

# **COMMITTEE ON BLOOD PRESSURE MONITORING IN CLINICAL PRACTICE Minutes**

Monday, 2 February 2004  
Room 1213 Hannibal House, Elephant & Castle

The Committee's Remit:

*"To evaluate whether mercury sphygmomanometers should continue to be used or removed from the clinical environment; and to consider the alternatives to mercury devices and the evidence regarding their accuracy"*

## **Committee:**

Professor A Shennan (Chairman) (Director of the Maternal and Foetal Research Unit, St Thomas' Hospital)

Ms M Beevers (Vice Chair, Nurses' Hypertension Association)

Professor P Chowienczyk (Professor of Cardiovascular Pharmacology, St Thomas' Hospital)

Dr A J Coleman (Consultant Physicist, St Thomas' Hospital)

Dr T Clutton-Brock (Dept of Anaesthetics and Intensive Care Medicine, Birmingham)

Professor M de Swiet (Professor of Obstetric Medicine, UCH)

Dr S Dean (Clinical Director of ITU, St James's University Hospital)

Dr B Gill (Peter Congdon Neonatal Unit, Leeds General Infirmary)

Dr P McCartney (General Practitioner, Bristol)

Dr M Roberts (Chemicals and GM Policy Division, Defra)

Professor B Williams (Professor of Medicine, Leicester Royal Infirmary)

## **For this meeting only:**

Dr A Sims (Clinical Scientist, Freeman Hospital Newcastle)

## **MHRA:**

Dr S Ludgate (Clinical Director, MHRA)

Mr G Smith (Senior Medical Device Specialist, MHRA)

Mr C Apps (Medical Device Specialist, MHRA)

## **1. Welcome and Introductions**

1.1. Professor Shennan welcomed everyone to the meeting.

## **2. Apologies:**

2.1. Apologies have been received from:

Professor J Potter (Professor of Medicine for the Elderly, Glenfield Hospital)

Ms J Reilly (Health and Safety Executive)

## **3. Review of Minutes of the Previous Meeting**

3.1. Mr Smith expressed concern that point 11 of the minutes of the previous meeting did not express the high morbidity caused by hypertension and pre-eclampsia in

women and infants. The committee agreed that these should be altered and the updated version made available on the website.

#### **4. Action Points**

**4.1.** Dr Roberts and Dr Ludgate updated the committee on their efforts to identify an organisation that would produce background data on how many mercury sphygmomanometers were currently in use in the health service, procedures for removal of mercury from clinical practice and environmental issues that might arise from large scale removal.

#### **5. Update on remit, summary of progress and aims of current meeting**

**5.1.** The Chairman reminded the committee of its remit.

**5.2.** The Chairman reminded committee members that conflicts of interest must be declared.

**5.3.** The Chairman indicated that the committee will meet two more times and aim to produce a document for the CMO by the middle of the year. Consideration needs to be given to how to disseminate this information and what points need to be made in this document.

**5.4.** Professor Shennan indicated that at this meeting he felt the following points should be discussed with the aim to produce recommendations to the Department of Health in the near future:

- (i) the future of the mercury sphygmomanometer including its use, safety, maintenance and decommissioning.
- (ii) the alternatives to mercury sphygmomanometry.
- (iii) consideration of special groups and pathological states.

**5.5.** Following item 4.1 the committee agreed that the detail of the proposed study by the MRC Institute for Environment and Health was not justified. Dr Coleman indicated that he and his staff would undertake to produce this data and would inform Dr Ludgate about costs.

#### **6. Summary of environmental issues**

**6.1.** Environmental pressures exist for the removal of mercury. The largest single source of mercury is in cells used to produce chlorine. These cells are due to be phased out by 2020. See point 3 of the minutes of the previous meeting.

#### **7. Health and safety issues**

**7.1.** COSHH regulations give guidance on the safe handling of mercury.

**7.2.** The management of the disposal of mercury varies across different hospital trusts. Systems do exist for the safe disposal of mercury from hospitals and it is thought that there is plenty of capacity in the waste management industry should mercury sphygmomanometers be decommissioned.

7.3. PASA plays a key role in determining the UK-wide system for medical mercury disposal.

## **8. Mercury Sphygmomanometry**

8.1. Mercury sphygmomanometers can be used but environmental and clinical pressures exist to remove mercury. Where there is a feasible alternative mercury sphygmomanometers should be removed. Currently, however, there is little confidence in the alternatives to the mercury sphygmomanometer.

8.2. The skills necessary for using mercury sphygmomanometers are being lost.

8.3. Mercury sphygmomanometers are already being replaced by other non-invasive blood pressure monitoring devices. Attention needs to be drawn to the limitations and suitability of these devices.

