CHAPTER III

RESEARCH QUESTIONS & DESIGN OVERVIEW

Study of nosocomial infections in health care facilities has been undertaken and emphasized by people who are concerned with and responsible for the problem in this field persistently for decades. Most studies of nosocomial infections have been conducted on the nature and pattern of nosocomial infections and the identification of prevention techniques. Not many studies address the issues of implementation of effective programmes to control such infections. That was from the reports presented at the second International Conference on Nosocomial Infections, held in 1980 in U.S.A.(Dixon, 1981).

In Thailand, most studies have focussed on nosocomial infection rates and on associated factors (Pinyowiwat, et al., 1988; Danchaivijitr and Waitayapiches, 1988; Nosocomial Infection Control Group of Thailand, 1988; Jamulitrat, Ngo, Thongpiyapoom, and Varindsathien, 1989; Srisupan, Senarat, Pichiansathien and Tongsawat, 1988; Danchaivijitr and Chokloikeaw, 1988; Sithikesorn, 1988). Some have tested the efficacy of a single control measure. Systematic control programmes have rarely been studied. Though it is essential to know the characteristics of the infections to develop prevention and control techniques, we also need to study practical action programme suitable to the empiric situation. The use of the

control guidelines and compliance with them is one measure of the hospital's infection control effort (Goldmann, 1986). The CDC,an expert group on matter of nosocomial infection of U.S.A. has promulgated a series of detailed,specific guidelines covering a wide variety of infection control practices and procedures for hospitals to follow. There are three categories of control measures. The details of each category were previously described in chapter II. Clear evidence of effective use of the control guidelines in Thai hospitals has not yet been documented. This study has been undertaken to test the effectiveness of the application of the strongly recommended CDC control guidelines category I to health personnel in combination with education for the control of nosocomial urinary tract infections.

Primary Research Question

Does the application of the control guidelines for urinary tract infection and education to nursing personnels reduce the infection rate of fifty percent among catheterized patients compared with the rate by application of the control guidelines alone?

Secondary Research Questions

1. What is the degree of adherance to practice according to the nosocomial urinary tract infection control measures category I of the CDC among ward personnel prior to the introduction of guidelines?

2. Does the adherance to practice according to the nosocomial urinary tract infection control measures category I of the CDC change after introducing the control guidelines and education?

Objectives

1. To study effectiveness of the guidelines application and education to the routine service.

2. To compare the control behaviors of personnel in actual routine service with the recommended control measures (category I) recommended by the Centers for Disease Control.

3. To measure the sustained effect on behavioral change after withdrawal of the intervention programme.

Design Overview

This study is a randomized control trial to test the effectiveness of the CDC control guidelines category I used in combination with education in the routine service of general medical wards, Medical Nursing Department, Chiangmai University Hospital, compared to the control guidelines alone. The guidelines used are taken from the control guidelines category I for urinary tract infection recommended by the CDC.

The sample consists of patients in general medical wards who have received urinary tract indwelling catheters. All nursing personnels who work in those wards at time of the study period are included in the study sample.

The study period has lasted for six months. The intervention has been separated into two blocks (the first and the second). Each block has lasted for three months. During the first block, the guidelines with education have been introduced to the wards allocated to the experimental group while the control wards have received only the control guidelines. The intervention has proceeded for three months. The infection rates and personnel control behaviors of both groups have been continuously monitored throughout the period. Then, in the second block the control guidelines with education have been introduced to the control group and same process has been conducted. At the same time the intervention has been withdrawn from the previous experimental wards. Measurement of outcomes both urinary tract infection rates and control behaviors of nursing personnels have been summarized at the end of each study block.

