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Interpretation of the scope of practice of the South African critical care nurse

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Critical care is a constantly evolving discipline. The aim of this paper is to describe the professional-ethical responsibilities of the South African critical care nurse (CCN). These responsibilities, outlined in the Scope of Practice (South African Nursing Council Regulation 2598), are not specialisation-specific and are not always well understood by the practising CCN. The regulation consists of 20 responsibilities, including supervision and maintenance of bodily mechanics, oxygen supply, acid base status, fluids and electrolyte levels of patients. In this paper each of these 20 responsibilities are used, with practical examples, to explain in detail the role of the CCN and the importance of this role in total patient management. As the discipline of critical care develops further the responsibilities of the CCN must adapt accordingly. This paper provides a framework for such adaptation. It is only with the full understanding of professional-ethical responsibilities by all members of the critical care team that the professional-ethical responsibilities of the CCN can be appreciated and utilised optimally.

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Any nationally registered profession requires a description of its scope of practice to ensure that only persons registered in that profession are permitted to conduct the actions related to it. Description of the scope of practice indicates how far a specific profession can expand legally.[1]

There are many unavoidable overlapping or grey areas between the professions, especially between the health professions. The problem is addressed in that the practitioner never purports that she practises a profession that she is not registered in. Both the critical care nurse (CCN) and the physiotherapist will perform bronchial toilet on a mechanically ventilated patient, for example, but for the CCN this is a nursing action and for the physiotherapist it is a physiotherapy action. In these situations each profession has unique competency in its own practice domain.[1]

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The aim of this paper is to describe, with practical examples, the professional-ethical responsibilities of the South African CCN. These responsibilities, in terms of the Scope of Practice (South African Nursing Council (SANC) Regulation 2598) as amended,[2] regulate the practice of the registered nurse in South Africa. These are not specialisation-specific and are not always well understood by the practising CCN. It is also very important that all members of the critical care team understand and appreciate the professional-ethical responsibilities of the CCN.

Interpretation of the Scope of Practice

The description of a profession's scope of practice is very difficult. Anything that is left out automatically falls outside the scope of practice. It is not advisable simply to list a series of procedures.[1]

To assist in the critical care patient's return to health, the CCN engages in the nursing process, a methodology through which critical nursing care is provided. It includes assessment, planning, implementation and evaluation as continued and interlocking actions. Crucial decision-making is required in the various steps of the nursing process.

The authors have interpreted the Scope of Practice (R2598) as amended[2] for the South African CCN. Each point will be discussed with a short explanatory note illustrating how the CCN is involved.

The interpreted Scope of Practice is as follows:

(a) 'The diagnosis of a health need and the prescribing, provision and execution of a nursing regimen to meet the needs of a patient or a group of patients or where necessary, by referral to a registered person.'

The CCN is responsible for nursing the patient, 24 hours a day. This intense involvement places her in the position where she is often the first to detect a change in the patient's condition. The CCN should have the ability (knowledge, skills, values) to make a correct nursing diagnosis, and prescribe, provide and execute a nursing regimen. If necessary in view of the patient's condition the CCN should report to another registered person, such as a medical doctor or a registered CCN. Diagnosis is made within a whole-person framework of body, mind and spirit, but focusing on the body.

(b) 'The execution of a programme of treatment or medication prescribed by a registered person for a patient.'

(c) 'The treatment and care of and the administration of medicine to a patient, including the monitoring of the patient's vital signs and of his reaction to disease conditions, trauma, stress, anxiety, medication and treatment.'

The CCN should have in-depth knowledge of the programme of treatment to be executed or the prescribed

medication. She should know how the treatment or medication is going to act in a critically ill patient, because the action might differ from that in less ill patients. For example, the dose of certain antibiotics should be adjusted according to the individual patient's needs. A patient in acute renal failure may need a smaller than standard dose, whereas a patient with an increased third-space loss, as in septic shock, may need a bigger than standard dose to achieve an effective serum level of the antibiotic. The indications, interactions and complications of medicines and the treatment of adverse events should all be part of the CCN's knowledge base, before the programme of treatment is executed or prescribed medication is given. If the registered person who prescribed the treatment or medication makes a mistake, and the CCN who executes the treatment or gives the prescribed medication does so without questioning the prescription, she and the registered person are both accountable for the wrong action. The regulations do not specify or limit any route of medication administration; however, the CCN should have the ability (knowledge and skill) when medication is given via a specific route. Until recently it was not within the scope of practice to administer medication epidurally, but in 1993 the SANC issued the following policy statement[3] on epidural pain control by the registered nurse and registered midwife: 'SANC views epidural analgesia as part of the registered nurse's scope of practice. If the epidural analgesia is administered by the critical care nurse she should have the necessary knowledge or competence and is accountable for her acts and omissions.'

