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ieMR Advanced

Does Electronic Medication Management System (eMMs) Save Pharmacists' Time?



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Outline

- Background
- Aims and objectives
- Methods
- Results
- Discussion
- Limitations
- Conclusion





Background

Electronic medication management systems (eMMS) have built-in decision support for electronic prescribing, dispensing and administration; with the aim to improve patient safety.

Literature showed impact on pharmacists' work pattern:

1. More time in transit
2. Less interruptions
3. Less time required to complete clinical tasks
4. More time clarifying issues

Cerner™ ieMR Advanced (medication management module) was implemented at Children's Health Queensland in April 2018.

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Aims and Objectives

Aim

Identify changes in pharmacists' work patterns after the implementation of eMMS at Queensland Children's Hospital

Objectives

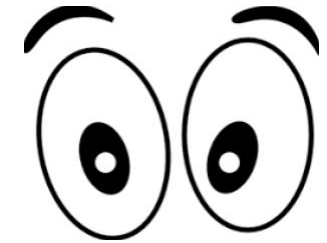
- Observe how ward pharmacists spend their work days after eMMs
- Compare pharmacists' work patterns pre- and post- eMMS
- Compare our findings with literature

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Methods



Time and Motion

- Observation tool
- 1 observer with 1 pharmacist each day
- Record activities/ computer use / location at start of every minute

Observers and participants

- 2x 4th Year Bachelor of Pharmacy students (received same training)
- 7 pharmacists observed (Oct-Nov 2017, 6 months pre-)
- 10 pharmacists observed (May-June 2018, 1 month post-)

