# Customer Interviews

## Dr. KK Diwakar, Neonatologist

Professor of Neonatology/ Department Chief

Dean, Malankara Orthodox Syrian Church Medical College (MOSCMC), Kolenchery PO, Kochi, Kerala

Dr. Diwakar established neonatology at MOSCMC. He works closely with Phoenix Medical – who often customize their equipment based on inputs from Dr. Diwakar. Phoenix Medical is India’s only established indigenous manufacturer of neonatal care equipment – such as infant warmers, incubators and phototherapy units. Dr. Diwakar has strong views on the need for cost-effective technology (and even stronger views on the markup charged by medical device manufacturers).

About the availability of bubble CPAP:

“The principle of bubble CPAP has been known to us for ages. In fact I had been making it from empty Intravenous fluid bottles for ages. – so much for the knowledge of bubble CPAP.” Those who cannot afford a bubble CPAP machine, build one.

On humidification and O2 mixing:

Both humidification and O2 mixing are essential features for a bubble CPAP. ”100% relative humidity (44mg/ L) is ideal. Definitely more than 75 – 80% in inhaled gas.”

Is there a particular make/ model of bubble CPAP that you consider to be best-in-class?

Why? Nothing much to choose between any type. Bubble is cheapest; flow driver requires more gas but provides the benefit of continuous access to atmospheric air in case the gas tubing into the CPAP generator gets dislodged or displaced.

On price:

Only the blender and the humidifier add significant cost. A venturi blender (albeit crude) will reduce the price significantly. The challenge is to design a top-class yet cost-effective humidifying chamber. Also, need to select an appropriate nasal interface viz. prongs that can facilitate comfortable nursing while ensuring atraumatic nasal seal (prongs/ mask).

(Interviewer note - example of Venturi Blender: <https://www.maxtec.com/product/delivery/maxventuri/> )

## Mr. Dipankar Bhattacharya, Hospital Head

Glocal Healthcare, Kolkata. Has been in hospital administration for ~20 years. Currently run a 100-bed secondary care hospital near Kolkata. Extensive experience in operating newly opened hospitals. Glocal operates nine secondary hospitals in 3 states.

How widespread is the use of bubble CPAP in Glocal?

Two of our nine hospitals have a bubble CPAP system. We only have a bubble CPAPs in hospitals with a fully operational NICU. Most hospitals have an SNCU (sick neonatal care unit), which do not have a bubble CPAP.

What do you currently use?

We purchased a locally manufactured bubble CPAP from a local, Kolkata-based vendor, SI Surgical (<http://sisurgical.co.in/>). I believe they import parts from China and assemble them in Kolkata. Because they are local, they are in a position to respond more quickly to maintenance calls. This was our most recent purchase. Previously, we purchased a Hamilton bubble CPAP, which probably cost us a few lacs.

On price:

SI Surgical charged us Rs. 72,000 + taxes[[1]](#endnote-1). The device is not CE marked. An alternative at a landed price of Rs. 60,000 would be very attractive.

## Dr. Nameet Jerath, Pediatrician

Consultant, Apollo Hospital, Delhi. Also in private practice.

Bubble CPAP machines used in Apollo have humidification and oxygen mixing – he sees them as essential features. He is not a practicing neonatologist, and expanded the conversation to pediatric respiratory support. Specifically, mentioned AIRVO™ 2, by Fisher & Paykel Healthcare. (<https://www.fphcare.co.nz/hospital/products/airvo2/>). This is a high flow pressure cannula system used to deliver up to 40 lpm to pediatric patients at 100% humidity.

“The AIRVO system has been adopted rapidly by pediatricians across India, and is being promoted by the Government of India. If there was some way we could get access to a comparable system at half the price, that would be great. I think the AIRVO system costs > Rs. 2 Lacs. This could represent an interesting market opportunity since they are creating a lot of demand in the market.”

## Dr. Rakhi Balachandran, Anesthesiologist

Head, Pediatric ICU

Professor, Amrita Institute of Medical Science, Kochi, Kerala

Amrita provides a high level of clinical care, and sees highly complex cases. They represent a diametrically opposite level of service delivery when compared with a secondary care provider like Glocal.

Use of CPAP

We use bubble CPAP in ~ 1 of 3 patients – in our 10-bed pediatric cardiology ICU. It is an essential step-down equipment

Response to other questions not received.

# Current Products: Price/ Feature Comparison

Pricing per data acquired in December 2017.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Make, (Company) Country | Avina (Avi Healthcare), India | Avina (Avi Healthcare), India | Fisher & Paykel, New Zealand | Great Group Medical, Taiwan | Medisys (Premier Med. Sys.), India | RestoHealth-02, India | Aquatherm |
| Supplier, City | SI Surgical Pvt Ltd, Kolkata | Benaka Healthcare, Bengaluru | Life Care System, Bengaluru | Rohanika Electronics & Medical Sys., Delhi | Seward System, Mumbai | SS Tech-nologies, Ghaziabad | Shreeyash Electro Medicals, Pune |
| Supplied by OEM? | No | No | No | No | No | Yes | Yes |
| Price in INR, net of taxes & shipping | 135,000 | 190,000 | 234,000 | 290,000 | 175,000 | 160,000 | 105,000 |
| Features | | | | | | | |
| O2 Blender | Yes | Extra, Rs. 85,000 | Extra, Rs. 90,000 | Yes | Yes | Yes | Yes |
| Humidifier | Yes | Yes | Yes | Yes | Yes | Yes | No |
| Servo control on humidifier | Yes | Yes | Yes | Yes | Yes | No | No |
| Air temperature measurement | No | No | Yes | No | Yes | No | No |
| Air flow measurement | No | No | Yes | No | No | No | Yes |
| Pop-off valve (safety valve) | No | Yes | No | No | No | No | Yes |
| Heated wire-circuit (prevents condensation in tubing) | No | Yes | Yes | Yes | No | N0 | No |
| Accessories included | | | | | | | |
| Nasal tubing |  |  | 10 sets |  |  |  |  |
| Nasal prongs |  | 1 set, reusable | 20 sets | 3 sets |  |  |  |
| Nasal masks |  |  | 10 sets |  | 1 set |  |  |
| Bonnets |  |  | 10 sets | 3 sets | 1 set |  |  |
| Stand/ trolley |  | 1 unit | 1 unit |  |  |  |  |
| Disposable humidification chamber |  |  |  | 3 sets |  |  |  |
| Safety valve |  |  |  | 3 units |  |  |  |

1. As on December 10, 2017, Goods & Services Tax (GST) @ 12% applies to CPAP machines. Taxes subject to revision. [↑](#endnote-ref-1)