NEONATAL DEATHS – WHERE'S THE NATIONAL STRATEGIC INTERVENTION?

Professor Shaheen Mehtar, internationally renowned infection control specialist and head of Stellenbosch Unviversity and Tygerberg Hospital's Academic Unit for Infection Prevention and Control.

With too many babies dying in South Africa's public hospitals because of dismal infection control and poor hygiene, a national audit of relevant knowledge among health care workers, their equipment provision and clinical behaviour is 'paramount'.

This is the view of Professor Shaheen Mehtar, an internationally renowned infection control specialist and head of Stellenbosch University and Tygerberg Hospital's Academic Unit for Infection Prevention and Control.

A top provider of appropriate training to doctors, nurses and auxiliary health care staff, Mehtar has just turned out 15 infection prevention and control specialists (both doctors and nurses) who passed the 2-year postgraduate Diploma in Infection Control (PDIC) course, drawn from all provinces. She hopes this group will lead the fight at the coal face.

'In the work setting nobody really wants to put their head above the parapet and say this is less than ideal. Now this small group at least has the expertise and can speak up with authority to make changes,' she told *Izindaba*.

Hospital infection control, mainly in public sector neonatal wards, has dominated health care headlines in recent years, reverberating at the highest political levels when tragic truths emerged and health care managers spoke out. The Medical Research Council *Saving Babies* report last year put 1 in 5 baby deaths as 'completely avoidable', adding that 23 000 babies die annually in the first month of their lives – with thousands more stillborn. MRC report contributor Dr Joy Lawn, a senior policy and research adviser, said this was the equivalent of a daily crash of four minibuses full of passengers, killing all on board.

The figures show that it is almost impossible for South Africa to reach the UN's fourth Millennium Development Goal of reducing by two-thirds the mortality rate of children under 5 by 2015. This country fares badly when compared with several poorer African countries that are succeeding in slashing their neonatal mortality rates. Malawi, for example, has reduced its rate by 25%.

Hospital infection control, mainly in public sector neonatal wards, has dominated health care headlines in recent years, reverberating at the highest political levels when tragic truths emerged and health care managers spoke out.

Woeful litany of events

The most dramatic neonatal death controversy was in July last year when the *Daily Dispatch* in East London carried a front-page exposé on preventable deaths of unborn children at Mount Frere Hospital, largely due to equipment and staff shortages.

Dr Nokuzola Ntshona, deputy manager of the East London Hospital Complex and medical superintendent of the Cecilia Makiwane Hospital, was sacked for saying that babies at Mt Frere and Makiwane hospitals were dying at a rate for 400 per month.Ntshona spoke of 'overwhelming bacterial infections', with *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* prevalent in paediatric wards and fatal hospital-acquired infections commonplace.

The controversy also proved to be the catalyst for the sacking of deputy health minister Madlala-Routledge, who famously described the situation there and at other public hospitals as 'a national emergency'.

In spite of convoluted statistical arguments and heated denials by President Thabo Mbeki and his health minister, Dr Manto Tshabalala-Msimang, major corrective measures were taken. These included the construction of a new labour ward, the purchase of 6 more incubators, additional neonatal ventilators, new elbow-operated taps, more hand-washing basins and a tightening up of infection control procedures at Mt Frere. Tshabalala-Msimang also announced a ten-fold increase in the hospital's maintenance budget.

Other preventable local tragedies included the *Klebsiella pneumoniae* 'outbreak' that killed 21 babies at the Mahatma Ghandi Memorial Hospital in Durban in July 2005. Contaminated intravenous equipment and poor infection control measures emerged as the chief culprits, while *Klebsiella* was found on the hands of 10% of the staff, in feeding bottles and in formula feeds. A local university microbiological probe found the nursery to be 'overcrowded, under-equipped and understaffed'. Contaminated intravenous fluid

solution was the source of an earlier similar outbreak that killed 6 babies at Bloemfontein's Pelonomi Hospital.

Multiple use of medication vials (to save costs), inadequate hand-washing practices and inappropriate hand-washing facilities were common findings in both these probes.

Asked by *Izindaba* what was most urgently needed, Professor Mehtar suggested a 'basic audit' and situational analysis of public hospitals 'at least every 2 years' to assess knowledge of infection control among health care workers as well as application to health care practices. 'One could ask health care workers five basic questions, look at provision for good practice on the wards, for them to practise infection control and observe how it is applied to patient care...'.

This would be followed by observing how staff used the provisions they had. 'If you have provision at 80% and knowledge levels at 60% and the performance is dismal (for example), then you have a better idea of where to intervene,' she added.

No alternative to training and accountability

Mehtar says budget cuts, lack or failure of equipment and staff shortages 'should not serve as an excuse' for health care workers to neglect their duty of care towards patients. She added that the way to address shortcomings in our system is to instill a sense of accountability, emphasise the duty of care and improve legislation to ensure adequate infection and control measures. However, the ultimate answer lay in training to ensure that 'certified people take responsibility' for infection prevention and control.

Since 2005 her department had trained 300 people in a basic 5-day infection prevention and control course which would go towards setting up infection control forums in some provinces.

Mehtar emphasised: 'I don't care whether it's at hospital or district level, we need all our trained people getting together to make a difference'. It is unfortunate that the specialist training in infection control is not yet recognised as a specialist training programme, which means that the infection control specialist nurses do not qualify for occupational specific dispensation (OSD). This needs to be addressed'.