The Diagram of Design Overview

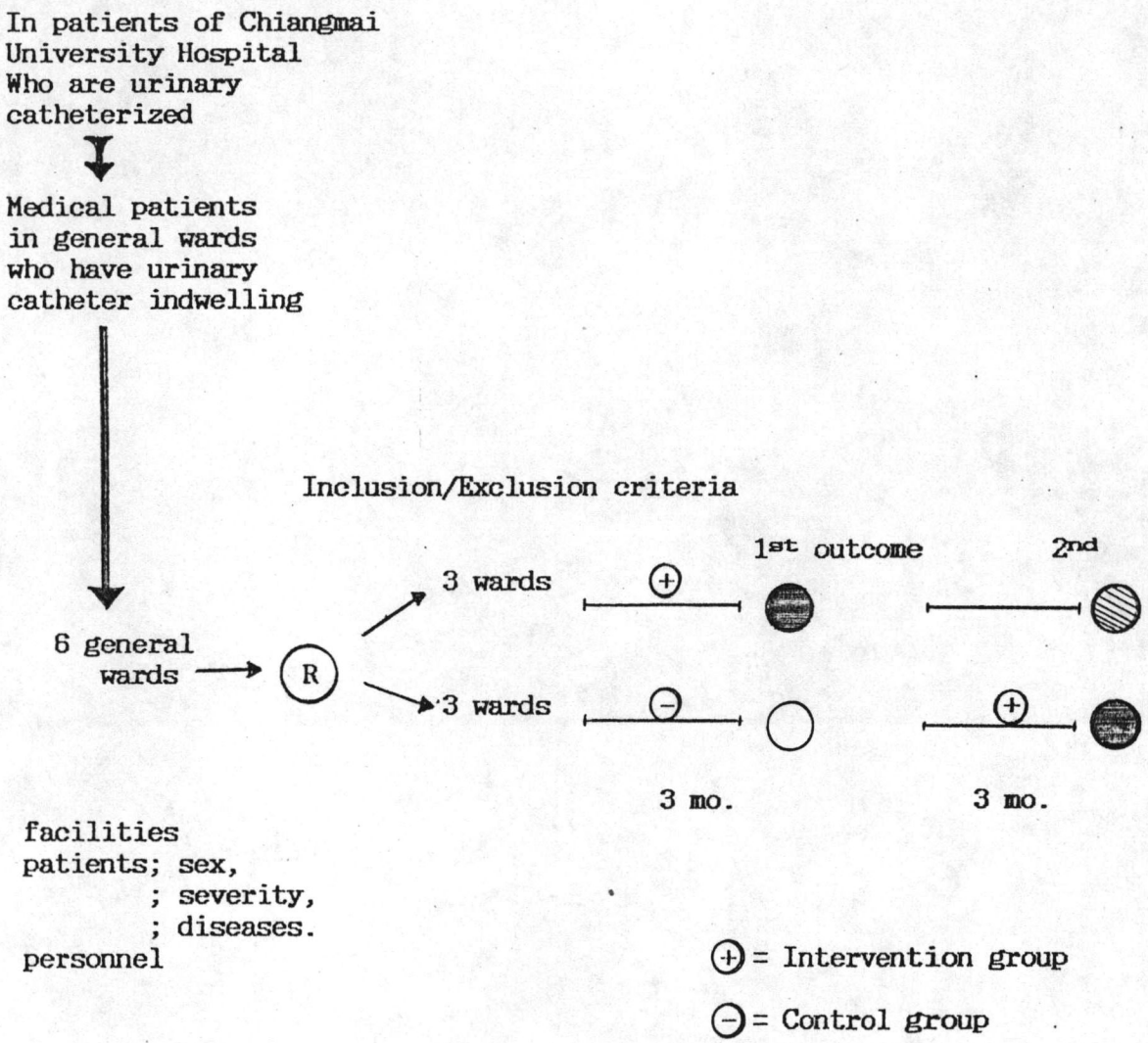

Figure 3

Design Justification

According to the following clinical epideomiology cycle, the various possilble areas to study a health problems can be summarized below (Sitthi-Amorn, 1987).

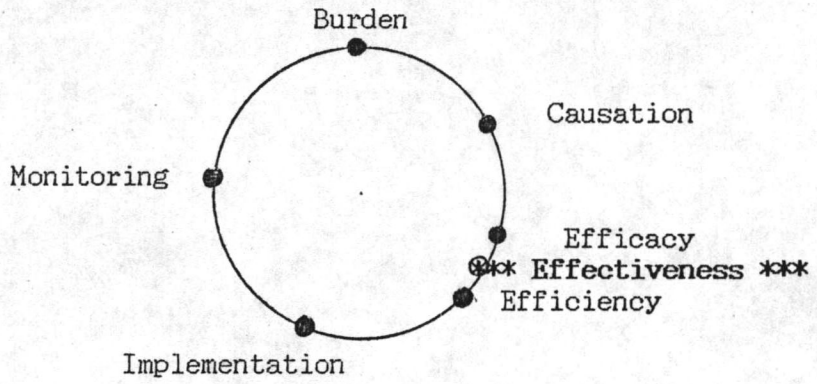

Figure 4

Our study has focussed on the area of effectiveness. As previously mentioned in Chapter II, the problem of nosocomial infection is a health care facility problem affecting both patients and health care providers. Previous studies have indicated that the problems are severe and proven efficacious control measures are available. What is needed is to test the effectiveness of applying a set of efficacious interventions in a specific situations of various hospitals evaluated because the impact of some efficacious interventions or treatments might not be guaranteed when actually applied to empiric situations; e.g. immunization program or programme of hypertensive treatment in some places (McBean, Foster, Hermann, and Gatiff, 1976; Ogunyemi, 1983). Thus, the main interest of this study is to test the effectiveness of the implementation in Chiangmai University Hospital.

The possible study designs for effectiveness include analytic, prospective, or experimental studies. Of these, the

randomized control trial is the strongest (Friedman, Furberg, and DeMets, 1983). This design is a prospective study comparing the effect and value of intervention against a control in human subjection (Friedman, Furberg, and DeMets, 1983). This study, the putative intervention of the CDC control guidelines and education are applied to groups of nursing personnel to follow. Subsequently, the postulated outcomes which are change in control behaviors of those nursing personnel and 50% reduction of nosocomial urinary tract infection are expected. The clinical trial is a powerful experimental technique for assessing the effectiveness of an intervention because it offers the possibility to come to an answer since it has exploited on a control group which ideally is comparable to the intervention group in every way except for the intervention being studied (Friedman, Furberg, and DeMets, 1983). Therefore, this design is considered most appropriate for the study to test the hypothesis. In this study, both the subjects (the nursing personnels) and the investigator will know to which intervention the subjects have been assigned because, it is impossible to do a blinded-study. Only the unblinded or open trial can be conducted.