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## THE USE OF SMALL-GROUP BEDSIDE TEACHING TO PROMOTE CRITICAL THINKING IN CLINICAL PROBLEM SOLVING AMONG CRITICAL CARE NURSING STUDENTS

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Postgraduate specialist education for critical care nurses offered by the Division of Nursing requires placement in various disciplines of critical care for experiential learning to support the development of clinical critical thinking skills. The shortage of suitably experienced nurses within critical care units and problems experienced by students in bridging the theory-practice gap necessitated the development of innovative strategies to facilitate the development of clinical patient management and decision-making skills.

One such strategy is called the small-group bedside teaching (SGBT) strategy, where small groups of students are encouraged to identify clinical problems at the patient's bedside, reason through the transitions in patient condition and suggest appropriate interventions under the guidance of an expert critical care nurse and with input from their peers. The purpose of the study was to explore aspects of teaching and learning in the SGBT sessions to gain understanding of how this teaching strategy is experienced, and how it impacts on the development of critical thinking skills by critical care nursing students. A qualitative approach allowed participants to reflect on their feelings and experiences regarding SGBT at 3-monthly intervals to allow for a complete description of their experience of small-group bedside teaching. Thematic analysis enabled the emergence of six main themes that identified the overarching student experience of SGBT, which was that this is an acceptable strategy that assisted them in the meshing of theory and clinical practice, and also established teamwork within nursing care as a viable option.

## COMMUNICATING FAMILY-FRIENDLY PRACTICE: STARTING BY SAYING WHAT WE DO

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A growing evidence base confirms that family-centred approaches improve outcomes in paediatric health care facilities. Child-friendly services aim to provide the

best possible health care by health workers who work together to minimise the fear, anxiety and suffering of children and their families.<sup>1</sup> At Red Cross War Memorial Children's Hospital a shift to family-friendly care became the focus of the Child Nurse Practice Development Initiative in 2007.

The hospital is a tertiary referral centre situated in Cape Town. It offers a comprehensive range of specialist paediatric health services to children from all over Africa. Approximately 250 000 children visit the facility each year. Extensive upgrades in the last 15 years have ensured state-of-the art facilities and equipment. Shifts in practice and communication norms are an ongoing commitment. Accommodating children in more child- and family-friendly ways has been a journey navigated by the Practice Development Initiative with nurses, doctors, administrative and the volunteer-based organisation at the hospital.

A main theme has been the development of materials to communicate with children and their families from various cultural and social backgrounds. To date this has included a participative review of signage, information brochures about clinical areas and materials to facilitate communication about conditions and procedures. The methodology used in the development of these materials has been intentionally participative and has included working with parents, children and practitioners in various settings. This poster will present the processes of development and evaluation of these materials in the past 2 years.

1. Nicholson S, Clarke A How child friendly are you? Paediatric Nursing 2001;13(5):12-15.

## VALIDATION OF THERAPEUTIC INTERVENTION SCORING SYSTEM IN A SOUTH AFRICAN INTENSIVE CARE UNIT

**Helen Davies** (helend23@hotmail.com), **Jacynth Mudali**, **Zane Farina**, Grey's Hospital

**Purpose:** The therapeutic intervention scoring system (TISS-76) is used internationally as a tool for evaluating severity of injury in intensive care and surgical patients, and to quantify nursing workload in intensive care units (ICUs). A retrospective study of TISS-76 data for all patients admitted to the Grey's Hospital ICU was performed between 1 July and 31 December 2009.

**Objective:** To assess the profile of patient admissions to the ICU, and validate TISS-76 in our setting.

**Results:** During the study period 205 patients were admitted to the ICU, with 9 readmissions. Only 23% of admissions were planned, with 73% of patients admitted as emergency cases. The majority of patients were male (55.6%, range 7 - 88 years, mean 43.13). Patients were referred from Surgery (43%), Trauma (26%), Obstetrics and Gynaecology (15%), Orthopaedics (8%), Medicine (2%), ENT (1%), Urology (3%) and Plastics (1%). Length of stay in the ICU varied from 1 to 65 days (mean 5.4). Total TISS-76 scores for patients' duration of stay in the ICU varied from 9 to 1 329 (mean 97.16). We report an ICU mortality of 14%. Average total TISS-76 scores were higher in the mortality group (182 v. 88;  $p < 0.5$ ). Patient age was higher in the mortality group (53.9 v. 40.8 years;  $p < 0.5$ ).

