Intravenous admixture service: implementation of service in the neonatal intensive care unit patient, Bumrungrad international Hospital

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OBJECTIVES

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Intravenous Admixture Pharmacy Service (IAS) provides service for patients at neonate intensive care unit (NICU), Bumrungrad international Hospital, to improve therapeutic outcomes, control expenses and develop pharmacist roles in the management of high-alert medications in NICU.

METHODS

Standard concentration was created by IAS, Unit-specific formulary was created by Informatics pharmacist for the drug products used on NICU. Pharmacist detected Drug related problems (DRPs) and medication errors (MEs) of NICU patients during Jan 2011 to Jan 2012 by using the daily medical chart review. All identified DRPs and MEs were categorized into types of DRPs and medication use processes. Pharmacist interventions were provided and those acceptances were recorded.

RESULTS

A total of 98 patients (64 male) with a mean gestational age of 34.7 weeks (26-40 weeks) were included. The mean length of hospitalization was 31 days (2-88 days). On average, patients received 30 items (1-417 items). The majority of prescriptions were accounted for by antibiotics (n=1,515), which were received by 76% of all patients, followed by IV fluid and electrolytes (n=323) and GI drugs (n = 293). Of all the different drugs prescribed (n = 855).

	VLBW*	LBW**	NBW***	Total	
	(n =19)	(n=27)	(n=52)	(n=98)	
Gestational age (GA)					
Preterm	19.4%	20.4%	5.1%	44.9%	
	(Mean =	(Mean =			
	29.8	33.2			
	weeks)	weeks)			
Term	0%	7.1%	48%	55.1%	
Sex					
Male	8.2%	16.3%	40.8%	65.3%	
Female	11.2%	11.2%	12.3%	34.7%	
The mean length	40.8	18.6	11.2	31	
of hospital stay					
(days)					
Respiratory	12	19	11		
distress syndrome					
Congenital		3	11		
Anomalies					
Neonatal sepsis			6		
Pneumonia or		1	5		
pneumothorax					
PDA	6	2	1		
Hyperbilirubinemia		1	1		
Electrolyte	1	1	1		
disturbances					
UTI/Infection			4		
Others		1	5		
VLBW* = Very low b	irth weight. F	rom 500 - 1,50	00 gm		



Figure 1. Medications which prepared by IAS, as a percentage of the total number of items, separated by drug class, January 2011-January 2012 (855 prescriptions)



RESULTS

24 Drug Related Problems (DRPs) were identified in 11 patients. DRP types included 5 drug incompatibility, 12 inappropriate dosage regimen, 3 concentration too high and 4 need additional drug therapy. The MEs were categorized by medication use process errors being 24 prescribing errors, 7 preparing errors, 1 administration errors and 5 transcribing error. A total of 24 pharmacist's interventions were provided based on 24 DRPs. All of them were accepted by the health care team.

Table 2. NICU Staff Satisfaction Survey									
	4	3	2	1	x				
L. Easy to follow the lowchart	1	7	5	0	2.69				
2. Rapidness	1	6	5	1	2.54				
 Enquity in service 	1	8	3	1	2.69				
 Friendly and courteous 	1	9	3	0	2.85				
5. Ready to listen others opinion	1	8	4	0	2.77				
5. Provide drug nformation	1	8	4	0	2.77				
7.Decreease my vorkload when this service was mplemented	4	6	3	0	3.08				
3.Increase patient safety from this service	2	9	2	0	3				
 Cost saving 	2	6	4	1	2.69				
1 = Strongly Agree 2 = Neutral	3 = A 1 = D	3 = Agree n = 13 1 = Disagree							

CONCLUSION

Although most DRPs did not cause harm to patient, the pharmacist had a role in management of DRPs and MEs. The success of implemented service was not only improve the quality of patient's care but also decrease nurse workload and expenses (cost-saving 1.29 million Baht).