

What is the impact of scribes on medical productivity, throughput and risk in Australian EDs?

Cabrini Foundation, Equity Trustees, Phyllis Connor Memorial Fund

Cabrini, Austin, Dandenong, Bendigo, Monash Paediatric EDs
Cabrini Institute, Monash University DEPM, ACEM

Katie Walker, William Dunlop, Michael Ben-Meir, Margaret Staples
David Taylor, Thomas Chan, Gabrielle O'Connor
Rachel Rosler, Adam West
Diana Badcock, Mark Putland
Danny Liew, Kim Hansen, Carmel Crock



Should we use scribes in our EDs?



Multi-centre randomised study: FACEM patients/hr, time-based metrics, risk



5
sites

12
scribes

88
doctors

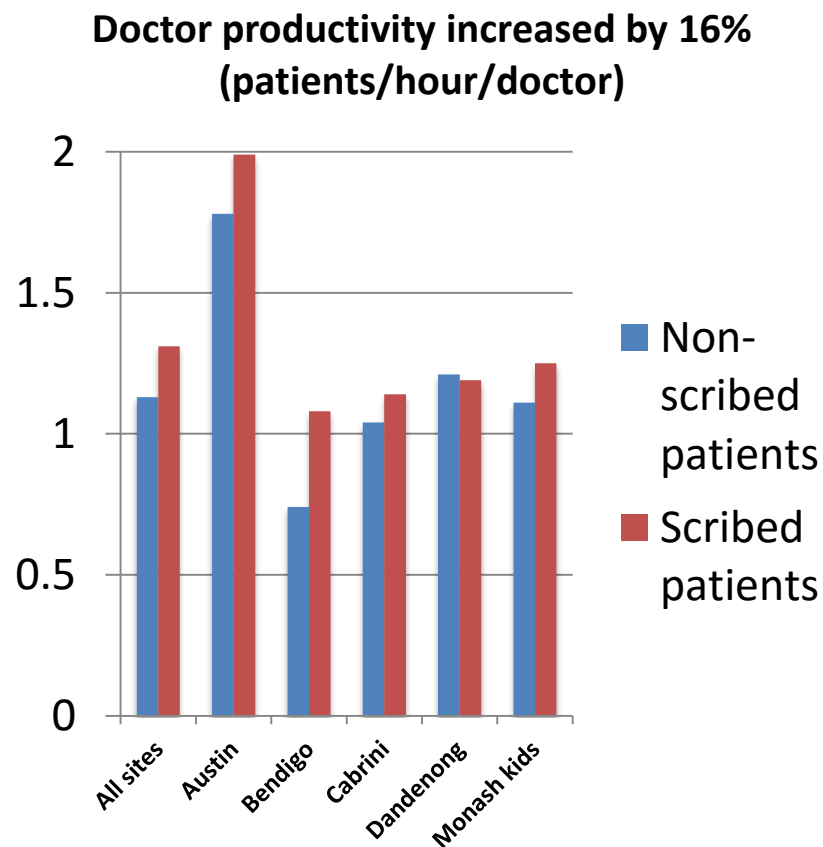
2
years

589
scribed shifts



Physician productivity (patients/hour/doc)

- Total Increased (95%CI)
 - From 1.13 (1.11,1.16)
 - To 1.31 (1.25,1.38)
 - 0.18 patient per hour gain (15.9%)
- Primary patient rate increased (95%CI)
 - From 0.83 (0.81,0.85)
 - To 1.04 (0.98,1.11)
 - 0.21 patient per hour gain (25.6%)



Physician productivity by ED region

- Senior doc at triage
 - +0.53 (95%CI 0.14,0.93)
- Acute area
 - +0.09 (95%CI 0.03,0.15)
- Sub-acute (short stay)
 - -0.05 (95%CI -0.14,0.24)
 - Issues with counting
- Paediatric regions
 - +0.13 (95%CI 0.04,0.22)



Primary patients per hour per doc by hospital

Bendigo
+0.38 gain
(2.9 extra patients per shift)

Austin
+0.31 gain
(1.8 extra patients per shift)



