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# Compliance with manual vaporiser checking of automated electronic anaesthesia machines

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# Compliance with manual vaporiser checking of automated electronic anaesthesia machines

## **Abstract**

Several articles in this journal have recently reported on the importance of checking anaesthesia machines prior to use. Two original articles showed poor compliance with basic safety checking measures and with the Australian and New Zealand College of Anaesthetists Professional Standard 31.

## **Keywords**

anaesthesia, manual, machines, vaporiser, checking, automated, electronic, compliance

## **Disciplines**

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LVOT obstruction in addition to inotropic agents, vasodilators and diuretic agents (the two latter of which could decrease intravascular volume), intra-aortic balloon pump counterpulsation should not be used as it could lead to deepening of shock and worse outcomes<sup>2</sup>. The deflated balloon further accelerates the blood flow across the LVOT, thus increasing LVOT pressure gradients<sup>2</sup>.

Beta-blockers decrease cardiac inotropy and chronotropy, thus increasing left ventricular filling time, producing improvement in resolution of LVOT obstruction and decreasing LVOT pressure gradients. Beta-blocker therapy, in addition to aggressive volume expansion, should be considered as a chief component in patients with LVOT obstruction, although beta-blockers are not recommended in the treatment of cardiogenic shock<sup>2-6</sup>.

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#### Compliance with manual vaporiser block checking of automated electronic anaesthesia machines

Several articles in this journal have recently reported on the importance of checking anaesthesia machines prior to use<sup>1,2</sup>. Two original articles showed poor compliance with basic safety checking measures and with the Australian and New Zealand College of Anaesthetists Professional Standard 31<sup>3</sup>. This standard is based on an anaesthesia machine in which most of the components can

be manually checked. The accompanying editorial asked whether a new checking routine would be more appropriate<sup>4</sup>.

Our hospital introduced automated electronic anaesthesia machines in January 2012. These machines perform internal self-checks for most variables; only the vaporiser block requires manual checking by the anaesthetist prior to use. Anecdotally, we felt that anaesthetists did not always comply with this requirement.

After approval from the Hospital's Human Research Ethics Committee (Approval No. HE12/108), the Department of Anaesthesia and the Anaesthesia Nurse Unit Manager, we audited the prevalence of vaporiser checks. On a randomly chosen day once a week for eight weeks, we placed a covert marker on the vaporiser block in each of our eight operating theatres (e.g. a small piece of clear tape at seven o'clock on the dial, the vaporiser not being locked into position) and asked the anaesthesia nurse to record whether the marker had been disturbed prior to induction of the first patient.

We aimed to study 50 machine checks: 57 data-sheets were returned, of which 53 were correctly completed. The markers had been disturbed in 64% (34 out of 53) of cases, suggesting that the vaporiser block had been adequately checked. Even with this one simple procedure as the only manual requirement for the anaesthetist in checking the machine, it did not occur one-third of the time. As Dr Jorm suggests, it may be timely to consider a new checking process that will improve performance<sup>4</sup>.

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