**Conclusions:** Data suggest that TISS-76 can be effectively used as a tool for measuring severity of illness in patients in South African ICUs, and may be an independent predictor of mortality.

#### JOURNAL CLUB: RESTORING THE LINKS BETWEEN EDUCATION AND PICU CLINICAL PRACTICE

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The specialist PICU nurse is expected to use sound clinical research to guide practice and aid clinical decision-making. Considering the continuously evolving knowledge base of critical care, keeping up to date is imperative for the nurse to be equipped to deliver the best possible patient care. However, many authors have speculated that nurses find meeting this expectation a challenge owing to the demands of health services and their ability to access and understand the reading materials.

Having recognised these challenges within our own setting, the Child Nurse Practice Development Initiative implemented two journal clubs. Described as an educational meeting in which a group critiques current articles, a weekly journal club was incorporated into a clinical learning module of a postgraduate diploma in critical care child nursing. A second club was incorporated into a hospital-wide in-service training programme.

Learners welcome the opportunity to relate the research results to current practice and the potential for professional recognition is highlighted. Particular student benefits include an introduction to literature searching and improved research literacy. The requirement to formally present the article promoted the use of technology. The initiative saw an increase in participation and confidence in presenting and discussion. In the hospital-wide journal club, a facilitated discussion following a summary of a relevant article ensured that published research is spread to a previously unengaged audience.

This presentation will describe our use of this methodology and evaluate its contribution in increasing

access, evaluation and application of published work to clinical practice.

#### ICU HAND HYGIENE AUDIT

Sam Dawson, Edendale Hospital, Pietermaritzburg, KZN

Since Semmelweis, good hand hygiene has been at the forefront of the battle to prevent nosocomial infection. Despite being proven in numerous studies since to be beneficial, handwashing remains a practice poorly complied with among health care professionals.

**Method:** As part of routine clinical audit to improve standards in the Edendale ICU, the following audit took place in May 2010 over 12 ward rounds. It was limited to medical ICU staff only. Using a code (C, M and I for each respective group), each group was monitored for handwashing between the nine ICU beds. For example, on the first ward round audited the 'doctors attending' were recorded as 1C4M2I (1 consultant, 4 MOs and 2 interns) and 'hands washed' before the first bed as 1C2M1I. On that day the potential 'handwashing opportunities' were totalled as 7C28M14I, from which 'actual handwashing episodes' were 4C12M3I. These figures were totalled for 12 ward rounds and final percentages calculated. No allowance was made for doctors leaving the ward round (though this rarely happened), and a bias to under-reporting is accepted.

**Results:** In total, 50 out of 97 (51.5%) handwashing opportunities were used by consultants, 133/322 (41.3%) by MOs and 27/194 (13.9%) by interns. Overall compliance was 34.2%.

**Conclusion:** Handwashing compliance by ICU staff at Edendale is poor, though roughly comparable to other studies performed elsewhere. Compliance is greatest among consultants and poorest among interns. Interventions have been made and a re-audit is planned.

References on request.

#### SBAR: IS THIS A CRITICAL COMMUNICATION TOOL BETWEEN DOCTOR AND NURSE?

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Communication breakdown between nurse and medical practitioner has been identified as a predominant negative factor in patient safety issues.

SBAR is a communication tool designed to be used as an aid to improve communication between the nurse and the medical practitioner. Although endorsed by the IHI (International Healthcare Institution), it remains a largely unspoken and unknown concept in South Africa. This concept is being endorsed by nurse educational institutions throughout the USA, yet is not part of the current undergraduate or postgraduate curricula in South Africa.

International data supporting implementation prove that the concept can be regarded as leading to improvement in communication between nurse and medical practitioner. Although widely accepted and tested in the USA, this concept has yet to be implemented in southern Africa.

The speaker would like to introduce critical care nurses in southern Africa to this concept and share some tools that may benefit and improve the current practices of all critical nurses and therefore, by extrapolation, improve patient outcomes.

# THE TRIALS AND TRIBULATIONS OF CLINICAL RESEARCH: THE FIRST TRIAL

**R S Gillespie, Departments of Anaesthesia and Critical Care, University of Cape Town and Groote Schuur Hospital**

**Trauma Trial Team: Prof. M James (PI), Prof. W L Mitchell, Dr I Joubert, Prof. A Nicol, Prof. P Navsaria, Mr G Strathie, Mr S Adams, Ms J Gamble, pharmacists, ICU and OT registrars, Trauma Department, ICU and ward nursing staff**

**Introduction:** The appropriate choice of resuscitation fluids in the management of severely injured patients has been the subject of much debate, controversy and research during the past few decades of treating trauma victims. The purpose of this study was to compare two fluid regimens in the treatment of severe trauma, viz. crystalloid-blood resuscitation versus crystalloid-colloid-blood resuscitation, particularly with regard to fluid usage, efficacy and safety in resuscitation.