Dandenong
+0.05 gain
(No extra patients per shift)

Cabrini
+0.11 gain
(1.1 extra patient per shift)

Monash paed
+0.18 gain
(1.3 extra patients per shift)



Time-based metrics

- Door-to-doc unchanged
- Door-to-discharge reduced (IQR)
 - From 192 mins (108,311)
 - To 173 mins (96,208)
 - 19 mins less ($p < 0.001$)



Risk: Self-reported patient and scribe safety events



- We used Emergency Medicine Events Registry (EMER) to record events
- Self-reporting – scribe trainers, physicians, scribes
- 16 incidents, all minor, mainly near misses
- 1 in 300 consultations
- Often involved wrong patient selection in the electronic record 7/16
- Often, scribe noticed and rectified an issue before an incident occurred (not caused by scribe) 8/16
- Like all of us, scribes are vulnerable to assault, infectious diseases and emotional responses to ED scenarios
- Self-reporting methodology has issues



Summary

- Emergency physicians who use scribes see 0.21 more patients per hour
- Patient length of stay is decreased by 19 minutes per patient
- Door-to-doc time is unchanged
- Self-reported patient safety incidents (adverse event or near miss) occur in 1:300 patients
 - Mainly incorrect patient identification or test ordering
 - Most events were captured by the scribe prior to adverse event
 - Scribes prevented several other ED events (observing and intervening)

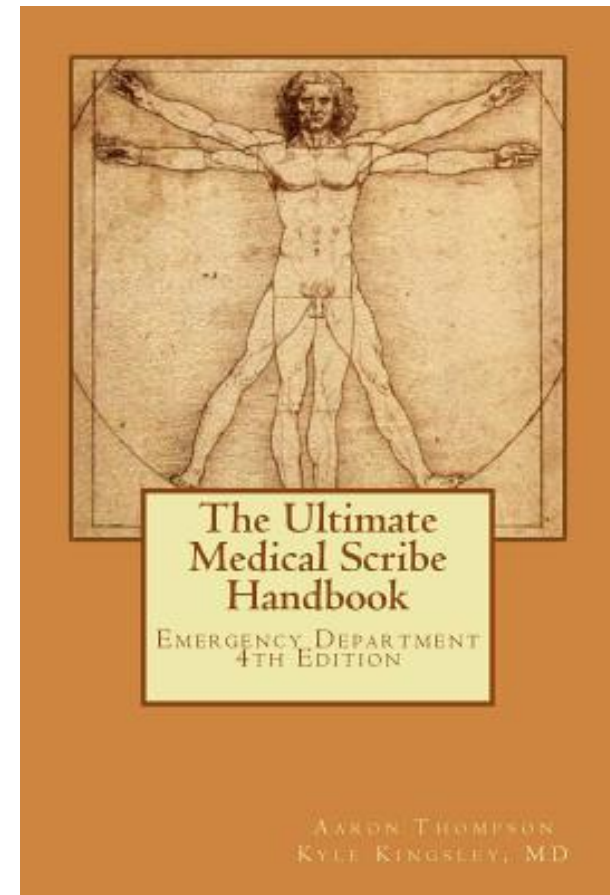


Questions?

- How can we train scribes?
- Costs of training scribes
- How to set up a scribe program
- Patient experience
- FACEM experience
- Scribe work quality
- What tasks can a scribe perform?
- Cost-benefit analysis
- Why aren't there scribe programs here already?
- Further information



How can we train scribes in Australia?