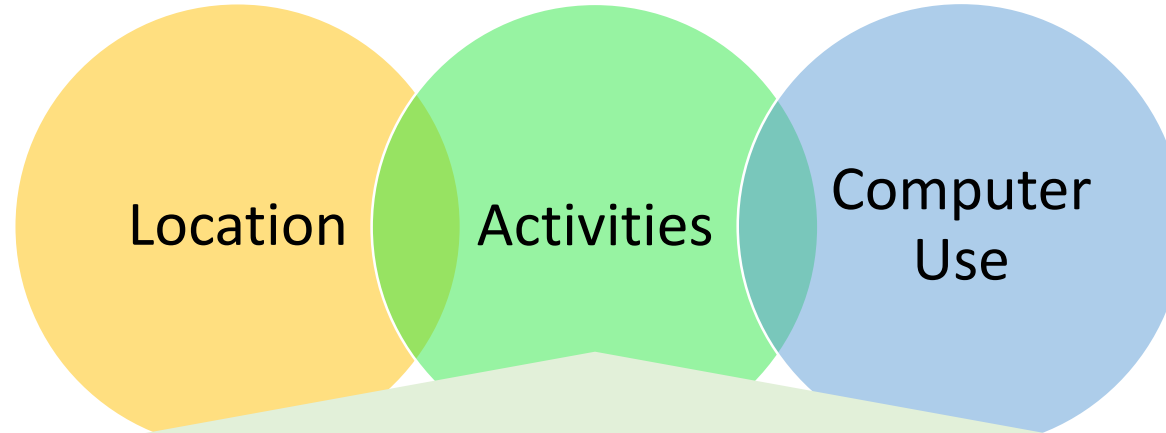
Ethics approval obtained

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Results



Direct patient care

- % for each tasks
- Face-to-face time with patients and families

Verbal communication

- % for each HCP groups
- Interruptions

Non-clinical

- % for each task
- Time saved and time spent on

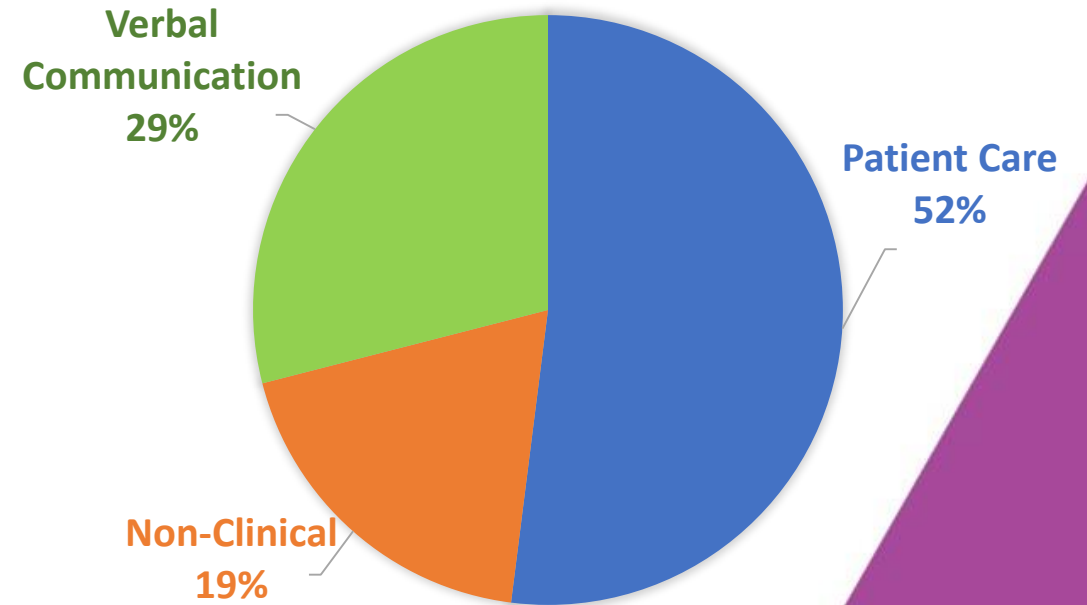
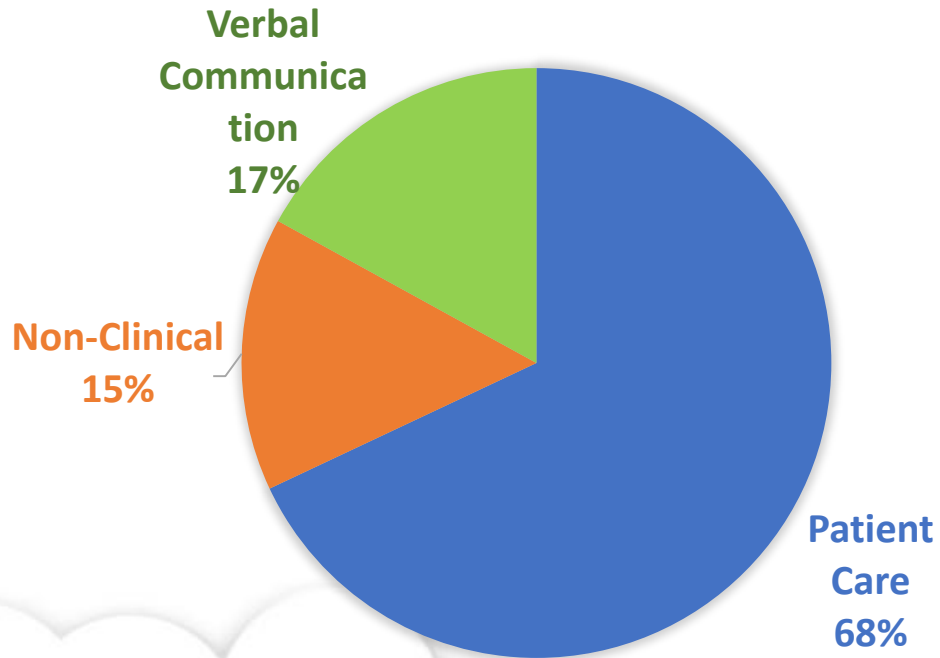