**Methods and design:** A single-centre, randomised, double-blind, clinical trial was conducted. Severely injured patients with blunt or penetrating trauma admitted to the trauma resuscitation unit, assessed as requiring minimum 3-litre volume resuscitation from the time of injury, were screened for enrolment. During a 3-year period (2007 - 2009) 115 patients meeting the inclusion criteria were enrolled, randomised and managed utilising a goal-directed algorithm. Blinded resuscitation fluids, either 0.9% saline or HES 130/0.4 (Voluven), were administered according to the protocol until a state of haemodynamic stability was achieved in conjunction with blood and blood product administration guided by clinical need and thrombo-elastography (TEG). Daily data were collected until both haemodynamic stability and recovery of normal gastro-intestinal function had been established. Patients were followed up for a 30-day period, noting date of hospital discharge or death. Outcome measures included fluid usage, ICU stay, SOFA scores, hospital length of stay, 30-day mortality, GIT function recovery and adverse events. Ethical approval to conduct the trial and obtain retrospective consent was provided by UCT Research Ethics Committee.

**Process:** This paper describes the process and methodology required to conduct an investigator-initiated randomised clinical trial.

**Findings:** The data are currently being analysed and will be presented and published by the principal investigator in due course.

**Conclusions:** Conducting a randomised clinical trial requires meticulous planning, adequate resources and a committed team. The process is enhanced by conducting a feasibility study prior to initiation of the study.

# KNOWLEDGE OF INTENSIVE CARE NURSES ON EVIDENCE-BASED GUIDELINES FOR PREVENTION OF VENTILATOR-ASSOCIATED PNEUMONIA

**Viviana Paula Ribeiro Gomes (vivianagomes@vodamail.co.za), Candice Harris, Department of Nursing Education, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg**

The purpose of this study was to determine the knowledge of nurses working in ICUs with respect to evidence-based guidelines for prevention of ventilator-associated pneumonia (VAP). A non-experimental, descriptive, correlational and contextual two-phase research design was used. The first phase of the study consisted of validating the data collection instrument for applicability to the South African context. The second phase of the study used the instrument validated in phase one to test the knowledge of ICU nurses.

The knowledge of 83 nurses working in ICUs in two hospitals in the private health sector and one hospital in the public health sector in Gauteng was tested using the data collection instrument validated by ICU nursing experts.

Knowledge of ICU-trained and non-ICU-trained nurses working in ICUs of the three hospitals was found to be lacking in respect of the evidence-based guidelines for prevention of VAP. Of the 83 participants, 18 (21.69%; 95% confidence interval (CI) 13.4 - 32.1%) achieved a pass mark of 70% on the multiple-choice part of the questionnaire and were considered to have adequate knowledge on the evidence-based guidelines for prevention of VAP.

These results are in keeping with international studies conducted in Europe, which lends importance to the significance of this study's findings. The mean score of participants was 4.25 (standard deviation (SD) 1.537; 95% CI 3.92 - 4.59) on nine questions. The difference in the mean average score of ICU-trained nurses and non-ICU-trained nurses was very similar, demonstrating no statistically significant difference in the knowledge of the two groups of nurses. A weak correlation between years working in ICUs and knowledge was found, but this correlation may be clinically insignificant.

Recommendations to address this lack of knowledge of ICU nurses were given for clinical nursing practice, nursing education and nursing research.

# IMPLEMENTING SEPSIS CARE BUNDLES TRUST-WIDE Gillian Leaver (gill.leaver@ntlworld.com)

This poster presentation demonstrates how a small group of committed staff in a District General Hospital in the UK have implemented the sepsis care bundle.

In 2004 the author and a group of like-minded colleagues introduced the initiative in their own intensive care unit. Despite local compliance with the care bundle being high, it was soon evident that the 6-hour bundle needed to be commenced before patients were admitted to intensive care.

Evidence shows that the elements of a care bundle produce better outcomes when implemented together, rather than individually; however, it was felt that small step changes were easier to embed in practice. The care bundle was therefore broken down and smaller elements introduced, across the Trust, gaining understanding and support for the campaign along the way. As Dellinger and Vincent (2005) point out, transfer of research from the bench to the bedside is typically a long and tortuous process and is minimally accelerated by guidelines.

