INTRODUCTION

Majority of the hospitals in Indonesia do not fulfill the required standards for pharmaceutical services.

Indonesian Ministry of Health Policy Number 1333/Menkes/SK.XII/1999 about the standard for hospital services state that pharmaceutical services are an inseparable part of patient-oriented hospital services, provision of quality medications, including clinical pharmaceutical services, affordable to all layers of the community.

- Problems in the pharmaceutical services of a hospital that are not dealt with appropriately may lead to medication errors. (van den Bermt et al. 2000).
- Failures in the medication process may become hazardous and may threaten patient safety. (AbuElhasan 2011, Khallil et al 2013, Radley et al 2013)
- CPOE has the potential to prevent medication errors, improve the quality of services, and reduce the cost of patient treatment (Van den bermt et al. 2000., Teich et al. 2000., Rochon et al. 2006)

MATERIALS AND METHODS

This is a descriptive, cross-sectional study. Quantitative data: difference in the occurrence of medication errors and response time of hand-written and CPOE prescriptions, using primary data in Building A, Integrated In-Patient Care Unit of RSCM, from 13 June 2016 – 13 July 2016

Qualitative data obtained by in-depth interview of informants

RESULTS

ASSOCIATION BETWEEN PHYSICIAN FACTORS AND MEDICATION ERRORS

- Statistical analysis revealed a significant difference in the occurrence of medication errors associated with clear and illegible hand-writing with a p-value <0.05 (p = 0.005).
- In-depth interview with the attending physicians revealed that typing errors occurred due to incorrect “clicking” on the computer when ordering through CPOE

ASSOCIATION BETWEEN PRESCRIPTION TYPE AND RESPONSE TIME

The results of this research show that the response time to CPOE is longer compared to hand-written prescriptions. This is caused by the number of items in CPOE is more than in the hand-written prescriptions

No previous research have shown the difference in the number of medications prescribed by CPOE and through hand-written prescriptions.

Therefore, this finding highlights a new obstacle that requires evaluation as it may affect the effectiveness of the healthcare system

FACTORS AFFECTING CPOE IMPLEMENTATION

- In-depth interview with the attending physicians:
  - Not accustomed to CPOE
  - Not ready to use the new technology
  - Complicated instructions for use
  - Have not received training for its use
- Kopel et al. (2005) reported on several obstacles in CPOE implementation, including prescriber adaptation to the prescribing system
- Doolen et al (2002) and Poon et al (2004) described several obstacles in CPOE implementation, including:
  - Sociologist practice. Doctors have to become accustomed to CPOE. Physician commitment is also needed for its implementation
  - Healthcare IT. The supporting designs have to be integrated to ensure effective CPOE implementation
  - Lack of resources
  - Lack of funding to design the integrated CPOE implementation

CONCLUSION

- CPOE may reduce the number of medication errors, though the errors are available even in hand-written prescriptions as the nurses and pharmacists are able to re-confirm the prescribed medications to the attending physician if the hand-writing is illegible
- The number of medicines prescribed in hand-written and CPOE prescriptions affects the response time. Physician status of the prescriber (attending/resident) influences the response time as well. Longer response times are also found where there is a lack of human resources available to deliver the medications back to the nurses station
- Majority of the attending physicians still use handwritten prescriptions as they are not accustomed to using the CPOE system and have not received the required training