Monitoring the critically ill patient's vital signs, both invasively and non-invasively, comprises an important part of the CCN's direct patient care function. Vital sign monitoring is one of the most dynamic fields in critical care units, with constant development of new technology. It is the CCN's responsibility to gain the necessary knowledge and skill to use new technology safely. Furthermore, the CCN should know the advantages and limitations of invasive and non-invasive monitoring methods. It is now known that blood pressure, which was so important for many years in the critical care unit, has a vast number of limitations. For example, the way arterial blood pressure is measured poses a problem if there is a difference between non-invasive and invasive measurement readings. Blood pressure is a product of flow and resistance and does not always reflect the body's needs. Measurements of regional blood flow, such as gastric tonometry, may be of far greater value. It is policy in certain units to monitor vital signs on an hourly basis, but if the patient's condition is unstable, vital sign monitoring should be done according to the patient's individual needs and be reflected in the patient's records.

Accurate recording of changing vital signs is essential. It is also important that the patient should be assessed holistically — he is not just a blood pressure or a pulmonary capillary wedge pressure. Individual parameters should be evaluated within the total clinical picture. For example, if the pulmonary artery capillary wedge pressure is suddenly unexpectedly low, immediate therapeutic action should not be taken — assess the patient's clinical state as a whole, and if this low pressure is in keeping with the total clinical picture, undertake the appropriate action. If not, determine the reason for this inappropriate reading — for example, is the transducer at the correct level?

(d) 'The prevention of disease and promotion of health and family planning by teaching and counselling individuals and groups of persons.'

This concept is not always associated with the high-tech critical care situation, but the critical care unit is one of the ideal situations to prevent disease and promote health and family planning. The patient and those close to him usually trust the CCN and respect her abilities; this promotes confidence, which is essential for counselling and teaching. People confronted with critical illness go through various stages of acceptance. The CCN should be sensitive and guide the patient and significant others accordingly. For example, if the patient who has just had a myocardial infarction has difficulty accepting his new physical state, attempts by the CCN to educate him in the 'do's and don'ts' of his future might have a negative effect; she should rather be guiding the patient towards accepting his new physical state. Very often the patient is susceptible to guidance and teaching to prevent further complications of disease and promote health. The opportunity to promote family planning does not often arise, but should be utilised when applicable — for example, women with pregnancy-induced cardiomyopathy should be advised not to fall pregnant again.

(e) 'The prescription, promotion or maintenance of hygiene, physical comfort and reassurance of the patient.'

(f) 'The promotion of exercise, rest and sleep with a view to healing and rehabilitation.'

To maintain hygiene in a critically ill patient can pose numerous problems. Hygiene needs, although a basic health need, can only be met by a highly skilled CCN with the necessary insight into the nature of each patient's particular condition. The CCN should monitor the vital signs and look out for a sudden change from baseline in the course of a procedure.

Physical comfort, rest and sleep are health needs that are difficult to satisfy in the intensive care setting. High-tech treatment methods can cause severe physical discomfort. An empathetic CCN who explains the necessity of the treatment can make the discomfort more tolerable. A patient who knows how important the intra-aortic balloon pump is in assisting his heart, and what complications will arise if he bends his legs, is likely to be more willing to keep his legs straight in spite of the discomfort. The CCN can undertake various actions to ensure physical comfort, for example securing an endotracheal tube in such a way that tension to the nose or mouth is minimised, and by asking the doctor to prescribe medication to improve physical comfort. Patients in the critical care unit often complain of lack of sleep and rest. The severity of their illness requires these units to be planned in a way that is not conducive to the individual patient's privacy. There is always a certain noise level, and no distinguishing between day and night, and as far as the patient's condition permits, the CCN must ensure privacy, control noise and take measures such as dimming lights at night.

(g) 'The facilitation of body mechanics and the prevention of bodily deformities in the execution of the nursing regimen.'

