During early expiration the sudden airway pressure release causes the nitric oxide captured in the delivery line to empty into the Y-piece and subsequently to be washed out by the inspiratory flow. Both effects reduce the amount of nitric oxide delivered to the lungs. These losses are more pronounced in patients with low lung compliance receiving low doses of nitric oxide.

As most of the aforementioned characteristics are specific to the chosen site of nitric oxide administration, we suggest that nitric oxide should be added to the breathing gas as close to the inspiratory outlet of the ventilator as possible. In this way, the volume of the entire inspiratory limb, including the humidifier, can be used as a mixing chamber. This single measure reduces the requirement both for the high dynamic range and the fast response of the MFC. It guarantees a uniform nitric oxide concentration during the entire inspiration and avoids inaccuracies in nitric oxide measurement arising from incomplete gas mixing as is to be expected when nitric oxide is delivered close to the gas sampling location. However, one must observe that this modification increases the contact time for oxygen and nitric oxide and thus might contribute to a higher conversion of nitric oxide into nitrogen dioxide, but nitrogen dioxide should always be monitored irrespective of any of these conditions.

Nevertheless, in summary, we appreciate Young's mass flow method as a mixing chamber. This single measure reduces the volume of the entire inspiratory limb, including the humidifier, thus affecting nitric oxide concentration on a breath-to-breath basis ("fast" chemiluminescence method on a breath-to-breath basis ("fast" chemiluminescence method). Young correctly stated that for clinical use a nitric oxide monitor would be mandatory. At present, however, there is no nitric oxide monitor available which would respond fast enough to measure the nitric oxide concentration on a breath-to-breath basis ("fast" chemiluminescence method). Consequently, the requirement of accurate nitric oxide concentration delivery is left to the interpretation of each individual anaesthetist. If the incident was detected and corrected immediately it could be argued that the point of criticality was not reached. But the proposed definition by the SWG of a critical incident is an event which does not necessarily lead to an undesirable outcome, but which could or would do so if left to progress. It would simplify matters if the adjective "critical" is not used when describing incidents. There can be an alerting event and a perceived cause for the alerting event. Uniformity in recording can be achieved if consensus can be reached that the perceived cause for the alerting event is the incident.

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Sir,—Drs Gilly and Baum have clearly highlighted some of the problems using mass flow controllers for nitric oxide delivery in a critical care setting. The prototype device I constructed could undoubtedly be improved using a faster mass flow controller with a wider dynamic range, or possibly by carefully adjusting the damping on the mass flow controller feedback loop. Intermittent compression and release of nitric oxide mixtures from the delivery line was not a problem I had considered when constructing the original device. In addition to the suggested solution, other approaches would be to place a check valve in the delivery line close to the point at which it enters the inspiratory limb, or to mount the mass flow controller remotely from the rest of the device, close to the circuit.

Abrupt cessation of nitric oxide treatment can cause a serious rebound increase in pulmonary vasomotor resistance. This may occur if power is lost to the device. Our current solution is to have a second nitric oxide system available for such an emergency but a fixed-flow bypass valve that opens automatically on power loss may be more appropriate. This gives a variable inspired concentration of nitric oxide depending on the minute ventilation, but if the bypass flow is chosen appropriately, a safe level could be delivered which would prevent abrupt cessation of treatment. An additional point to be borne in mind is that if the patient is removed from the ventilator circuit and the lungs ventilated by another means, for instance a manual ventilating circuit, some method has to be available to deliver the nitric oxide to the second circuit.

The device I described is an undoubted improvement on the continuous flow systems we have used up until now. It does, however, represent the first step in the development of an automated system, and not the final solution.

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Events, incidents and critical incidents

Sir,—The commentary by Banks and Tackley [1] of the Anaesthesia Specialty Working Group (SWG) on a standard set of terms for critical incident recording does not address a fundamental weakness in the terminology. The use of the term "critical incident" implies that there are some incidents which are not critical. It follows that an incident will progress to become a "critical incident" at some time. At what stage the point of criticality is reached is left to the interpretation of each individual anaesthetist. If the incident was detected and corrected immediately it could be argued that the point of criticality was not reached. But the proposed definition by the SWG of a critical incident is "an event which does not necessarily lead to an undesirable outcome, but which could or would do so if left to progress". It would simplify matters if the adjective "critical" is not used when describing incidents. There can be an alerting event and a perceived cause for the alerting event. Uniformity in recording can be achieved if consensus can be reached that the perceived cause for the alerting event is the incident.

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Sir,—Thank you for the opportunity to reply to Dr Jayasuriya's letter. We agree that the use of the term "critical incident" poses problems. We headed our list of terms "notable or harmful events in patient care" because a critical incident is so difficult to define. Thus an event can be labelled as being "critical" depending on the view of the anaesthetist concerned.