health and
social development
Department: Health and Social Development
GAUTENG PROVINCE

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14 January 2011

Mr J Berger
C/o Section 27, incorporating the AIDS Law Project
PO Box 32361
BRAAMFONTEIN
2017

Dear Mr Berger

INVESTIGATION INTO INFANT DEATHS IN GAUTENG AT CHARLOTTE MAXEKE ACADEMIC HOSPITAL

Your letter of 7 December 2010 addressed to the HOD for Health and Social Development, Dr KS Chetty has reference. Please find attached a signed copy of the report for your information.

Please note that a committee was not appointed for Natalspruit.

Yours Sincerely,

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MS LH MEKGWE
MEC: HEALTH AND SOCIAL DEVELOPMENT
DATE: 17/01/2011

37 Sauer Street, Johannesburg. Private Bag X085, Marshalltown, 2107

Report

Panel to investigate and report on the circumstances surrounding the deaths of 6 babies at the Charlotte Maxeke Hospital on 18 May 2010

- Professor Dankwart Wittenberg Former Head of Paediatrics at Steve Biko hospital, (Chair)
- Professor Sithembiso Velaphi (Head of Neonatology at Chris Hani Baragwanath hospital)
- Professor Keith Bolton (Head of Paediatrics at Rahima Moosa Mother and Child hospital)
- Professor Yusuf Veriava (Physician at Wits University)
- Ms Cecil Pretorius (Infection control specialist at Steve Biko hospital)
- Mrs Thoko Moloko (Member of the Gauteng nurse managers forum)
- Ms Ethel Lesolang (Member of the Retired nurses forum)
- Dr Lesley Bamford (Paediatrician from the National Department of Health)

Introduction:

Prior to the meeting, the issues to be discussed had been identified and specific tasks had been allocated.

Terms of reference:

In order to comply with the instruction given to the panel, the following questions/issues need to be addressed:

1. Did the 6 babies die of a single *cause*, and were these deaths to be expected from the respective disease? Were these babies particularly vulnerable to disease/death? Was the disease acquired in the hospital?

2. Were these deaths a coincidental clustering of the usual *death rate* in that hospital/unit, or did they reflect a true sudden increase in mortality rate?

3. Were there any circumstances in the *facilities of the unit* relating to space, isolation facilities, hospital support systems and infrastructure that increased the risk for death in the babies?

4. Were there any circumstances in the unit relating to *bed occupancy and crowding* that increased the risk for babies in the unit?

5. Were there any circumstances in the *quality of care* given to babies in the unit relating to medical and nursing staffing, staff training and experience, staff supervision, staff availability or absenteeism, policies and procedures, that

increased the risk for babies in the unit? If there were breakdowns of policies or procedures, can these be identified?

Methodology:

Obtained reports
Meeting held on the 27 May 2010
Obtained minutes
Draft interim report
Circulate draft interim report to all panel members
Write final report

Cause of death analysis

Individual cases

Seven babies died. Their hospital case notes were analysed independently by senior neonatologists, who concurred on the following summary:

- In six babies, the cause of death appears to be related to a highly virulent outbreak of gastroenteritis in the premature baby unit.
- The fatal cases are linked in time and space. Five of the six cases died on 18 May as a direct consequence of an acute attack of diarrhoea that became complicated by the development of necrotising enterocolitis in up to 4 cases.
- All babies were "high risk" cases with a birth weight less than 1500 g, although most seemed to be progressing well before the outbreak.
- Invasive Klebsiella infection (as identified by blood culture) was not prominent in the cases that died, and proven bacterial septicaemia was an inconsistent finding
- HIV exposure was not a prominent feature. All babies had received formula feeds instead of breast milk
- The general level of medical care was good. The onset and progression of disease from "well" to "death" was extremely rapid making individual management difficult. No individual cases seemed to show any specific negligent medical care. All babies were treated with a range of antibiotics.
- Records kept by medical and nursing staff were excellent
- All cases had been included in the list of diarrhoea cases occurring in ward 177 on 16 May.