The facilitation of body mechanics includes actions such as positioning the patient to ensure adequate haemodynamics. If the blood pressure is very low the patient will be placed in a supine position. The patient who needs mechanical ventilatory support for unilateral lung disease will be nursed lying on the healthy lung to ensure that it receives the maximum benefit of the mechanical ventilation. Gas moves to the area of less resistance, and by correct positioning oxygen will go to the areas where it is most needed. A patient receiving full mechanical ventilatory support is nursed as flat as possible to enhance the ventilation/perfusion ratio. As soon as the patient is being weaned from mechanical ventilatory support he should be put in Fowler's position, as high as his condition allows, again to ensure an optimal ventilation/perfusion ratio. When body mechanics are impaired by technology, the CCN must take action. The intubated patient, for example, cannot protect his own airway. The CCN ensures a protected airway by inflating the endotracheal tube to safe pressures and monitoring these pressures regularly.

Critical care patients might receive muscle relaxants, or just be immobile for long periods of time. Bodily deformities can be prevented by turning patients according to their needs, performing passive exercise, ensuring that the eyes are kept moist and closed when patients cannot do this themselves, and reducing tension on endotracheal tubes as previously described.

(h) 'The supervision over and maintenance of a supply of oxygen.'

Searle[1] has made it clear that oxygen supply does not only mean artificial oxygen supply, but includes oxygen supply to the tissues in all situations. The CCN should have the necessary ability (knowledge and skills) to supervise and maintain patients' oxygen supply.

An open airway should be obtained by positioning the patient in the best way that his physical condition permits. As far as possible the CCN should anticipate that the patient is going to need artificial airway support and should do everything practically possible to get medical help. When a natural airway can no longer be maintained and no medical help is available, the patient should be intubated correctly and, if there is extreme airway obstruction, an emergency tracheostomy should be performed.

Effective ventilation can be assured by positioning as described under (g) above.

When ventilation is supported by the use of an oxygen mask, certain important principles should be taken into account. When the patient is breathing normally the prescribed oxygen flow supply to the mask should be adequate. The patient in respiratory distress often needs a very high flow of oxygen because a distressed breathing pattern 'pulls' extra room air into the mask, thereby diluting the fractional inspired oxygen concentration. The holes on the oxygen mask should never be covered. When a patient with an oxygen mask is eating, performing mouth care or shaving, the oxygen mask should always be replaced by nasal cannulae.

The CCN should have in-depth knowledge of the various types of ventilators and modes of ventilation used in her specific unit, and be skilled in their use. The patient receiving mechanical ventilatory support should be assessed at least every hour. Assessment should include the patient's own respiratory parameters as well as the ventilatory parameters. The importance of ventilator alarms cannot be over-emphasised. Alarms should be set according to the individual patient's needs, and ventilator alarms should be attended to when triggered. It might be necessary to restrain a patient receiving mechanical ventilation to prevent a catastrophic event; and if so, this should be prescribed by a medical doctor and should be performed in the most humane way possible to ensure the patient's dignity.

Oxygenation of the patient can be improved by performing the appropriate physiotherapy and bronchial toilet procedures. The patient should be monitored during the whole procedure, and in particular the oxygen saturation should be measured by non-invasive pulse oximetry. Pre-oxygenation before bronchial toilet has become a standard procedure.

There are various respiratory and ventilatory parameters that should be assessed by the CCN, but these fall outside the scope of this article. In the evaluation of ventilator and respiratory parameters, a mistake often made is to assume that an arterial blood gas level is the gold standard of assessing respiratory function in the critically ill patient. When it is difficult to maintain mechanics of the patient's ventilation, for example in asthma, Guillain-Barré syndrome and organophosphate poisoning, assessment of peak flow or vital capacity is of much more relevance.

The CCN can maintain oxygen supply to the tissues by ensuring maintenance of an adequate cardiac output by manipulating fluid or inotropic support according to the individual patient's needs. Oxygen demand of, and oxygen supply to, tissues and imbalance of these contribute to the patient's compromised state. This can be influenced by the CCN in various ways, from the correct administration of prescribed medication and therapeutic procedures to keeping the patient on bed rest and ensuring a peaceful, quiet environment, thereby decreasing oxygen consumption. The CCN should monitor the patient's haemoglobin concentration, which reflects the oxygen-carrying capacity of blood. Blood transfusion was previously used to supplement low haemoglobin levels; today there is controversy about its safety, and the oxygen-carrying capacity of transfused blood is questioned. Tourniquets should be used with the utmost caution.

(i) 'The supervision over and maintenance of fluid, electrolytes and acid base of patients.'

(m) 'The supervision over and maintenance of elimination by a patient.'

