

Thesis Title Implementation of a Centralized Parenteral Nutrition Admixing Service for Pediatric Patients at Ramathibodi Hospital

Name Tasanee Sonchaem

Degree Master of Science (Pharmacy)

Thesis Supervisory Committee

Busba Chindavijak, Doct.Sc.Pharm.

Umaporn Suthutvoravut, M.D., Diplomate Board of Pediatrics

Petcharat Pongcharoensuk, Ph.D.

Date of Graduation 15 June B.E. 2535 (1992)

ABSTRACTS

Parenteral nutrition (PN) solution is an intravenous infusion given to patients to meet individual requirement. PN solution consists of dextrose, amino acids, fat, minerals, vitamins and water. The solution must be free from microbial contamination, pyrogen, and particulate matter. At present, PN solutions used in Ramathibodi Hospital are compounded at each nursing station. But in the near future, this admixing will be done all together in a special room. This study was designed to determine the pattern of prescribing PN solution, to determine rate of PN usage, to estimate cost PN solution, and to propose a pattern and layout of a PN admixing center. Type and quantity of additives were collected from medical records of pediatric patients who received PN while admitted in 7 pediatric wards of Ramathibodi Hospital from 1 April 1991 to 30 June 1991, a 91-day period. The results showed that

during the study period there were 38 pediatric patients receiving 1,281 bottles of PN solution, an average of 14.08 bottles per day. Cost of PN solution prepared in each ward, a decentralized system, was estimated to be 316,509 bahts. When the PN solution was assumed to be mixed in a centralized system, the estimated cost was 203,498 bahts, resulting in cost saving of 35.70%. The results also showed that 985 bottles of PN solution contained more than one additive. A total of 3,485 additives were used, or an average of 3.54 additives per bottle.

The PN admixing center was designed to have an area of 5 m x 6 m. The center consisted of 4 rooms for different uses. One room was for issuing and distribution of the prepared PN solution. The second and the third room were stock and hand-washing and dressing room, respectively. The last and important room was an aseptic area with laminar flow hood where PN solution is compounded. The size of these four rooms were specified. In addition, the stock of materials (additives) and equipments were specified, according to the rate of use found in the study.

A calculation handbook was also prepared in a tabulated format, consisting of 17 tables. These tables will help physicians, nurses, and pharmacists in calculating the amount of nutrients (weight basis) required by patients. Volume of additive containing the required amount ordered by physicians could be determined from this handbook as well.