree or disagree with the following statement: I was able to obtain wire skills in my cath lab rotation.

Likert Scale (Strongly disagree to Strongly agree) (N/A)

7. How strongly do you agree or disagree with the following statement: I was able to obtain wire skills during my vascular surgery rotations:

Likert Scale (Strongly disagree to Strongly agree) (N/A)

The remainder of this survey will address only TAVI.

8. Is TAVI performed at your institution?

Yes  
No

9. Do you participate in TAVI rounds?

Never  
Rarely  
Frequently  
Always

10. Do you see TAVI patients in clinic or as in-patient consults?

Never  
Rarely  
Frequently  
Always

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11. Do you actively participate (ie scrub in) on transfemoral TAVI procedures?

Never  
Rarely  
Frequently  
Always

12. How many TAVIs have you performed as primary (i.e. skin to skin) operator or secondary operator (i.e. assistant) during residency?

Primary:  
Secondary:

13. Are TAVI simulators available for use in wetlabs?

Yes  
No

14. Do you consider TAVI training in your program adequate?

Yes  
No

The following questions address the residents' attitude and perspective with regards to TAVI training.

15. How strongly do you agree or disagree with the following statement: TAVI technology is important for your future practice?

Likert Scale (Strongly disagree to Strongly agree)

16. How strongly do you agree or disagree with the following statement: TAVI should be formally taught in a cardiac surgery residency training program?

Likert Scale (Strongly disagree to Strongly agree)



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17. How strongly do you agree or disagree with the following statement: TAVI should be formally taught as a fellowship program and not a focus in residency training?

Likert Scale (Strongly disagree to Strongly agree)

18. How strongly do you agree or disagree with the following statement: There is not enough time in the current training curriculum to teach TAVI.

Likert Scale (Strongly disagree to Strongly agree)

19. How strongly do you agree or disagree with the following statement: I would like more training in TAVI during residency.

Likert Scale (Strongly disagree to Strongly agree)

20. How strongly do you agree or disagree with the following statement: Wire handling skills are important for cardiac surgery residents.

Likert Scale (Strongly disagree to Strongly agree)

21. How strongly do you agree or disagree with the following statement: Residents should have exposure to the principles of TAVI but should not be expected to be competent TAVI operators by the end of residency?

Likert Scale (Strongly disagree to Strongly agree)

22. How strongly do you agree or disagree with the following statement: What is the biggest barrier to implementing TAVI training in residency? (Free form)

23. Please describe any other aspects of TAVI based technology training that has not been covered so far. (Free form)

24. What are the barriers to being involved in TAVI cases if any? (Free form)