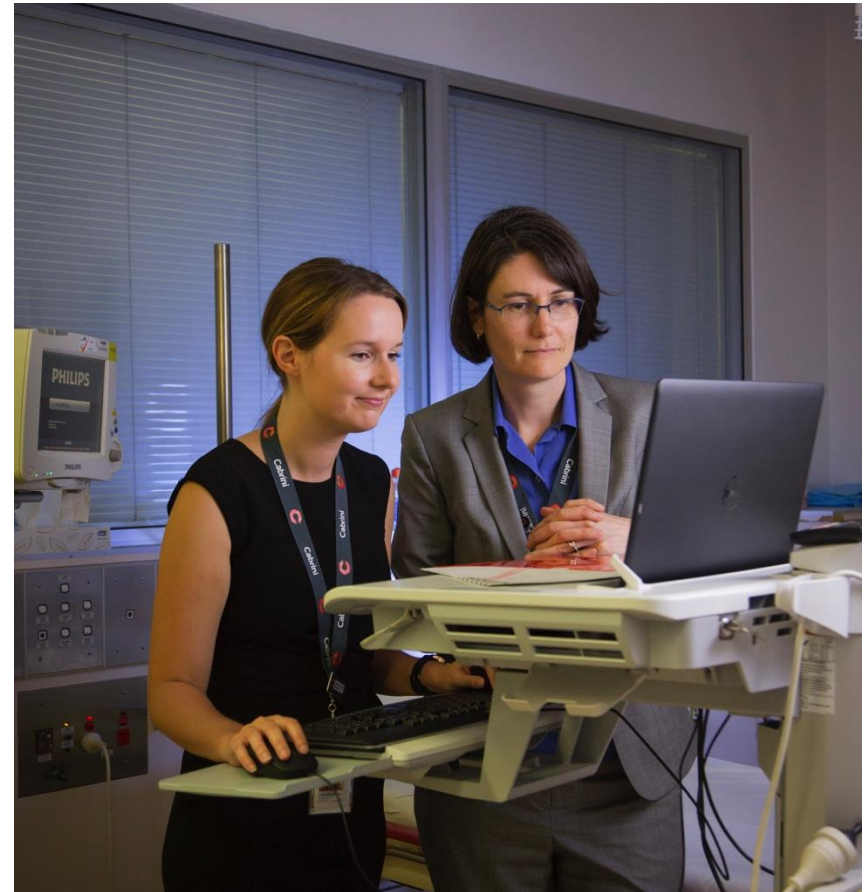
Costs: start-up and training scribes

Task	Total Costs	Cost per competent scribe
Role Development	\$6,915	\$1,383
3 Computers + Trolleys	\$9,598	\$1,920
Education program (including courses)	\$9,075	\$1,816
Recruitment of 10 trainees	\$5,955	\$1,191
Administration cost of training program	\$6,253	\$1,251
Salary cost of trainees	\$8,213	\$1,642
Overall costs (including start-up and training)	\$46,009	\$9,203



