

CTO Specialist Outcomes in Non-CTO PCI: Insights from BMC2

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Disclosure of Relevant Financial Relationships

I, [Brett Wanamaker](#) DO NOT have any relevant financial relationships to disclose.

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BMC2



- **50 PCI Facilities**
- **350+ Operators**
- **~28,000 PCIs/year**

Do operators with CTO PCI experience perform differently compared to other colleagues in non-CTO PCI procedures?

“CTO Specialists”
defined via PCI
data 4/2018-
3/2020

30-case threshold

1:1 Matching

- Patient comorbidities
- Clinical presentation
- Lesion location
- Graft intervention

Outcomes

- IVUS/OCT
- Contrast use
- Radiation Use
- Kidney Injury
- Major Bleeding
- Mortality

CTO specialist
vs. remaining
operators' non-
CTO PCI data
compared
4/2020-12/2022

39,963 PCIs
Statewide
4/2020-12/2022

10.4%

20 CTO Specialists
(4,147 PCIs)

89.6%

Remaining Operators
35,816 PCIs

4,121 Matched
(99.4%)

Selected Unmatched Comparisons

	Non-CTO Specialist	CTO Specialist	Absolute Std. Diff.
Lesion Location			
Left main	4.2%	11.1%	26%
Prox LAD	21.8%	30.0%	19%
Vein Graft	4.1%	4.1%	2.9%
Patient characteristics			
Age (sd)	68± 11	69 ± 11	9.7%
Male	67.3%	70.6%	7.1%
GFR (sd)	74± 25	71± 25	18.3%
Hx CHF	37.1%	46.1%	18.3%
Hx DM	44.0%	44.4%	0.8%



After Matching

	Non-CTO Specialist	CTO Specialist	Absolute Std. Diff.
Lesion Location			
Left main	10.8%	10.9%	0.2%
Prox LAD	30.5%	29.9%	1.1%
Vein Graft	3.9%	4.1%	1%
Patient characteristics			
Age (sd)	69± 11	69 ± 11	2.3%
Male	70.3%	70.5%	0.6%
GFR (sd)	71± 25	71± 25	0.5%
Hx CHF	44.9%	46.0%	2.1%
Hx DM	45.2%	44.4%	1.6%

Outcomes After Matching

	Non-CTO Specialist	CTO Specialist	P-value
Procedural Characteristics			
IVUS/OCT	31.4%	39.5%	<0.001
Air Kerma (Gy)	1.02 [0.58, 1.71]	1.00 [0.58, 1.65]	0.281
Air Kerma >3Gy	6.8%	5.9%	0.104
Contrast (mL)	128 [100, 170]	110 [85,145]	<0.001
Contrast >3x GFR	12%	6.8%	<0.001
In-Hospital Outcomes			
Mortality	1.3%	1.2%	0.767
AKI	2.4%	2.2%	0.619
Major Bleeding	0.4%	0.3%	0.248

No differences noted in procedural success

Limitations

- Inclusive definition of “CTO specialist”
- Many lesion characteristics could not be matched: calcification, bifurcation/angulation, prior PCI failure, etc.
- CTO operators with bulk of experience after 2019 not included in analysis

Conclusions

- For non-CTO cases, operators with CTO experience were more likely to tackle left main and proximal LAD disease and treat patients with history of heart failure.
- After matching case and patient characteristics, CTO operators were more likely to employ intravascular imaging for PCI optimization. Contrast use was lower amongst operators with CTO experience.
- There was no difference noted in in-hospital mortality, AKI, or bleeding.

THANK YOU

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