

pressure, but also warm (at 37°C) and humidified (100% relative humidity) oxygen at desired FiO_2 . This can not be achieved with this simple circuit. An efficient and effective humidifier costs at least Rs. 20,000. Also, if a heated wire is not present in the circuit, it leads to condensation, fluctuations in delivered pressure and increased risk of infection. Incompletely humidified or warmed gas leads to excessive excoriation of nostrils and nasopharynx.

Although FiO_2 has been calculated and expected values tabulated previously by others, as has been done by the authors of this paper, in real life, the measured FiO_2 is different from the calculated values. This is because the delivered FiO_2 depends on many other factors like pressure in the gas chambers, circuit compliance, precision of flow meter etc., apart from the relative air and oxygen flow rates. Hence, though one may manage without an expensive blender; in lieu, a FiO_2 monitor is a must and it costs between Rs. 15,000 to 25,000. We would disagree with the authors that bubbling CPAP can be safely used without having a pulse oximeter. The upper oxygen saturation limit in preterm babies should not be allowed to exceed 95% because of the potential risk of retinopathy of prematurity and hyperoxemia.

The first principle of any therapy has to be *Primum non nocere*. Therefore, one has to keep the limitations and potential dangers of this simple circuit described by Gregory in mind and strive to provide optimal CPAP even though at a higher cost. An efficient humidifier and a pulse oximeter have to be integral part of any CPAP system for neonates.

Srinivas Murki and *Praveen Kumar,
Fernandez Hospital, Hyderabad; and
**Department of Pediatrics, PGIMER,*
Chandigarh, India.
E-mail: srinivas_murki2001@yahoo.com

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Reply

We thank Murki and Sethuraman with their colleagues for their interest in our paper on bubbling CPAP. Both letters discuss variations of a theme and so we will respond to them together.

The first point made is that the system we describe is the same as that described by Gregory, *et al.* long back in 1971 and one which has now been discarded in favor of a CPAP apparatus that provides warmed, humidified oxygen and 'stable pressure'. Indeed the authors are right, that the system we describe is not new. We have been using it in our hospital for over 10 years now. When we started, we used it rather apologetically as a poor man's alternative, when more posh units were using the expensive CPAP machines giving 'stable pressure.' Then suddenly, America discovered 'bubbling CPAP' and the advantages that it brought. Instantly the old system became the state-of-the-art CPAP machine, vastly superior to the expensive system giving 'stable pressure'. We are no longer apologetic about using bubbling CPAP and that is the context in which we sent our paper for publication. The message is simple - the inexpensive device is superior to 'stable pressure CPAP' and even people working in resource poor settings can use it to save lives.

The correspondents say we have advocated use of bubble CPAP without saturation monitoring. This is not correct. We have said that bubble CPAP with air is safe and saturation monitoring is not required. This is true and we stand by what we wrote.

The correspondents suggest that only humidifiers provided with heating coils in the tubing must be used. Voltaire has written of the 'best as the enemy of the good' - how by exalting only the 'best', we discourage other good solutions and lower the overall level of quality. Now that humidifiers and heating coils for the tubing are available, are we to say that doctors working in remote areas of India are not allowed to use oxygen from a cylinder unless they have all the equipment for providing it warmed and humidified at 37° C. In fact, even some of the older positive pressure ventilators we use in our unit do not have heating coils in the tubing but only

condensation collection traps. It is pertinent here to point out that the latest Fisher and Paykel MR 810 (Auckland, New Zealand) humidifier we have bought does not even have a temperature read-out but it has 3 heat settings. One does not know when 37° C temperature is achieved. In contrast, the low cost humidifiers provided by Appropriate Technologies, Jan Swasthya Sahyoj (1626/33 First floor, Naiwala, Karol Bagh, New Delhi) has incorporated a temperature read-out for the heating chamber. We do not feel that heating wires for the tubing are crucial. The authors misunderstand the principle of *primum-non-nocere*. If the principle of do-no-harm were an absolute and overriding principle, one would never use antibiotics because we know there is a small chance of anaphylaxis and the possibility of death. The principle applies only to interventions where the chance of harm is more than the likelihood of benefit. *Primum-non-nocere* gives way to *primum succurrere*-‘first hasten to help,’ in most circumstances. In the context of using oxygen for a hypoxic child, to deny the child oxygen, just for want

of a heating coil would be reprehensible.

Our correspondents write of the superiority of nasal prongs. This may well be true, but they are costly, not widely available, and the nasopharyngeal tube works well. There are two other points. Murki and colleague say that a FiO₂ monitor costing Rs. 15000 to 25000 must be used if an expensive blender is not utilized. We disagree. The FiO₂ monitor is not used in any CPAP system. It can be used to measure oxygen concentration in apparatus like the head box but not in-line, in ventilator tubings.

We hope that the simple, state-of-the-art apparatus we described can be used widely and that it will make a difference to the survival of babies.

**Charanjit Kaur,
Jacob Puliyel,**

*Department of Pediatrics,
St Stephens Hospital,
Tis Hazari, Delhi 110 054,
India.
E-mail: puliyel@gmail.com*

Guidelines on Acute Rheumatic Fever

Indian Pediatrics recently published Guidelines formulated by the IAP Cardiology Chapter for the management of Acute Rheumatic Fever(1). But it is very unfortunate that many of the recommendation of the committee can not be taken as the standard protocol due to various reasons.

A. Drugs for treatment of pharyngitis and secondary prophylaxis: Dose and interval of Benzathine Penicillin

1. Instead of keeping two intervals (15 days for <27kg and 21days for >27kg) it is better to take interval of 3 weeks(2) and cut off weight to 20 kg or give the adult dose irrespective of weight. (More variable parameters create more confusion).
2. Dose of oral cephalexin 15-20mg/kg bd is

inadequate. Minimum of 50mg/kg per day in four-divided dose should be given for eradication of pharyngeal streptococci.

3. Time tested Sulpha used for prophylaxis is not mentioned at all.
4. Erythromycin frequency of dosing not mentioned.
5. Is there a need to mention the adult dosing of penicillin in the pediatric guidelines.

B. Diagnostic criteria

The following doubts regarding diagnostic criteria need further clarification

1. Rheumatic chorea: One should rule out chorea due to other causes.
2. Definition of recurrence: Manifestation after a period of 8 weeks “following stopping complete treatment”. If it is an irregular treatment, clinical manifestations may not represent a recurrence.