

Effect of the introduction of C-MAC videolaryngoscopy on first-pass success rates for Emergency Medicine Registrars

ACEM ASM Perth 2018

Dr Stephanie Mackie, Dr Fen Moy, Dr Sinan
Kamona, Associate Professor Peter Jones

Introduction

- ANZEDAR captured 3710 ED intubations in Australasia
- First pass success 84-90% EM registrars
- Complications in around 1/3rd, morbidity and mortality
- Trend towards increased success with VL

Objectives

- Primary
 - EM registrar first-pass success rates?
- Secondary
 - Did everyone get better?
 - Did adverse events decrease?

Setting



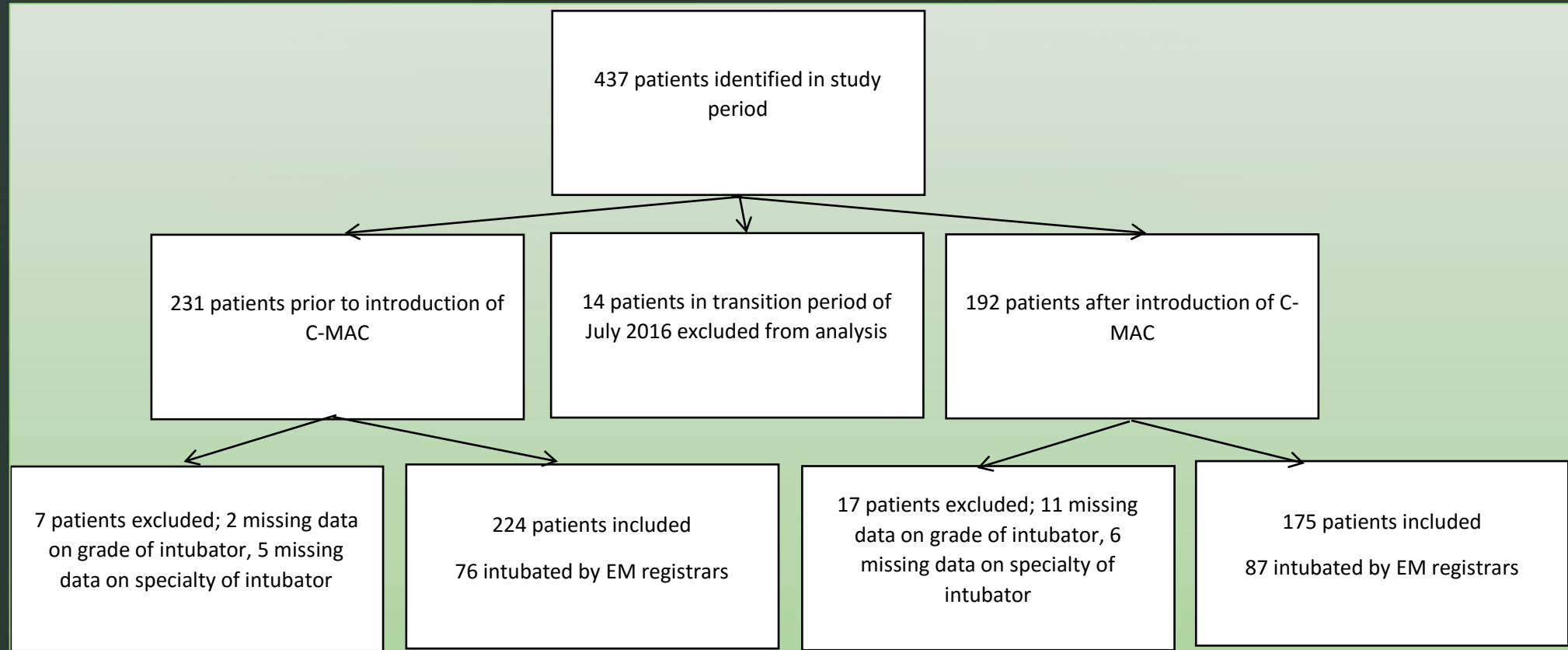
- Academic tertiary hospital ED, adults only, 73k attendances/year
- C-MAC introduced July 2016