Results – A Typical Day

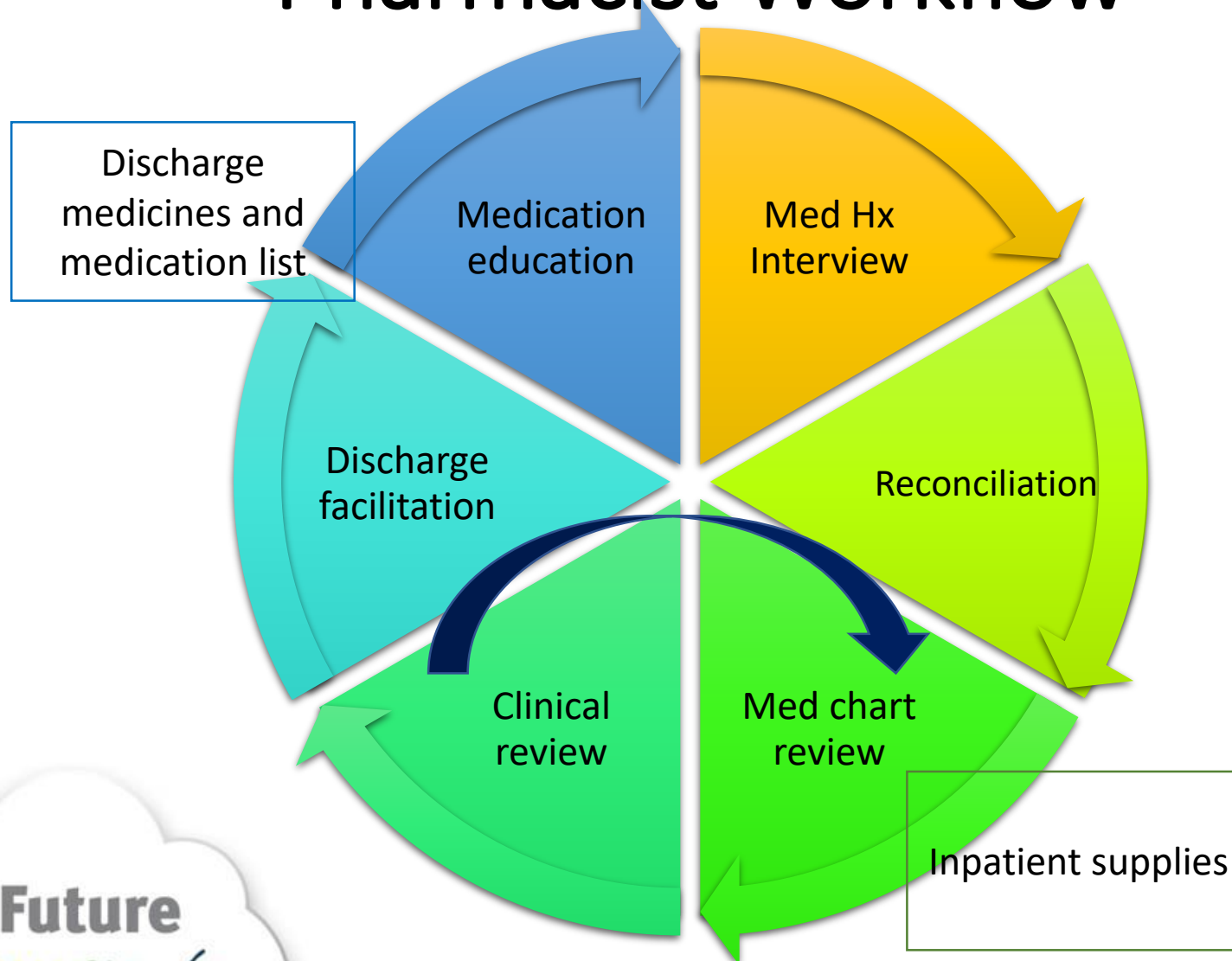
2017
4502 minutes observed

2018
6651 minutes observed





Pharmacist Workflow



Discharge medicines and medication list

Medication education

Med Hx Interview

Discharge facilitation

Reconciliation

Clinical review

Med chart review

Inpatient supplies





Patient Care Tasks

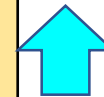
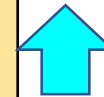
	2017	2018
Clinical review	3.8%	13.25%
Medication chart review	23.9%	11.7%
Dispensing/checking discharge	4.58%	2.72%
Dispensing/checking supplies	4.35%	0.96%
Pathology results review	4.71%	2.26%
Medication history taking	8.11%	4.41%
Medication education	7.80%	6.45%





