Management of Indwelling Urinary Catheters in the Emergency Department – Electronic Medical Record System: a Hindrance?

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No Conflict of Interest to declare

Background

- HAI are most frequent preventable complications in hospitals.
- CAUTI account for 40% of HAI in Australia
- Account for 80% of hospital acquired urinary tract infections (HAUTI)
- Documentation is a key aspect of CAUTIs prevention
  - Daily IDC checks
  - Assessment of IDC need
- EMRs are now widely used
- Some studies show that increase in documentation time up to 100%

IDC documentation

- IDC insertion data
- We know that 305 of hospitals do not record UTI rates
- Less than 50% monitor number of patients that have an IDC inserted
- 70% do not monitor the duration or discontinuation of IDC
- Up to 11% of patients with IDC have no documentation of either insertion or removal

Aim and Methods

- To explore healthcare professionals' documentation practices for the management of an IDC in situ on presenting to the ED, or inserted in the ED and in wards where patients were discharged to from the ED.
- To explore documented practices compared to best evidence-based practice guidelines, and local organisation guidelines, policies and procedures.
- A quantitative descriptive study design was used to perform a retrospective review of EMRs of patients treated in the ED with an IDC.

Methods

- Data were collected from an ED of a large tertiary metropolitan public hospital in Melbourne
- 4640 records were screened to include a sample of 100 consecutive patients' records
  - Admitted to the ED
  - Evidence of IDC insertion, management or replacement in the ED
  - Patient EMR available for review
- Ethics approval obtained before the start of the study

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Sample Characteristics

- Median age = 71 years, (IQR = 19.25)
- 22 to 97 years
- Over 70% over 60 years of age,
- 59% male and
- 71% of IDC insertions in patients between aged between 60 to 90 years.

IDC on arrival to the ED

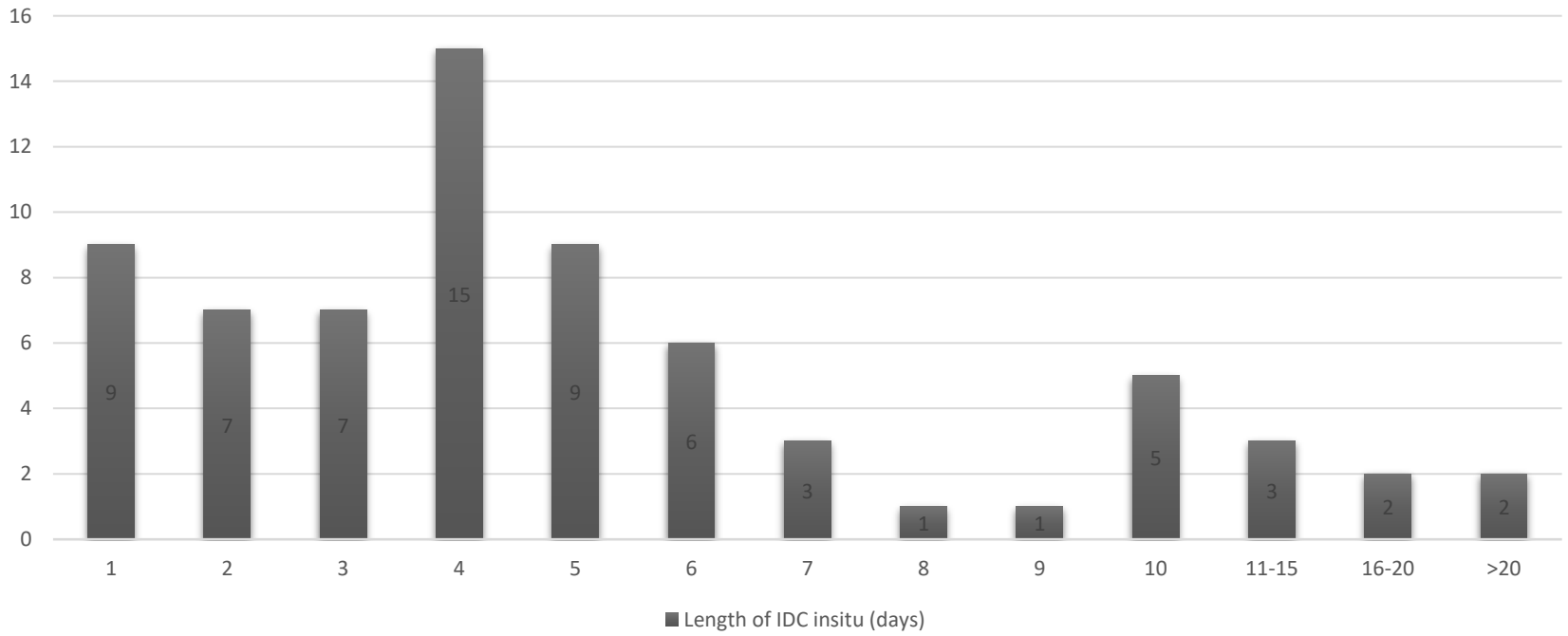
- 24 patients treated with an IDC in the ED
- 46% (n =11) had an indication for a long-term IDC documented
- 42% (n = 10) had an indication for a short term IDC documented,
- 12% (n =3) did not have an indication for the IDC documented
- Documentation located in the lines/devices sections was examined
  - Free text notes examined when no documentation found
  - Free text notes of Medics and other healthcare professionals