Methods – data collection

- ANZEDAR data
- Pre/post analysis
- Logistic regression

Cases



Results – Baseline Variables

Variable	EM Registrars n=163		
	Pre	Post	p
Age mean (sd)	42.9 (18.7)	46.3 (19.3)	0.58
Weight mean (sd)	72.6 (16.2)	81.1 (18.2)	0.55
Predicted Difficult n, % (95%CI)	21, 28% (19-39%)	29, 30% (22-40%)	0.431
Prior Experience n, % (95%CI)			
<10 intubations	33, 43% (33-55%)	23, 24% (16-33%)	0.010
10-100 intubations	42, 55% (44-66%)	55, 63% (53-73%)	
>100 intubations	1, 1.3% (<0.001-12%)	9, 10% (5-19%)	
Type of Laryngoscope n, % (95%CI)			
Macintosh DL	76, 100% (94-100%)	18, 21% (13-30%)	<0.001
Videolaryngoscope*	0, 0% (0-6%)	66, 76% (66-84%)	
Other	0, 0% (0-6%)	3, 3% (1-10%)	

*C-MAC or Glidescope. No Glidescope intubations were performed by EM registrars

Results – Baseline Variables

Variable	All intubators n=399		
	Pre	Post	p
Age mean (sd)	45.2 (19.3)	47.3 (19.6)	0.283
Weight mean (sd)	79.8 (19.3)	80.4 (17.9)	0.739
Predicted Difficult n, % (95%CI)	79, 35% (29-42%)	53, 30% (24-38%)	0.294
Prior Experience n, % (95%CI) <10 intubations 10-100 intubations >100 intubations	40, 18% (13-23%) 71, 32% (26-38%) 113, 51% (44-57%)	35, 20% (15-27%) 79, 45% (38-53%) 61, 35% (28-42%)	0.005
Type of Laryngoscope n, % (95%CI) Macintosh DL Videolaryngoscope* Other	213, 95% (91-97%) 8, 4% (2-7%) 3, 1% (0.3-4%)	53, 30% (24-38%) 111, 63% (56-70%) 11, 6% (3-11%)	<0.001

*C-MAC or Glidescope. No Glidescope intubations were performed by EM registrars

Results Primary

First Pass Success	Pre	Post	p
EM Registrars	45, 59% (44-69)	74, 85% (76-91)	<0.001
All	178, 80% (73.8-84.2)	147, 84% (77.3-88.2)	0.247