Epidemic gastroenteritis outbreak

On Sunday 16 May 2010 an outbreak of vomiting and diarrhoea occurred among babies in ward 177 and 184 of CMJAH. Seventeen neonates were affected with diarrhoea on that day. The clustering of this diarrhoea outbreak suggests an epidemic. Virological investigation showed this to be due to norovirus, a relatively common gastrointestinal virus that is known to be very infectious because it may be spread not only by contaminated hands, water or food, but also through breathing in of droplets from vomitus or stool.
It is not known how the virus was introduced into the ward but it could have come from a mother, visitor or health care worker. It is not known whether any mothers, visitors or staff members were also affected by intestinal symptoms.

It is not known at this stage how many patients showed evidence of norovirus infection, separate from those that became ill.

The spread of virus infection is much increased in conditions of crowding and where the isolation and separation of affected patients together with attendant staff (cohorting) is not possible.

The clinical response to the outbreak was deemed to be appropriate. On the same day that the outbreak was recognised, the infection control unit and microbiologist were called in. Without this timeous response, the situation could have become much worse.

Contributing factors

Crowding

This tragedy has occurred against the background of a neonatal unit that has been under severe pressure for a long time. Evidence from the medical and nursing staff at the CMJAH suggest chronic overcrowding. In common with other big hospitals in this region, there are too few funded beds for high care, relative to what are needed for the number of baby deliveries occurring in the hospital and its drainage area.

The requirements for neonatal care are directly linked to the number of births in a hospital and its referral area.

If the norms for the provision of neonatal care are not met, the resultant crowding leads to:

- Less space between baby cribs/incubators, with an increased risk of direct nosocomial infection;
- More babies to be cared for by each nurse with therefore a higher risk of mistakes in standard care;
- Insufficient staff relative to the norms and requirements for safe care;
- More mothers/outside visitors enter into the available space.

Facility and resources

From the audits and reports it is evident that the unit has been plagued by significant deficiencies:

- Lack of routine supplies such as roller towels or antiseptic sprays: Without towels, adequate handwashing cannot be practised.
- Insufficient routine equipment such as thermometers, dextrometers, oximeters. The sharing of such equipment promotes cross-infection.
- Lack of space, eg of locker facilities for parents and staff: this means parent jackets and bags placed on shelves within the unit, lack of change rooms
- Structural challenges in the design of ventilation systems and positioning of wash basins

All these issues are risk factors for cross-infection.

Maintenance and operating procedures

Audits have uncovered significant lapses and breakdowns in the application of standard operating procedures. These may all contribute to a risk of infection occurring. Although this particular outbreak cannot be ascribed to a specific breakdown in standard operating procedures, failure to attend to the matters that have been identified could result in

further outbreaks. The deficits described in the preparation and distribution of formula feeds in the Unit is an example of an area that needs urgent attention.
The following need to be attended to:

- Infection control practices such as hand washing before and after each patient contact, use of alcoholic antiseptic spray.
- Quality control in terms of standard operating procedures (all categories of staff)
- Quality control in terms of maintenance of equipment such as refrigerators, urns, taps
- Waste management

Staffing
As a consequence of the crowding, norms for staffing are not met relative to the number of patients that must be cared for. This leads to increased pressure on individual members of staff.

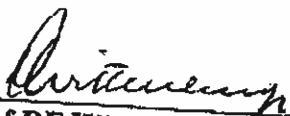
Conclusion
The deaths of the babies occurred as a consequence of a norovirus epidemic in the neonatal wards of the Charlotte Maxeke Academic Hospital. No specific acts of negligence in relation to the care or treatment of individual patients were identified.

The epidemic and its tragic consequences have drawn attention to the extreme pressure on the neonatal unit from crowding and insufficient space, equipment and staff. Breakdowns have occurred in the application of standard operating procedures and quality control. These increase the risk for similar tragedies happening again.

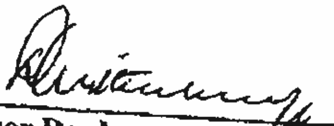
Recommendation
Hospital management should be supported to respond to the issues identified in the present audit.

Hospital management of all big hospitals should be supported to encourage the infection control and quality assurance units to be pro-actively involved in promoting safe practices and continuing staff training in the application of routine standard operating procedures, where this is not yet routine.

The committee recommends that a Neonatal Advisory Task Team comprising perhaps 2 or 3 neonatologists and 2 or 3 neonatal nurses be established to advise the Health Department on issues of neonatal care in this province.



Prof DF Wittenberg MD FCP(SA)
Chairman
4 June 2010



Professor Dankwart Wittenberg
Date: 27/7/2010