Insertion

Healthcare professional that inserted IDC	
Registered nurse	60% (49)
Medical Practitioner	14% (11)
Not documented	26% (21)
Technique Documentation	
No	85% (69)
Yes	15% (12)

Characteristics	%* (n)	
Urinary Retention or obstruction	32% (32)	
Bladder scan to confirm (documented)		
Yes	44% (14)	
No	56% (18)	
Urine Volume		
<499mL	22% (3)	
>500mL	64% (9)	
Not documented	14% (2)	
Clot retention	2% (2)	
Monitoring	38% (38)	
Acute injury/surgery resulting in immobility	42% (42)	
Mobility consideration	81% (34)	
Immobile	69% (29)	
High falls risk	12% (5)	
Ambulant	0% (0)	
Treatment & investigation	16% (16)	
MSU collection attempts prior insertion		
Yes	19% (3)	
No	81% (13)	
Urinary incontinence management	16% (16)	
Urogenital or bladder management	1% (1)	
Labour and birth management	0% (0)	

Length of time in situ



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Documentation

- Documentation of a plan for IDC was derived from the healthcare professionals' free-text typed notes
- 25% of patients had IDC management plan documented in the ED
- only 36% (n =9) of these plans including explicit removal criteria,
- Estimated time frame for removal 4% (n =1)
- 11% had documented syringe aspiration/manual washout with 9 of these (82%) detailing no reasons for the washout

Catheter removal

Characteristics	%* (n)
IDC removed during admission	74% (74)
Criteria initiated removal	14% (10)
Planned date of removal	12% (9)
Removal reason documented	86% (64)
Self-removal/requested	9% (7)
Indication resolved	62% (46)
Trial of void	38% (28)
Potential infection	8% (6)
Positive CAUTI result	8% (6)
Catheter reinserted	
Yes	12% (9)
No	88% (65)
if no, did the patient remain admitted	
Yes	85% (55)
No	15% (10)
if yes, documentation of incontinence	
Yes	27% (15)
No	73% (40)
Follow up management	
Yes	87.5% (14)
No	12.5% (2)
Trial of Void Clinic	28.5% (4)
Community Nursing	43% (6)
Primary Healthcare Provider	28.5% (4)
Discharged home with an IDC in situ	16% (16)

CAUTI

- 26 patients met criteria to be diagnosed with CAUTI
- Most frequent pathogen – E.Coli followed by Klebsiella and Enterococcus faecalis

Bacteria Identified	% (n =26)
CAUTI cases	26% (n =26)
Escherichia coli	27% (n =7)
Candid albicans	8% (n =2)
Pseudomonas aeruginosa	8% (n =2)
Klebsiella (pneumoniae/oxytoca)	19% (n =5)
Enterococcus faecalis	15% (n =4)
Proteus bacilli	11% (n =3)
"Staphylococcus aureus"	4% (n =1)
"Enterococcus raffinosus"	4% (n =1)
"Aerococcus urinae"	4% (n =1)
Note. " " Direct quotes	
Location Microbiology Collected	% (n =26)
Emergency Department	54% (n =14)
Admitting Ward	46% (n =12)
Identified in both departments	15% (n =4)