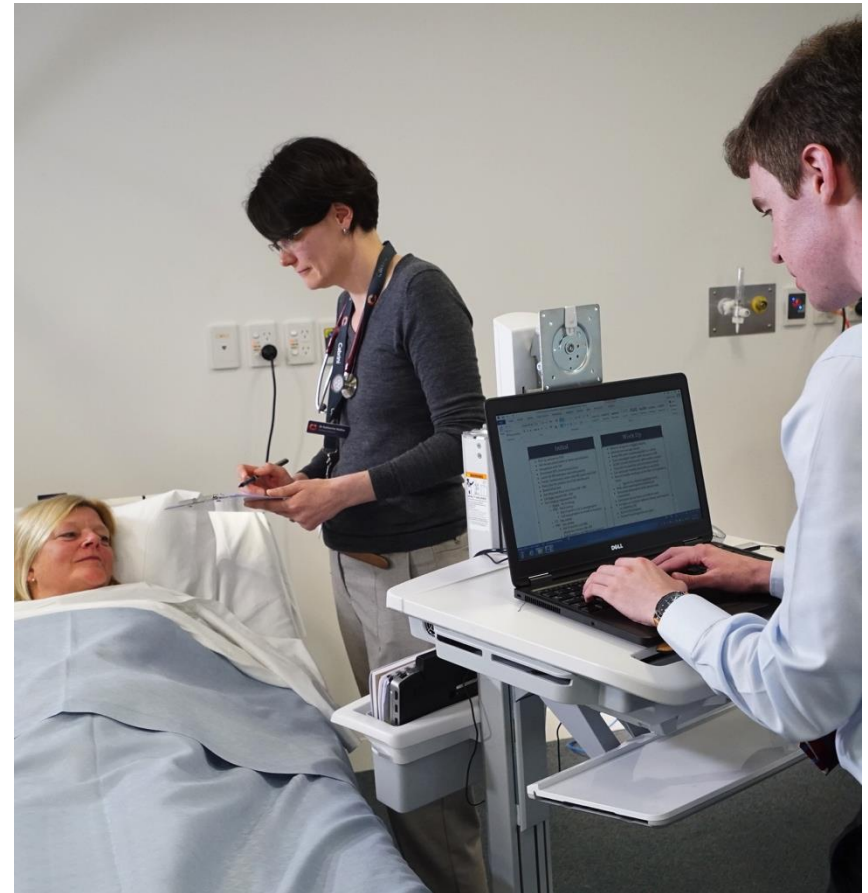
How to set up a scribe program

- Description of how to implement a scribe program outside the USA
- Recruitment
- HR
- Training
- Equipment
- Certification of skills



What do patients think about scribes?

- Interviews
 - Purposive recruitment
 - 10 interviews
 - All positive
- Blinded survey
 - 82% response rate
 - 95 scribe:115 no scribe
 - Press Ganey
 - Net Promoter Score
 - Crowding/inhibition/autonomy all same

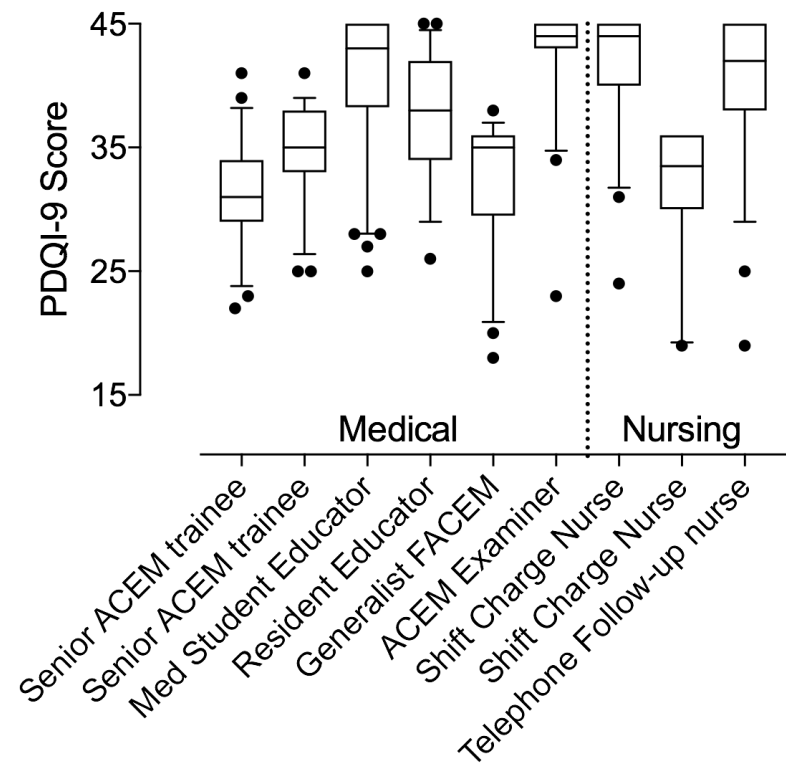
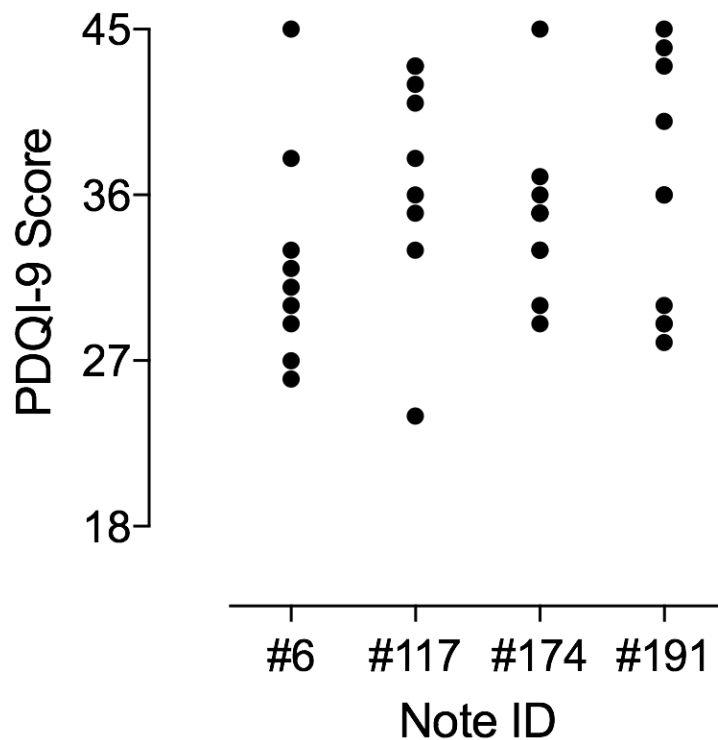


