Thesis Title Evaluation of Steam Sterilization at Government Hospitals in Chiang Mai

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Abstract

Steam sterilization is the most important measure use for sterilization of medical instruments. If the process is not effective it can result in nosocomial infections, which impact the patients' health. The purposes of this study were to evaluate correctness process, effectiveness and problems of steam sterilization in 7 government hospitals in Chiang Mai. Data were collected from May 13 to August 16, 1996. The samples were 7 heads of central supply departments, 91 personnel who work in central supply departments and 25 steam sterilizers. The research instruments consisted of interviewing forms, observation forms, and evaluation of steam

sterilization forms which were all developed by the researcher. Other instruments were chemical and biological indicators. Data were collected by interviewing heads of central supply departments and personnel, and observation of all processes of steam sterilization. Data were analysed by descriptive statistics.

The results of the study are as follows :

The overall process of steam sterilization were 57.6 % correct. In the process of cleaning, 55.2 % were correct. In the process of preparation and packaging, the personnel worked correctly only 53.9 % and 69.7 % respectively. In the process of operating and maintenance, only 55.1 % were correct. In the process of storage and transportation of sterile instruments, 53.8 % were correct. Only 50.8 % were correct in loading instrumental packs in steam sterilizers.

The evaluation of operating steam sterilizers were assessed by using mechanical indicators. The results showed that 76 % of personnel used temperatures of 121 °C or higher, 56 % operated the pressure of sterilizers up to 15-20 pounds per square inches, 28 % set sterilization time for 21-30 minutes and 56 % set drying time for 20 minutes. By using chemical indicators the results showed that the color of test tape outside the package and strips which were put inside the package changed their color completely 94 % and 84 % respectively. 74 % of the steriled packs were wet after steam sterilization process. 22 % of the packs were loosened. Biological indicators showed 16 % positive results. This demonstrated that steam sterilization processes were not effective.

The important problems in steam sterilization were the lack of written policy or policies that were not clear, no guidelines or personnel could not follow guidelines, personnel did not understand about their work, the working areas were not appropriate, not clearly seperated between dirty and clean areas and were not one-way traffic. Linen or muslin used for wrapping instruments were dirty, moist or torn. Carts used for the delivery of sterile instruments to other departments were not enough and not appropriate. There were not enough steam sterilizers. Some temperature gauges, pressure gauges and timer gauges were out of order. They did not use strip in big or middle size packages, did not use Bowie-Dick test for prevacuum sterilizers, and did not use biological indicator for monitoring effectiveness of steam sterilization or could not do it consistently.

Educational programs should be implemented for personnel working in central supply departments with an emphasis especially on all the processes of steam sterilization. Guidelines and standards of sterilization should be established and distributed.