Various new standards and policies have been implemented along this journey, including blood culture policy, observation standard and antibiotic policy.

Five years on the care bundle is being reconstructed, and with the support of the Trust Board it is being rolled out across the whole Trust.

This work also fits under the umbrella of patient safety, and supports the National Patient Safety First Campaign in the UK, the aim of which is no avoidable death and no avoidable harm, as well as the Trust's campaign to save 250 lives.

#### **END-OF-LIFE ISSUES: SUPPORTING A CRITICAL CARE PATIENT HOME TO DIE**

**Sister Sara Lilly, Portsmouth Hospital Trusts, UK (sara.lilly@porthosp.nhs.uk)**

Over a century ago, the majority of the British population died at home. In the 21st century, 56% of all deaths occur in the hospital setting.<sup>1</sup> Evidence shows that over 50% of patients today would prefer to die at home, but in reality less than 20% actually achieve this.<sup>2</sup>

Critical care today is highly technical with a wide variety of patients, conditions and ages. At Queen Alexandra Hospital, Portsmouth, the end-of-life team has been developing a concept of facilitating discharge of appropriate patients home to die.

We report the successful discharge of a 20-year-old woman, who had sustained a severe brain injury following a road traffic accident. Palliative care had become the focus, and following discussions between the ITU team and family, the parents expressed a strong wish they would like to take their daughter home to die.

For the team to achieve this within a reasonable timeframe of hours, not days, a fast-track pathway was instigated. Funding needed to be agreed on and the Trust Discharge Planning Nurse needed to become involved. The GP and numerous agencies were involved to facilitate this rapid and different discharge home.

The discharge home took 10 hours from first request. The patient was in bed at home by 21:00 with carers and support in place. Her family and friends all visited at home and she died peacefully the next evening with her Mum and Dad.

1. Murphy D, Ellershaw J, Jack B, Gambles M, Saltmarsh P. The Liverpool Care Pathway for the rapid discharge home of the dying patient. *Journal of Integrated Care Pathways* 2004;8:127-128.
2. Higginson I. *Priorities and Preferences for the End of Life Care in England*. London: National Council for Hospice and Specialist Palliative Care, 2003.

#### **THE EXPECTED ROLE OF THE CRITICAL CARE CLINICAL NURSE SPECIALIST IN PRIVATE HOSPITALS** **Lettie Prins (lettieprins@isp247.co.za), Stellenbosch University, Tygerberg, W Cape**

A clinical nurse specialist (CNS) should demonstrate excellent skills in leadership, communication, critical thinking, clinical and ethical decision-making and mentoring. International research demonstrates that advanced practice nursing leads to higher patient satisfaction and shorter length of stays.

The role of the CNS developed since the 1960s in North America. The development of the role of the CNS in the critical care environment in South Africa is slow in implementation. The South African Qualifications Authority only recently published qualification requirements for a master's degree in nursing for advanced specialist nurses.

A non-experimental, explorative, descriptive study with a quantitative orientation was conducted in eight private hospitals in the Cape Peninsula. A survey tool was designed and validated for data collection. Non-probability sampling was utilised. Seventy-three out of a population of 170 critical care health professionals participated. Quantitative data were analysed through Statistica and qualitative data were analysed thematically.

Ninety-two per cent of participants agreed that the CNS will contribute to safer nursing care, 81% agreed that the CNS should be appointed in the South African critical care environment as soon as possible, and 84% agreed that the appointment of a CNS will relieve work stress of nurses.

It is recommended that greater awareness regarding the CNS should be developed. The educational requirements for the CNS should be finalised and a clear job description compiled. Nursing managers should appoint a CNS in each critical care unit.

#### **THE IMPACT OF OUTREACH**

**Carine Prinsloo (cprinsloo6x21@gmail.com), Unitas Hospital**

Worldwide, patients experience delays in receiving appropriate and timely care in general wards. According to a study done in 2007 by the NHS, more than 11% of deaths were related to patient deterioration not being recognised or acted on. To avoid such results, the concept of the critical care outreach team was conceived. The objectives of outreach are:

- early identification of patients at risk before a crisis develops, and introduction of appropriate and timely interventions
- monitoring patients at risk
- promoting continuity and quality care
- sharing critical care skills and expertise.

