

Development of Providing Drug Information for Safe Parenteral Medications

Wuri Cho¹, Eunjae Lee¹, Sunhee Wang¹, Sueok Kim¹, Hyeyoung Son¹, Hyenjoo Jung¹, Hyojin Choi¹, Sung-Ryun Hong¹, Junhyeong Lee², Kyunghye Yoo³

¹ Department of Pharmacy, Kangbuk Samsung Hospital, Seoul, Republic Of Korea

² IT Part/Samsung SDS, Kangbuk Samsung Hospital, Seoul, Republic Of Korea

³ IT Implementation Group/Miracom, Kangbuk Samsung Hospital, Seoul, Republic Of Korea

INTRODUCTION

- Drugs are an extremely useful tool for patients, but at the same time the incorrect administration or dosing could be extremely dangerous, even fatal. So we must work hard to prevent errors.
- Injectable drugs could be reconstituted and diluted in a variety of ways, requiring verification before administration. However, doctors and nurses may not have the time or be adequately trained to search drug information sources. Increasing access to information is needed to address issues such as not contacting a pharmacist or relying on personal experience.
- After analysing the reasons for the TPN prescription intervention, we inferred that the human factor was an invalid dose input and the system factor was the lack of a computerised system for TPN prescription and review.

AIM

This study aims to improve patient safety by reducing errors in the mixing of injectable drugs and Total Parenteral Nutrition(TPN) fluids.

METHOD

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| Mar 2022 <ul style="list-style-type: none"> Assessments to see if a registration is required. Injectable drug listing submission. | April 2022 <ul style="list-style-type: none"> Analysing the reason for the TPN prescription intervention. Designing a TPN calculator using Excel. | May to Aug 2022 <ul style="list-style-type: none"> Obtaining drug information on dosing and dilution. Cross-validation of collected information. | Sep 2022 <ul style="list-style-type: none"> Development of a dilution concentration display programme. Development a TPN calculator and use in prescribing and review. | Oct to Nov 2022 <ul style="list-style-type: none"> Upload drug information database to Order Communication System(OCS) for use by healthcare providers. |
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RESULTS

- We created a database for injectable drug information that could be viewed directly in the Order Communication System(OCS). Through team discussions and interviews with doctors and nurses, we decided on the name IV Mix Solutions (IMS). By right-click on each drug, the NS/5DW compatibility, administration and stability information is displayed.

Fig 1. Number of drug listed (TOTAL 254)

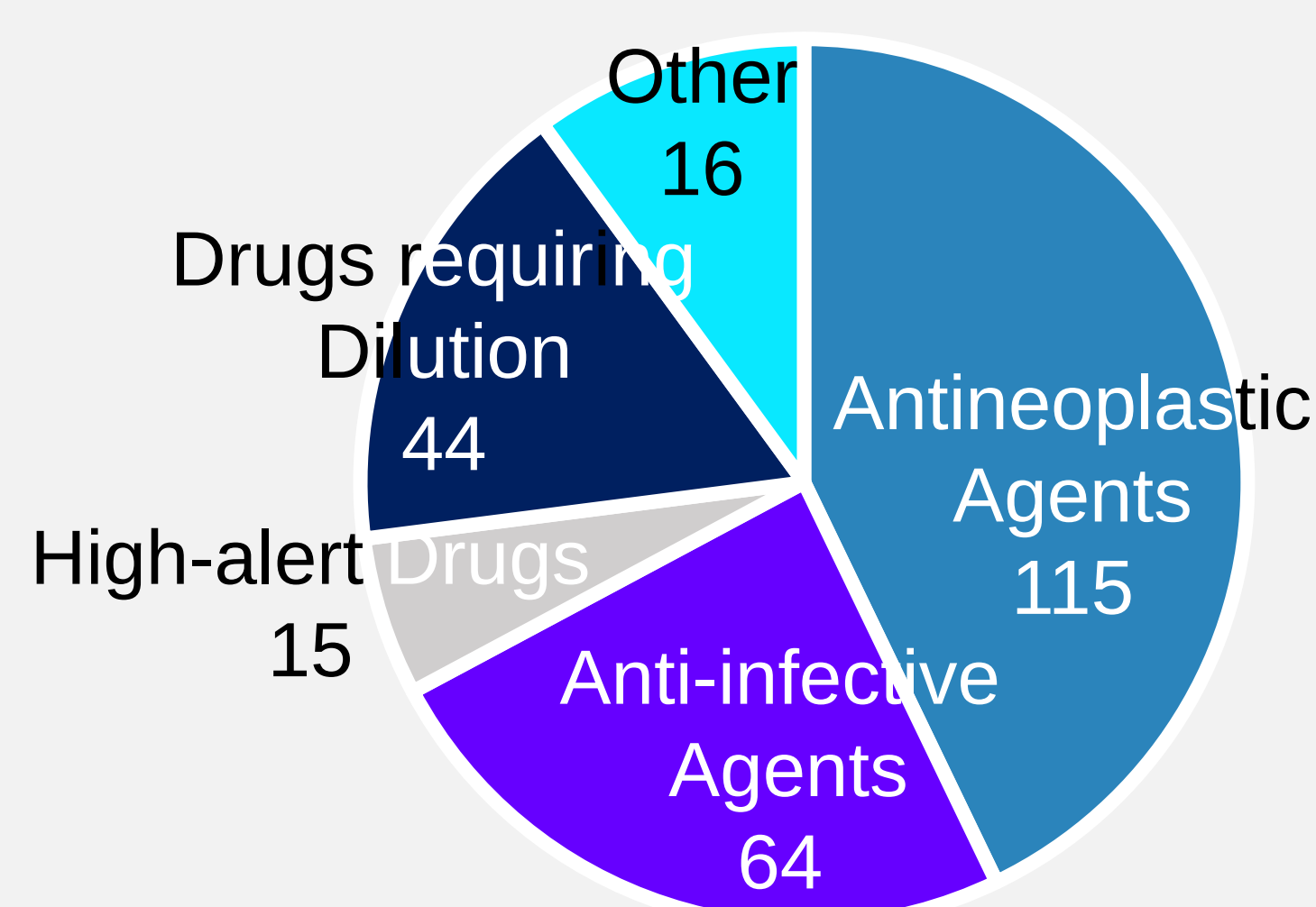


Fig 2. Number of drug with incompatible fluids (TOTAL 70)

Incompatible fluid for Mix	NS (Normal saline (NaCl 0.9%))	5DW (Dextrose 5% in water)	Both NS and 5DW
Number of Drugs	9	48	13

Fig 4. IV Mix Solutions

Fig 3. Alert system when ordering incompatible fluids

- A dilution concentration range of 96 drugs was generated.

Fig 5. Abnormal dilution was immediately identified by the computerised review system at pharmacy.

- After the project ends, the TPN calculator utilization rate reached 100%.

Fig 6. TPN calculator for Order

Fig 7. TPN calculator for Order Review

Fig 8. Review time per 1 TPN order

Before	2 to 5 min
After	0.2 to 1 min

Fig 9. Dosing error per 100 TPN orders

Before	4.1
After	0

CONCLUSIONS

- By presenting an appropriate diluent fluids, dose and concentration range for each injectable drugs in the IMS, stability-related errors will be eliminated and wrong route medication errors will also be reduced by making the available drug information easy to read . To enable the safe and effective use of medicines, we will add all available injectable drugs to the IMS.
- Medication errors will be reduced in advance by computerising standardised drug stability information and TPN order forms.

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CONTACT INFORMATION wuri.cho@samsung.com