

Human bioscience



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Human Bioscience From a study of registered nurses' conceptions of the physical science underlying their clinical practice, it was d that understanding of the physical sciences is inadequate. This inadequacy was in terms of the competencies required of them as nurses (Wilkesand Batts, 1998). The changing patterns of health care delivery have amplified the complexity in all practice environments. As a result, nurses are unable to forecast what activities make a difference in the outcomes and satisfaction levels of their patients. This failure to identify and control the processes, procedures, models, services, and responsibilities related to safe, compassionate care deliverance and better health outcomes does not promise professional practice of nursing. This paper explains with examples the importance of understanding of physical sciences (chemistry and physics) for the nursing practice.

Situation No. 1

Today's operating room is a complex environment. Nurses need to have complete knowledge about all the equipments present in the operation theater. Nurses need to have the basic sense of lighting equipments, the ventilators, the ECG, Laproscopes, etc. only with the basic knowledge of these equipment they can arrange the operation theater and also be prepared for any emergency situation. For an operation to be successful, multiple complex tasks must be carried out, both serially and in parallel, while care is exercised to ensure the safety of the patient. It is vital that the operation room be designed so as to permit patients, operation room personnel, and equipment to move and be moved as necessary without being unduly hindered by overcrowding or by obstruction from cables, wires, tubes, or ceiling-mounted devices. Before and during the operation, critical

devices must be positioned so that they can readily be brought into use for monitoring and life support.

Situation No. 2

It is essential for a nurse to have a good knowledge of chemistry. For example in the operation room there are a number of chemicals that may present treat to all individuals in the operation room. Chemical hazards exist from the use of trace anesthetic gases, various detergents used to clean surgical equipments, flammable anesthetic agents and antimicrobial solutions, medicines, and latex products. It is important for the nurse to have complete knowledge of these harmful gases and the steps that need to be taken in case of exposure. Besides there are also other physical hazards such as electrical shock and burns, exposure to radiation from x-ray equipment, and injuries that may be caused by using lasers. In addition to causing injury directly, the use of lasers can expose operation room personnel to papillomavirus in smoke plumes. Here again it is very important to have a complete knowledge to safeguard patients, and all others in the operation room and of course themselves.

Situation No. 3

Chemistry for its part has been an important branch of science with numerous applications in the human arena especially for the nursing practice. If a nurse is equipped with the theory, knowledge and research of Chemistry, life becomes much easier. In fact they can serve the patients much better. If a nurse knows how to prepare various solutions at short notice, this can be tremendous help both for the doctors and patients. The through knowledge of concentration is a must for this. In case when the nurses have to look at the lab reports, it becomes very essential to know the

normal range of chemicals that has to be present in the patient. With in increasing complexity of the nursing practice, the through understanding of physical sciences (physics and chemistry) is very essential. These subjects have equally important application in the nursing science as that of the clinical practice.

Reference

Wilkes, L. M. and Batts, J. E. (1998) Nurses' understanding of physical science in nursing practice, *Nurse Educ Today*. 1998; 18(2): 125-32.