8.4. Professor Shennan drew attention to the paper produced by Dr Sims looking at which devices have been validated across clinical use. Dr Sims is currently advising PASA with regards to non-invasive blood pressure monitors. Dr Sims then answered questions from the committee.

### **Action: Whole group**

For consideration to be given to a realistic timeframe of mercury in clinical use to be phased out should that be the committee's recommendation. Device validation will influence this time-scale.

## **9. Non mercury auscultatory alternatives**

9.1. Clinicians need to be made aware of the inaccuracies of existing devices. Blood pressure is measured in a wide variety of clinical settings. The distinction between monitoring and diagnosis is important.

9.2. Non mercury, validated devices are required now. Pressure must be brought to get validated devices in production.

9.3. A meaningful classification of devices is necessary. Consideration of whether cuff inflation/deflation is manual or automatic; if auscultatory skills are required; 'automated' devices should specify the technique used; if the device is suitable for self measurement and/or clinical use; the point of measurement upper arm, wrist or finger; use for ambulatory, single or cycling measurements.

9.4. Many studies have demonstrated that aneroid devices are subject to calibration drift. Problems with mercury sphygmomanometers are usually obvious. This is not the situation with aneroid or electronic devices which may require regular calibration and maintenance.

9.5. Electronic blood pressure monitoring devices are common in primary care. These devices are not being introduced systematically and there are no systems in place to ensure the purchase of validated devices. If mercury sphygmomanometers are to be

phased out systems need to be in place to phase in other forms of appropriate non-invasive blood pressure measurement to include service, maintenance and validation.

**9.6.** Professor Williams advised the committee that NICE will be publishing guidance soon which will include advice on blood pressure measurement. GMS contract will be implemented in April 2004 which will have an impact on the purchase and use of non-invasive blood pressure measurement in primary care.

**9.7.** The committee may wish to recommend the use of a manual sphygmomanometer to measure blood pressure when pregnant patients are admitted to hospital.

**9.8.** Professor Shennan indicated that the committee should consider the following:

- (i) a robust classification for devices.
- (ii) what feasible alternatives to mercury sphygmomanometers.
- (iii) how these devices be used, calibrated and maintained and what role purchasing authorities can play to bring pressure on the market to produce validated devices.
- (iv) as an independent body the Committee may decide to recommend the purchasing of validated devices. It is the responsibility of the Department of Health to disseminate such information.

## **10. Special Groups**

**10.1.** Concerns remain about the use of non-mercury devices for monitoring special groups including pregnancy and pre-eclampsia, acutely ill patients (ITU) and children. Validation for special groups is important, however it is envisaged that validation for special groups may take longer, for this reason a recommendation of continued use of mercury sphygmomanometers may be necessary. Clinicians must be made aware of the applicability of devices and their limitations.

**10.2.** It is recognised that in some clinical areas, particularly patients under anaesthesia, non-invasive blood pressure measurement is made to monitor trends and not to diagnose hypertension. In these situations intra-arterial blood pressure monitoring may be used as an alternative. Clinicians in these areas are more likely to be aware of the limitations of automatic devices because of the direct comparisons that can be made between invasive and non-invasive techniques.

**10.3.** Precise measurement of blood pressure is key to diagnosing pre-eclampsia during pregnancy. These conditions account for high morbidity in women and children.

**10.4.** Professor de Swiet reminded the committee of the issue of cuff sizes.

**10.5.** Professor Williams reminded the Group that, given the wide remit, the most important area of BP measurement is probably in Primary Care, since measurements used in this area would have the greatest impact on the most people.

## **11. Validation Protocols**

**11.1. Validation will be the focus of the next meeting.** Professor Shennan asked the committee to consider any protocol experts that should be invited to the next meeting (see sections 6 & 7 of the minutes of the previous meeting).

**Action: Whole Group**

Consideration of the issues relating to validation of devices and the clinical relevance of protocols.

## **12. Actions for next meeting**

**12.1. Dr Coleman:** to conduct survey into mercury in clinical use.

**12.2. Whole group:** to consider classification of devices.

**12.3. Whole group:** Consideration of information and recommendations, including time frames and dissemination of information that should be included in report to the CMO.

**12.4. Whole group:** Validation protocols review.

## **13. Vehicles for implementation**

**13.1.** Mechanisms to inform government.

**13.2.** NICE involvement.

**13.3** Involvement of PASA of purchasing validated devices.

## **14. AOB**

## **15. Dates of next meetings**

**15.1. Wednesday 10<sup>th</sup> March and Wednesday 28<sup>th</sup> April.**