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IV Antibiotics usage

Antibiotic	CA UTI treatment n=	Other treatment n=	Conjunction n=
Gentamicin	2	7	6
Meropenem	1	3	6
Cefazolin	0	8	2
Cefepime	0	0	1
Ceftazidime	0	1	0
Ceftriaxone	1	30	14
Daptomycin	0	1	2
Ciprofloxacin	0	1	1
Moxifloxacin	0	1	0
Vancomycin	0	8	3
Azithromycin	0	7	3
Clindamycin	0	1	1
Erythromycin	0	1	0
Metronidazole	0	12	4
Amoxicillin	0	1	1
Ampicillin	1	2	3
Benzylpenicillin	0	1	0
Flucloxacillin	0	5	4
Piperacillin-Tazobactam	1	14	6

Antibiotic Class	Prescribed % (n =169)	Appropriate administration	Inappropriate administration	Length (mean)	Days (range)
Aminoglycoside	9% (n =16)	31% (n =5)	69% (n =11)	1.2	1-7
Carbapenem	6% (n =10)	60% (n =6)	40% (n =4)	6.8	2-26
Cephalosporin	34% (n =57)	88% (n =50)	12% (n =7)	3	1-8
Cyclic lipopeptide	2% (n =3)	33% (n =1)	67% (n =2)	4.3	3-5
Fluoroquinolone	1% (n =2)	100% (n =2)	0% (n =0)	4	1-7
Glycopeptide	7% (n =11)	82% (n =9)	18% (n =2)	3.3	1-11
Macrolide	8% (n =14)	79% (n =11)	21% (n =3)	2.9	1-8
Nitroimidazole	9% (n =16)	81% (n =13)	19% (n =3)	2.2	1-7
Penicillin	24% (n =40)	65% (n =26)	35e% (n =14)	3.6	1-13
Overall	n =169	73% (n =123)	27% (n =46)	3.5	1.2-6.8

Oral Antibiotic usage

Classification	Antibiotic	CAUTI treatment (n)	Other treatment (n)	Conjunction treatment (n)
Cephalosporin	Cefuroxime	0	0	2
	Cephalexin	0	3	7
Fluoroquinolone	Ciprofloxacin	1	1	2
	Moxifloxacin	0	1	0
Glycopeptide	Vancomycin	0	1	0
Macrolide	Azithromycin	0	1	0
	Clindamycin	0	1	0
Nitroimidazole	Metronidazole	0	1	1
Penicillin	Amoxicillin	0	15	7
	Ampicillin	0	1	0
	Flucloxacillin	0	3	0
	Piperacillin-Tazobactam	0	1	0
Sulphonamide	Dapsone	0	0	1
	Trimethoprim	0	4	2
Tetracycline	Doxycycline	0	2	0

Antibiotic	Prescribed % (n =58)	Appropriate administration	Inappropriate administration	Length (mean)	Range (days)
Cephalosporin	% (n =12)	83% (n =10)	17% (n =2)	5.8	1-11
Fluoroquinolone	% (n =5)	80% (n =4)	20% (n =1)	3.6	1-7
Glycopeptide	% (n =1)	0% (n =0)	100% (n =1)	1	1
Macrolide	% (n =2)	50% (n =1)	50% (n =1)	1	1
Nitroimidazole	% (n =2)	100% (n =2)	0% (n =0)	5	4-6
Penicillin	% (n =27)	85% (n =23)	15% (n =4)	5.5	1-11
Sulphonamide	% (n =7)	86% (n =6)	14% (n =1)	6.9	1-12
Tetracycline	% (n =2)	100% (n =2)	0% (n =0)	4	3-5
Overall	(n =58)	83% (n =48)	17% (n =10)	4.1	1-6.9

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Discussion points

- Multiple sources of discrepancies in documentation of practices for the management of IDC on the EMR by healthcare professionals were found
- Several fields in the EMR were not used by healthcare professionals as intended for documenting IDC management practices
- Duplication, inconsistencies and gaps in documentation
- EMR was tailored by organisational leaders
- Implementing the EMR intended to assist healthcare professionals to communicate and easily access information
- This study identified multiple problems with healthcare professionals documentation of IDC management practices in the EMR.

Discussion points

- Minimal use by nurses of the field intended to document invasive devices insertion
- Wider use of free text notes
- Field intended to document daily care and consideration of ongoing necessity available but not used
- Same information was available in multiple areas – for example ICU had specific free text/notes for doctor containing lines considerations

Conclusions

- We expected the data collection in this study to be easy because of EMR
- Duplication of screen have potential for have an impact on patient outcomes
- Reducing incidence of CAUTI is linked to good documentation and daily assessments
- Urine specimen were collected too frequently and indications inconsistent with guidelines