Another national problem was the paucity and relevance of data collected. This was aggravated by hospital managers often lacking the knowledge to interpret whatever data there were to sufficiently address their hospitals' individual needs. Appropriate surveillance was lacking because of the dichotomy between what managers wanted and what they actually needed.

Professor Mehtar suggested a 'basic audit' and situational analysis of public hospitals 'at least every 2 years' to assess knowledge of infection control among health care workers as well as application to health care practices.

'Nationally there isn't information and often what exists doesn't mean much in its current format – nobody understands what it is. So it's a matter of rubbish in, rubbish out – you must know what to do with the data'. Simply handing information to a CEO often 'meant nothing' unless one explained it to them.

Mehtar, a veteran of infection surveillance at 'hot-spots' across the country and audits of antibiotic resistance and blood-borne virus transmission, said some provinces had trained specialists in infection control yet this was 'not reflected downwards to clinical practice at ward level'. Other provinces had fewer infection control specialists yet succeeded in reflecting this capacity downwards.

'You don't have to read between the lines to realise it's a management issue,' she said. 'We need to train our managers to understand the basic economics of infection control — the fewer the infections the less the cost to the health services. Investment in infection control pays high dividends.' Mehtar added that her 3-day infection control course for managers was 'the most poorly attended'.

One module students most often failed in the postgraduate diploma course offered by her unit was research methodology, surveillance and statistics. This was significant because 'without figures, we're not accountable, clinically we're not measuring the right parameters and if you can't measure, you can't manage'.

Health Department makes vital appointment

The Department of Health (DoH) this January finally appointed an erstwhile Gauteng health department employee, Dr Carol Marshal, to the post of Director, Inspectorate of Standards Compliance. This post had been advertised for over 2 years. The DoH currently has no monitoring or inspection capacity. Its Director of Quality Assurance, Dr Louis Claasens, has a staff of two who assist him in developing clinical guidelines and packages for primary, district and regional care. Claasens said his office was 'not an inspectorate', and confirmed that nobody in the DoH currently performed this function.

Just 14 of 380 public sector hospitals currently meet and maintain standards set by the internationally accredited quality improvement and accreditation body, the Council for Health Service Accreditation of South Africa, the only such outfit in the country.[1]

Mehtar said that taking baseline TB prevalence into account, European hospitals had a nosocomial infection rate of 5 per 100 000 TB patients compared with South Africa's 1 000

per 100 000. About 35% of all local admissions were TB smear-positive, with 7 - 9% resistant to multiple drug interventions.

To reduce exposure of health care workers to infectious TB, recommendations were issued for health care workers who were HIV infected not to work with known TB cases, albeit a difficult management matter because of severe staff shortages.

Needle-stick injury data also revealed that 25% of blood from the source blood was HIV-positive, emphasising the need for good infection control practices to prevent transmission to both patients and staff. 'A classic example is transmission via multi-dose vials where the same needle left in the vial bung is repeatedly used to withdraw drug for different patients – this is very dangerous practice.'

Top teaching hospital shows how

Mehtar said a recent (Nov 2007) meticillin-resistant *Staphylococcus aureus* (MRSA) outbreak at Tygerberg Hospital saw 85 babies colonised and 5 infected and no deaths associated with infection. It was only contained because of a highly trained infection control team working with a very dedicated clinical and management team.

Contributing factors were the overuse of broad-spectrum antibiotics to save critically ill neonates, a 40% shortage of staff, a lack of sufficient neonatal beds and poor hand decontamination (and other infection control practices) by health care workers. 'We've now set up regular meetings with unit managers and clinical staff from neonatology which provides a good, simple monitoring system. Infection control training of ward mentors will start within the next couple of weeks. The mentors will then take responsibility for infection control practices on the wards,' she said.

'You don't have to read between the lines to realise it's a management issue,' she said. 'We need to train our managers to understand the basic economics of infection control — the fewer the infections the less the cost to the health services.

All training courses, whether 3 days or 10 weeks long, have an examination at the end and a certificate of competence is issued by Stellenbosch University. 'I don't care how senior they are, they must do it,' Mehtar asserted.

Improved training and regular ward rounds meant that staff members were seeing, 'for the first time in 2 or 3 years', a major reduction in MRSA and more sensitive *Staphylococcus aureus* infection which are much easier and less expensive to treat. This had major cost-saving implications as antibiotics for a resistant patient cost up to 10 times (R40 000) more than for a sensitive patient (R400).

DoH infection control workshops conducted in all 9 provinces in 2005 echoed many of Mehtar's observations. The generic conclusion was that a successful strategy would depend on 'political and managerial commitment and authority at all levels, strong partnerships and good communication between all tiers of government, the private sector and other stakeholders'.

Proper structures and necessary resources were 'of the utmost importance', while every effort should be made 'to build and improve capacity for management of infections, diseases, infection control practices, epidemiology and surveillance, based on evidence-based practices'. Claasens said many of the recommendations were now official policy.

A base-line audit along the lines suggested by Mehtar may be a fine place to begin translating policy into reality.

Chris Bateman

1. Bateman C. Hospital standards – private expertise virtually unused. *S Afr Med J* 2007; 97: 820-824.