The outreach team aims to empower ward staff to deliver appropriate care by offering them support from critical care-trained nurses. One of the key elements of the



outreach service is the use of an early-warning screening tool that systematically assesses the patient's condition to facilitate appropriate interventions. Ward staff were made more aware of recognition of deteriorating patients. This results in a decrease in the time taken to act when a patient's condition deteriorates, and an increase in timely transfer of patients to a higher level of care.

Outreach was introduced in our hospital in 2005, and we have experienced a significant decrease in the necessity for resuscitation of patients in wards and a decrease in the time taken for nurses to recognise patient deterioration.

Less than 20% of patients seen by the outreach team were transferred to a higher level of care. The outreach team was able to provide the appropriate interventions and monitoring of patients in the ward, which meant that patients did not need to be transferred to higher levels of care.

#### **THE VIEWS OF INTENSIVE CARE NURSES ON END-OF-LIFE CARE IN PUBLIC HOSPITAL INTENSIVE CARE UNITS**

**S Schmollgruber (shelley.schmollgruber@wits.ac.za), G Langley (gayle.langley@wits.ac.za), Department of Nursing Education, Faculty of Health Sciences, University of the Witwatersrand, Johannesburg**

Despite advances in intensive care practice and technology, many patients die in these settings. Consequently, end-of-life care (ELOC) is common practice in intensive care units (ICUs) (Wunsch *et al.*, 2005: 823-931). However, ELOC practices vary across ICUs and differences of nurses' involvement in this area remain (Latour *et al.*, 2009).

Attempts to improve ELOC in Europe by developing consensus-wide statements were developed. A prospective, descriptive study (the VENICE study) investigated whether nurses in ICUs had been influenced by the developments (Latour *et al.*, 2009).

This study, a replication of the VENICE study in the South African context, aimed to describe similarities and differences in attitudes towards EOLC among intensive care nurses and to elicit nurses' involvement in EOL decisions in academic-affiliated, tertiary/quaternary care hospitals in the Johannesburg area. The results are compared with those of the European study.

A 30-question instrument developed by Latour, Albarran and Fulbrook and tested in the European context was adapted for the South African context.

Eighty anonymous completed responses have been received to date from nurses working in the various ICUs of Johannesburg public first-level hospitals. The results are currently being analysed by means of descriptive and comparative statistics and will be presented in graphic and tabular format. Recommendations will be made for clinical practice and education of intensive care nurses.

#### **EFFECT OF SMALL-GROUP BEDSIDE TEACHING ON CLINICAL PROBLEM-SOLVING SKILLS AMONG CRITICAL CARE NURSING STUDENTS**

**Roseanne Turner, Janet Bell, Division of Nursing, Stellenbosch University, Tygerberg, W Cape**

**Background:** Stellenbosch University provides postgraduate training for critical care nurses. Small-group bedside teaching (SGBT) was introduced to bridge an observed theory-practice gap. In 2008 permission was obtained from the US Health Ethics Research Committee to evaluate SGBT as a strategy for teaching critical care nursing students. Funding was obtained from FINLO.

**Aim of the study:** To explore aspects of teaching and learning in SGBT and gain understanding of how the strategy impacts on development of critical thinking by critical care nursing students.

**Study objectives:** To describe how SGBT may influence the way students approach the identification and solving of clinical problems to better manage patients and make clinical decisions.

**Methodology:** A qualitative methodology was used. All students were required to take part in the SGBT and those willing to participate in the study were asked to repeat a written patient scenario (Mr Bump) in April, July and October. Data were thematically analysed. Only data from April and October are presented.

**Results:** Themes from April were Repeating the data, Inability to translate theory to practice, Limited or incorrect interpretation, Separateness, Blind acceptance, Meaningless catch phrases. The data from October were similar except for an additional theme – Interconnectedness.

**Discussion:** The results from this exploratory study indicate that SGBT is assisting students to bridge the gap between theory and practice and is teaching them how to think in action and dialogue with the data which Benner, Hooper-Kyriakidis and Stannard (1990) highlight as a requirement for developing expertise in critical care nursing.

#### **A COLLABORATIVE PROGRAMME BETWEEN THE PRIVATE SECTOR AND A NURSING AGENCY FOR THE UPGRADING/TRAINING OF ENROLLED NURSES**

**Sonja Windsor (sonja@inten.co.za)**

It is known that South Africa has insufficient trained nurses to meet the staff requirements of wards as well as critical care units in both private and public hospitals. Agency staff are employed to fill the gap, but even this initiative has not produced results that solve the problem. Because of this shortage of registered nurses, enrolled nurses are often used to ensure adherence to the minimum nurse/patient ratios. An orientation programme needs to be completed by each nurse before placement in a position in the private sector.