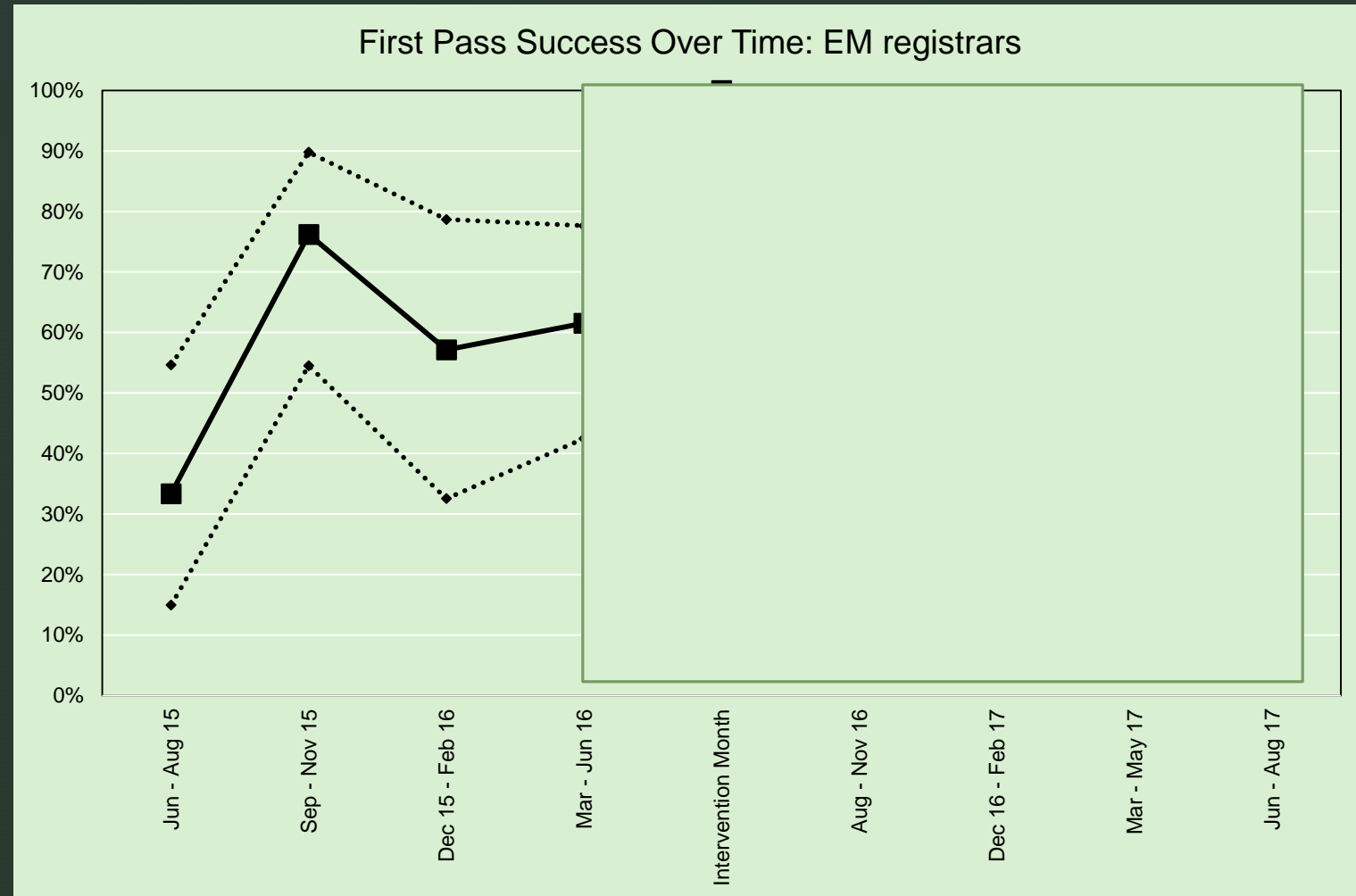
Results – Logistic Regression

Variable	EM Registrars (n=163)			
	B	p	OR	95%CI
Age	-0.016	0.101	0.984	0.965-1.003
Weight	0.008	0.449	1.008	0.987-1.030
Not Predicted Difficult	0.910	0.037	2.5	1.06-5.9
Experience		Reference		
<10 intubations (reference)				
10-100 intubations	0.777	0.055	2.174	0.982-4.812
>100 intubations	0.785	0.374	2.191	0.389-12.35
Macintosh DL (reference)				
Videolaryngoscope*	1.501	0.001	4.5	1.8-10.9