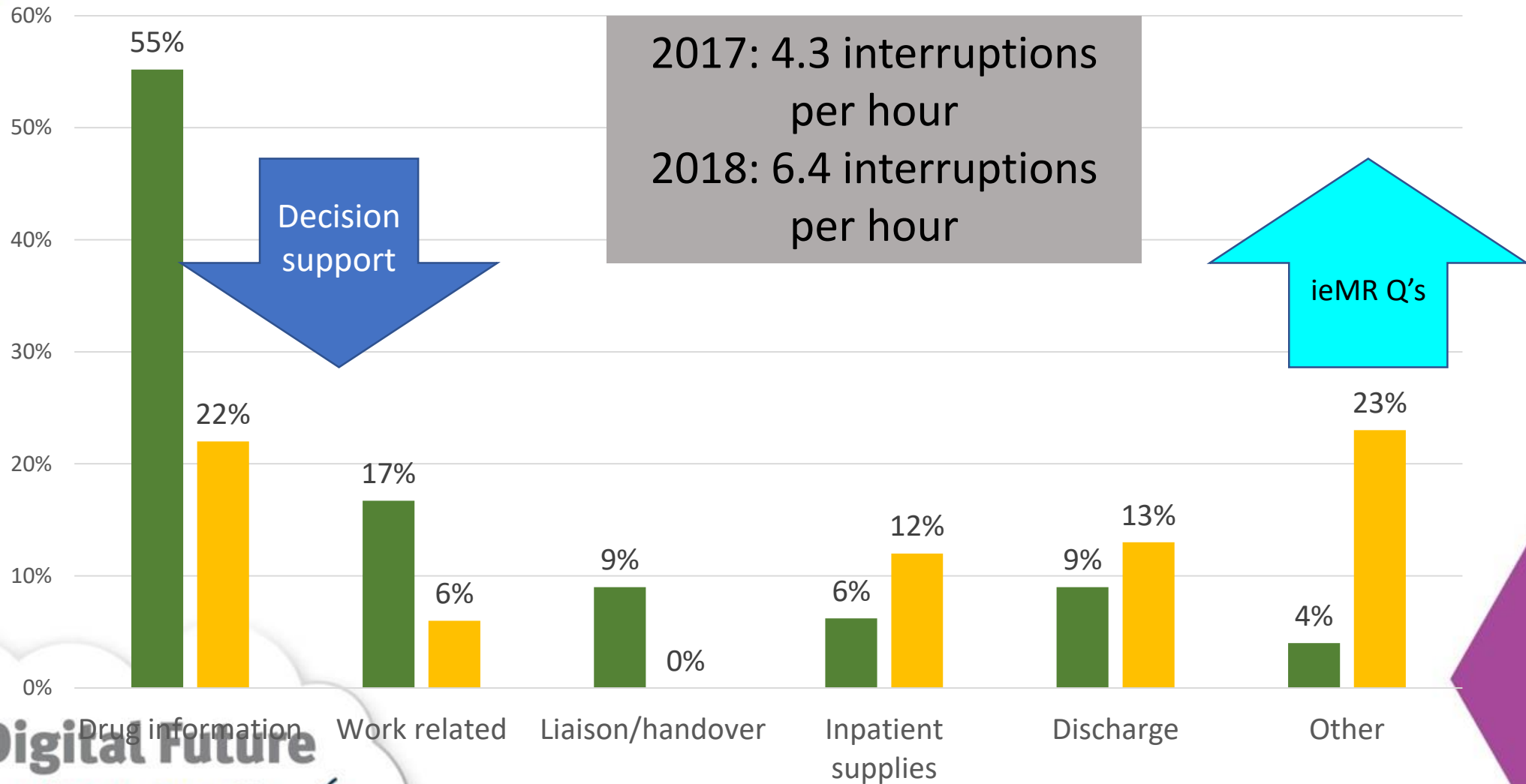
Verbal Communication

	2017	2018
Clarifying issues with prescribers	3.31%	7.5%
Clarifying issues with nursing staff	1.78%	5.64%
Clarifying issue with other health care professionals	1.33%	0.33%
Work-related discussion	7.20%	12.45%
Pharmacists handover	2.09%	0.69%
Other	1.11%	2.17%





Interruptions - Reasons





Non-clinical Tasks

	2017	2018
Walking/Travelling	5.02%	8.45%
Finding Chart	2.40%	0.08%
Work-flow planning	2.04%	1.14%
Search guidelines	1.47%	2.9%
Teaching/Training	1.55%	0.3%
Other	0.80%	3.08%