The CCN should be able to assess hydration status clinically and with the available technology. The fluid status of very ill patients is critical and the fluid balance should be accurately calculated daily but also on a cumulative basis. Electrolytes and acid base status should be assessed according to the patient's individual needs. The CCN should have the ability (knowledge and skill) to make a nursing diagnosis when an electrolyte or acid base imbalance

occurs and should undertake emergency measures to correct these imbalances, which can be life-threatening.

Elimination should be monitored, and the CCN should undertake the necessary nursing action to ensure elimination.

(j) 'The facilitation of the healing of wounds and fractures, the protection of skin and the maintenance of sensory functions in a patient.'

This includes effective wound care. The CCN should be knowledgeable about the most current wound care that will enhance wound healing. Prevention of wound infection is of the utmost importance, and will include an effective infection control programme in the critical care unit. Fractures should be immobilised effectively. The CCN should understand the principle of orthopaedic traction to ensure effective immobilisation. Correct positioning of the patient to prevent nerve and skin damage is important. The correct position and the frequency of position change should be determined by the individual patient's needs and physical condition.

The CCN should ensure that the critically ill patient receives basic nutritional support that will provide essential minerals, proteins and vitamins for the healing process, the protection of skin and the maintenance of sensory functions.

(k) 'The facilitation of the maintenance of bodily regulatory mechanisms and functions in a patient.'

The bodily regulatory mechanisms that most critical care patients need to maintain, regardless of their underlying disease, are homeostasis of fluid, cardiovascular, respiratory, renal and gastro-intestinal systems, and enhancement of natural defence mechanisms.

This statement encompasses many of the basic principles of critical care. Owing to its vast scope it will be illustrated by the sketch of a specific scenario. A patient with intra-abdominal sepsis develops septic shock and is admitted to the critical care unit. The aim of critical care management, both medical and nursing, is to maintain body functions and regulatory mechanisms both naturally and artificially until the primary insult resolves.

Respiratory function will be maintained by a mechanical ventilator. The mode of ventilation may vary from uncomplicated volume control to complicated pressure-controlled ventilation with inverse ratios and high fractional inspired oxygen levels. These will be selected to satisfy the individual patient's respiratory needs appropriately.

It is of the utmost importance that cardiac output should be maintained to ensure adequate blood flow to vital organs. This can be done either by administration of vaso-active medication or by fluid therapy, according to the patient's individual needs. The disease may cause a decrease in blood flow to the gastro-intestinal tract as reflected by the intragastric mucosal pH, which may lead to translocation of bacteria and bacterial products, a vicious circle in the septic shock process and a bad prognostic sign. The cardiovascular status may therefore be evaluated by cardiac output measurements in conjunction with intragastric mucosal pH by gastric tonometry.

The choice of antibiotic will be influenced by the critical care unit's antibiotic resistance profile and the laboratory sensitivity report on any tissue cultured from the patient. It is of the utmost importance that the selected antibiotic be given in the correct way to ensure adequate serum levels and optimal pharmacokinetics. Dosages of certain antibiotics should be evaluated during the course of treatment by determining serum levels. In this way patients with renal impairment will not receive too high a dose and those with a third-space loss will not be under-dosed.

(l) 'The facilitation of the maintenance of nutrition of the patient.'

Nutrition of the critically ill patient is of the utmost importance. Research in this field is very difficult, but there is increasing evidence that patients should be fed as quickly as possible. It is better to feed the patient enterally than parenterally, for it is more natural and there is a lower risk of complications.

When enteral feeding is chosen, patients can be fed continuously or with bolus feedings. Different feeds are available, none of which has been proved to be superior. Whichever feed or method of feed is chosen, the CCN should know the advantages and disadvantages involved. If the patient is going to receive long-term enteral alimentation, a thin, soft nasogastric tube should be considered. Its correct position should be monitored while it is in place. Absorption should be checked according to the unit's policy.

Bolus alimentation should be given after bronchial toilet, and endotracheal cuff pressure monitoring should be done with the patient in a slightly elevated position, if his condition permits.

Total parenteral alimentation is more expensive and involves more risks than enteral feeding, but it has definite advantages for selected patient groups. The CCN should be aware of the complications involved and should take the necessary nursing actions to prevent them. The speed of infusion should be monitored hourly. The increased viscosity of the parenteral alimentation might cause the infusion pump not to function optimally. A slow infusion will result in the patient not receiving enough glucose. On the other hand, a too rapid infusion of glucose is detrimental to the unstable critically ill patient, because increased insulin secretion may lead to a period of low blood glucose, especially if the alimentation completed is premature and hours pass before the next day's parenteral feed is commenced.