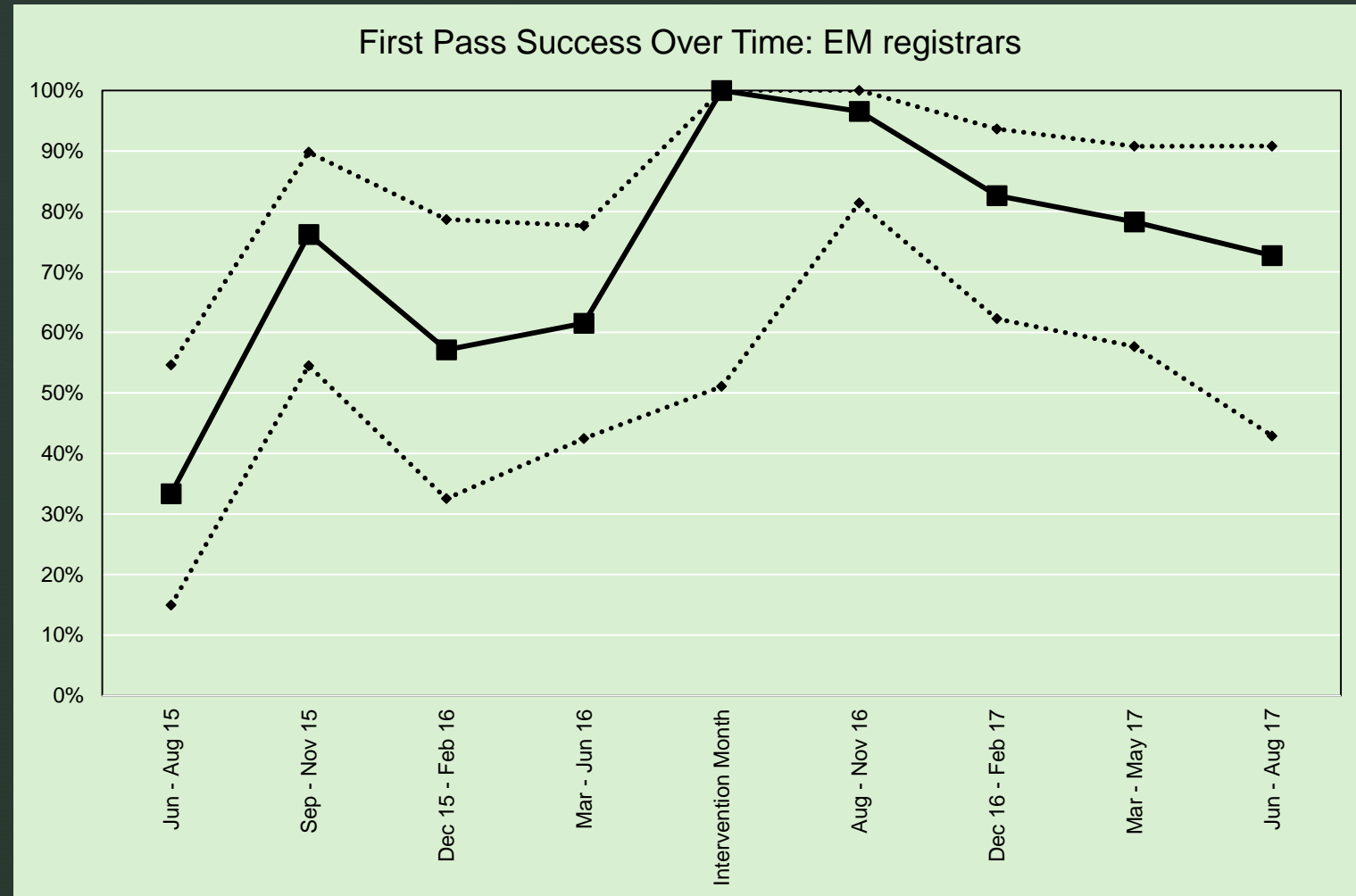
Results Secondary

Complications	Pre	Post	p
EM Registrars	22, 29% (20-40)	14, 16% (10-25)	0.048
All	66, 30% (24-36)	36, 21% (15-27)	0.043

Results



Results



Limitations

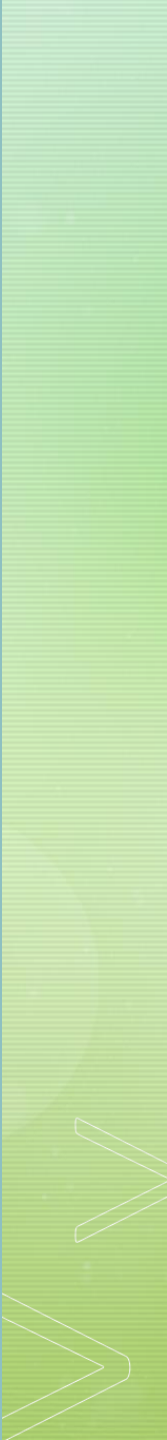
- Uncontrolled before-after study
- Change in patient & intubator characteristics
- Variations in equipment used
- Data recording

Summary

- VL associated with improved first-pass success rates for EM registrars
- First data for NZ
- Implications for training



Thanks

- Patients and staff of Auckland City Hospital ED
 - Assoc Professor Peter Jones
 - ANZEDAR group
- 



Questions?

stephaniemackie@gmail.com





How are we now?

- September 17 – August 18
- 84 EM reg attempts
- FPS 94%
- 71 used C-MAC

First Pass Success Over Time: EM registrars