**Research problem:** It is a problem that a high percentage of enrolled nurses who did their training in

another province start the orientation programme but fail to complete it.

**Intervention:** The researcher, as educator for the enrolled nurses in the orientation programme, designed the programme in such a way that theory and practice were integrated. Factors affecting failure to complete the programme were addressed as part of the programme.

**Results, recommendations and future actions:** In order to provide the nursing sector with competent staff, the success of these orientation programmes is vital. The collaborative model ensured the provision and retaining of enrolled nursing staff in the private sector.

#### **IMPACT OF AN EDUCATIONAL PROGRAMME ON VENTILATION AND VENTILATION GRAPHICS FOR NURSING STAFF WORKING IN INTENSIVE CARE**

**Sonja Windsor (sonja@inten.co.za)**

The outcome of a previous study completed by this researcher was the design of an educational programme on the interpretation on ventilation graphics. Interpreting ventilation graphics facilitates the assessment and nursing management of the ventilated patient. It is important to nurse patients more effectively because nursing staff numbers are declining worldwide.

**Aim:** The purpose of this study was to evaluate this programme and to make recommendations for changes to or the use of the programme.

**Method:** In this intervention study, a pre-test/post-test design was used. A convenience sampling method was used because the staff were motivated by nursing services managers to attend the educational sessions. Data were analysed by the researcher.

**Results:** 66 candidates completed the 2-day workshop. The average mark achieved during the pre-test was 32% among the 66 candidates. During the post-test the average mark achieved was 59%.

**Discussion and recommendations:** Practical facilitation on the use of ventilator graphics should take place on completion of the educational session with the purpose of reinforcing the learning experience. It should be integrated into the programme.

#### **THE ESTABLISHMENT OF AN INTEGRATED NATIONAL DATA COLLECTION SERVICE FOR INTENSIVE CARE UNITS IN SOUTH AFRICA**

**Robert Wise (robertwise@webafrica.org.za), Department of Critical Care Medicine, Pietermaritzburg, KZN**

Patient data management systems have been in use since the 1970s. Development of these systems has extended their use beyond the realm of bedside aids to clinicians. The idea of an integrated national data collection service for intensive care units (ICUs) has been implemented in a variety of countries. The need for such a system is evident as the specialty of critical care medicine develops and new methods and research are undertaken, with clinical practice requiring constant audit to improve patient care in an increasingly burdened health system with limited resources.

The implementation of an integrated national intensive care data collection service will further enhance:

- audit/research
- communication/guideline and consensus development/ risk prediction
- evaluation of health care systems
- identification of need/ resource development (essential to the implementation of National Health Insurance)
- identification of current standards of care
- cost-effectiveness.

A national data collection system has previously been explored in South Africa. At present it has not yet been successful, possibly owing to a number of reasons including concerns over anonymity, confidentiality, the imputation blame, and lack of infrastructure and funding. This presentation explores solutions to the issues above, the possibilities of outsourcing an independent company, funding, and ensuring anonymity and confidentiality. It discusses solutions and highlights the need for collaboration among the ICUs around South Africa in order to improve patient care. It will hopefully further enhance multicentre research and the development of the specialty of critical care medicine in South Africa.

#### **UNDERSTANDING FUROSEMIDE**

**Robert Wise (robertwise@webafrica.org.za), Department of Critical Care Medicine, Pietermaritzburg, KZN**

Furosemide is a loop diuretic that is frequently used in the critical care setting for the management of patients' fluid balance. Even before a review of its use in the critical care setting appeared in the *American Journal of Cardiology* in 1986, it was widely used but heavily debated. At this time it was recognised that few data supported the efficacy of loop diuretics in acute renal failure, although they was commonly used in the setting of acute tubular necrosis.

Furosemide has come under increasing review with regard to its use in acute kidney injury (AKI) and other situations where renal protection is desirable. However, many of the clinical situations where furosemide has been used are questionable and have little evidence. In addition, the question arises whether there are more pressing metabolic problems that need to be considered.

Since 1986 much has been published on the subject. Several papers and trials have attempted to find benefit from furosemide in the setting of AKI in the critically ill population, but trial quality has often been low. Dichotomous results in terms of mortality, associations with duration of renal replacement therapy and urine output have highlighted the need for good clinical trials in this population.

With this history and evidence available, one must ask why furosemide is so commonly used in the setting of acute renal failure. This review tries to wade through the quagmire surrounding some of these questions and others.