Total parenteral feeding should not be stopped abruptly when enteral feeding is going to be commenced. A 1- or 2-day period of overlap to ensure that the patient is tolerating the enteral feeding may solve many problems.

The CCN should be aware of clinical situations such as renal failure which necessitate specific dietary limitations.

(n) 'The facilitation of communication by and with a patient in the execution of the nursing regimen.'

Patient records are vital communication instruments in the critical care unit, but the CCN should be aware of other methods of communication. The patient himself communicates with the critical care team, sometimes very subtly, and the CCN should be receptive to this. Being a good listener, giving clear explanations, consulting with the patient and family, and the 'meaningful touch' improve interpersonal relationships and are communication skills that every CCN should obtain.[1]

(o) 'The facilitation of the attainment of optimum health for the individual, the family, groups and the community in the execution of the nursing regimen.'

To ensure that optimal health is attained in the execution of the nursing regimen the CCN should be aware of recent research, implement research findings and undertake research to ensure high-quality nursing.

(p) 'The establishment and maintenance, in the execution of the nursing regimen, of an environment in which the physical and mental health of a patient is promoted.'

This function entails all the activities relevant to the control of the patient's situation, his environment, his nursing regimens, his care and record keeping.[1]

(q) 'Preparation for and assistance with operative, diagnostic and therapeutic acts for the patients.'

Operative, diagnostic and therapeutic acts in the critical care unit such as the insertion of an intercostal drain or a pacemaker are often life-saving. It is of the utmost importance that the CCN should have the necessary knowledge and skills to assist in these procedures. If new diagnostic and therapeutic acts are implemented, it is her responsibility to obtain the skill and knowledge required to assist in these procedures safely before an emergency situation occurs, for example, continuous veno-veno-haemofiltration.

(r) 'The co-ordination of the health care regimens provided for the patient by other categories of health personnel.'

This is a very important professional function of the CCN, for various health personnel are involved in the treatment of the critically ill patient. One doctor can order a diuretic while another can order a fluid challenge on the same patient. Proper co-ordination of the health care regimens guarantees high-quality care. The CCN should be aware of and point out discrepancies and even challenge such orders.

(s) 'The provision of effective patient advocacy to enable the patient to obtain the health care he needs.'

The CCN is the member of the health team who is in the best position to be the patient's advocate. This entails ensuring that the patient's human rights are respected, and being a spokesman to make sure that his health needs are met. The CCN should at all times be self-assertive but professional.

(t) 'Care of the dying patient and the care of a recently deceased patient within the execution of the nursing regimen.'

The CCN should be able to give death guidance to the critically ill patient and significant others when specialised facilities for such guidance are not available. The South African population has many cultures. The CCN should know and be sensitive to their various practices with regard to the dying patient and the dead body. Every unit has its own policy for the nursing action involved in this situation.

It is important that the CCN adheres to this policy to safeguard her from possible legal problems. Although her focus is on the physical health needs of the critically ill patient, critical care nursing should accommodate the whole-person approach of body, mind and spirit.

Conclusion

The Scope of Practice (R2589) regulates the practice of the registered nurse in South Africa. This regulation is not specialisation-specific and should be interpreted for the different nursing specialisations. The authors are of the opinion that the interpretation of this regulation for critical care nursing would be of value for the CCN, critical care managers, tutors and all members of the intensive care health team.

In the management of the critical care patient it is sometimes vital to make crucial decisions before the situation becomes critical. Some of the authors' interpretations might be contentious, but this will reflect the previously referred to 'grey areas'. While it is sometimes necessary to make critical decisions to prevent catastrophe, it is important to remember that although the CCN undertakes these interactions as a nursing sister and not as a medical doctor, like a doctor she must take full responsibility for all actions undertaken. The problems posed by the 'grey areas' in critical care patient management can be addressed to some extent by standard policies in each unit.

It is important to note that the interpretation of this regulation is dynamic and should be re-interpreted as the practice of critical care evolves in order to ensure that the patients receive quality care.

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REFERENCES

1. Searle C. *Professionele Praktyk: 'n Suid-Afrikaanse Verpleegperspektief.* 1st ed. Durban: Butterworth, 1987: 188-208.
2. South African Nursing Council. *Regulation 2598: Regulations Relating to the Scope of Practice of Persons Who Are Registered or Enrolled Under the Nursing Act 1978.* Pretoria: South African Nursing Council, 1991.
3. South African Nursing Council. Epidural pain control by the registered nurse and registered midwife. *Nursing News* 1993; **17**(8): 11.

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