What do FACEMs think about scribes?

- 85% like scribes
- 15% are happier without



Is scribe work quality ok?



Tasks a scribe can perform

Electronic physician allocation

Locating nurses notes

In-room documentation of:

- History

- Physical examination

- Medical plan

- Investigation

- results/interpretations

- Progress in ED

- Diagnosis

- Disposition plan

- Safety net information

Information retrieval:

- Primary care letters

- Clinic/specialist letters

- Previous hospital records

- Previous investigations

Facilitation of investigations:

- Adding clerical details to requests

- Faxing investigation requests

- Calling in radiology staff

Coordinating with porters

Confirming bookings and times

Communicating plans to nurses

Troubleshooting investigation delays

Post Initial consultation tasks:

- Booking beds

- Conveying written requests to
nurses/allied health staff

- Paging registrars/residents

- Locating specialists

- Obtaining specialists on the telephone

- Documenting specialist phone opinions

- Documenting specialist consultations

- Time-based data entry

- Mandatory registry data entry

Discharge preparation:

- Printing sick certificates

- Making review appointments

- Printing referral letters

- Making out-patient test appointments

- Printing advice sheets



Cost-benefit analysis – Cabrini data example

Assumptions

- Training cost per scribe \$USD 5015
- Physician productivity gain/hour: 15%
- Time in ED per patient reduced by 19 minutes
- Scribe works 1000hrs total in career after training
- Mean scribe wage \$USD 20.51/hr
- Physician wage \$USD 165/hr
- 25% on-costs included above
- Costs per cubicle hour USD\$64.20
- Revenue per patient is unchanged
- There is continuous patient supply

Calculations

Costs or savings in USD per scribed hour	With training absorbed by site	50% training absorbed by site 50% by scribe	100% training absorbed by scribe
Scribe costs	(20.51)	(20.51)	(20.51)
Training cost	(5.00)	(2.50)	0
Cubicle costs saved	26.91	26.91	26.91
Physician costs saved	24.75 (15% of US \$165)	24.75	24.75
Total USD costs saved per scribed hour	+26.15	+28.65	+31.15



Why haven't scribes been implemented yet?

What are the barriers?

- Upfront investment
 - Political/organisational commitment
 - Personnel (FACEM to run scribe program)
 - Start-up cost \$50K
- Corporate knowledge/skills
- Lack of fee-for-service environment
- Lack of a pool of trained scribes to hire



Further Australian scribe research information

- Pilot: EMA; DOI: 10.1111/1742-6723.12314
- Extended Pilot: EMA; DOI: 10.1111/1742-6723.12562
- How to start-up: AHR; DOI: 10.1071/AH16188
- Cost of training: EMJ; DOI: 10.1136/emered-2016-205934
- Patient experience: EMA; DOI: 10.1111/1742-6723.12818
- FACEM experience: EMJ; DOI: 10.1136/emered-2017-206637
- Quality of notes: ACI; DOI: 10.4338/ACI2017050080

- Contact: Katie Walker, Cabrini ED; +61 431 272 262,
katie_walker01@yahoo.com.au