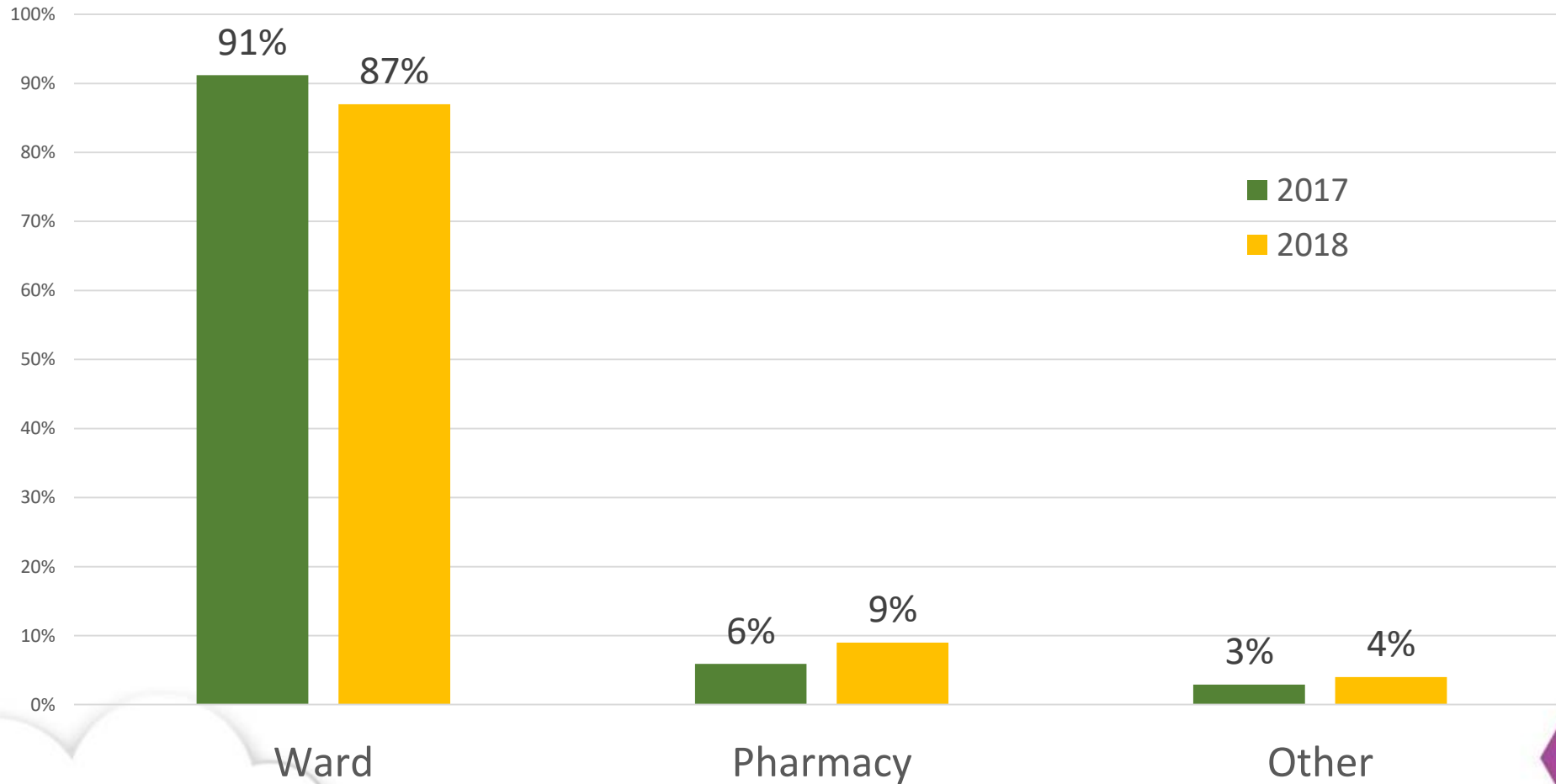


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Locations

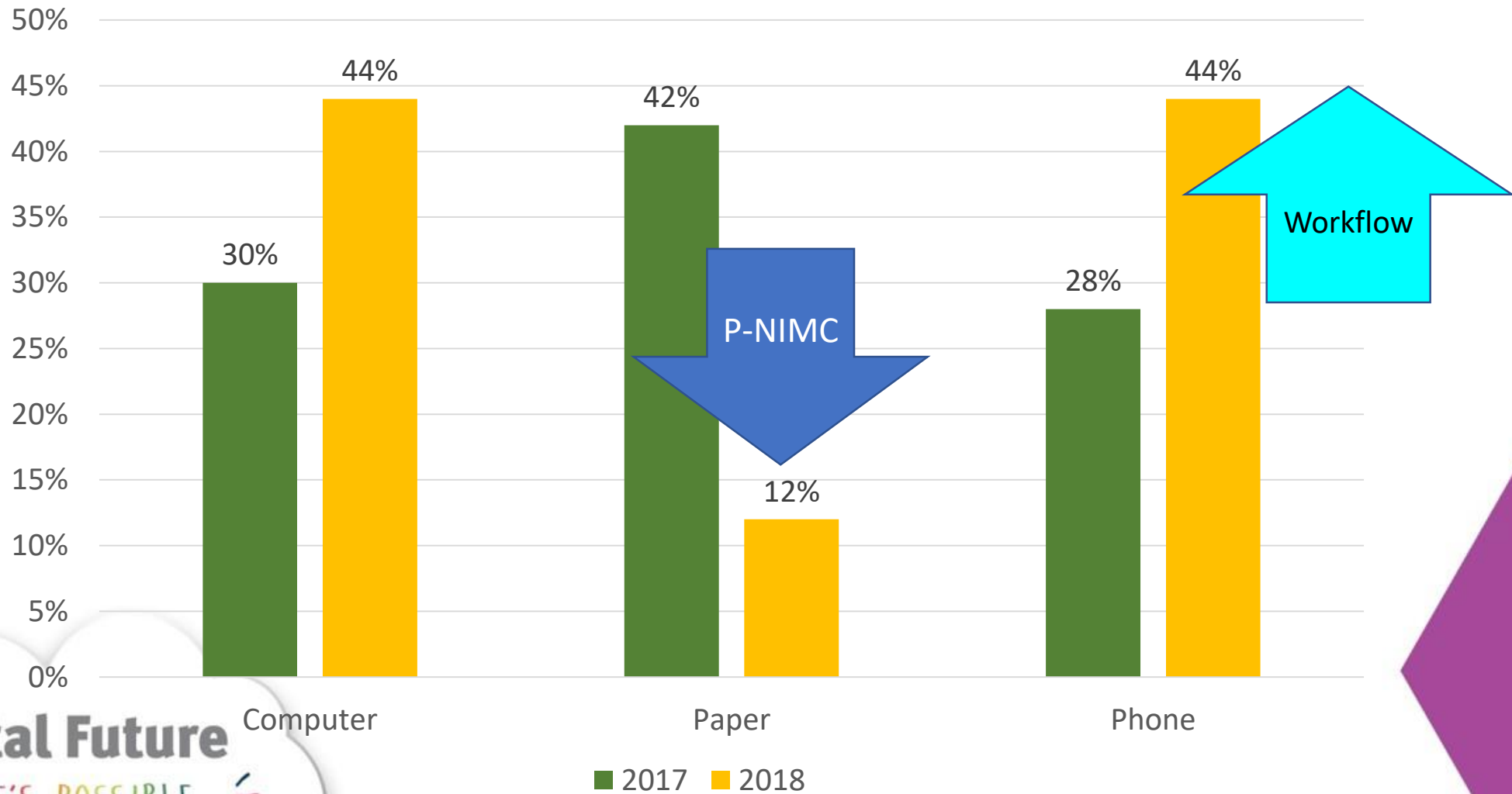


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Computer Time



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Discussion

Patient care

- Overall less time on direct patient care* but more on non-clinical
- Less time spent talking to patients/families
- Clinical review x 3 – information overload and feel obligated

Verbal communication

- More time clarifying issues^ with doctors and nurses
- More interruptions* less drug-related but more technology-related

Non-clinical / location / computer use

- Less time looking for charts but more time in transit^
- Less time on paper but more on phone

*Different to literature

^Same as literature

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Limitations

- Snapshot
 - Weekdays during business hours only
 - 3 weeks observation period
- Use of observation tool
 - Version changes
 - Inter-observer variation
 - Data entry error
- Hawthorne effect
- Skill-mix of pharmacists not differentiated
 - Only medical and surgical teams
- Not able to record multi-tasking

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Conclusion

- Pharmacists are still settling into the eMMS environment ONE month after ieMR Advanced implementation
- As a result, they spent less time focusing on patients but learning new workflows and overcoming technology issues
- We have repeated this study at 12 months post eMMs to see if the changes sustain as we move into “Business as Usual” mode

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- QUT Pharmacy School students
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References

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Thank you!

Questions?

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