Cardiac & Thoracic post-operative respiratory support with the FD140

Liverpool Heart & Chest Hospital is a major UK center for cardiothoracic surgery, cardiology and respiratory medicine. With a catchment area of 2.8m people, a 30-bed Critical Care Unit, 12 consultants and 200 plus nursing staff receiving 2400 sternotomy patients per year.

Dr James Greenwood, Consultant in Respiratory and Critical Care Medicine, fellow of the Royal College of Physicians (London), Fellow of the Faculty of Intensive Care Medicine and Member of the British Thoracic Society.

"The vast majority of patients that come through our critical care unit have had major cardiac or thoracic surgery, these patients will have lots of respiratory co-morbidity. With a very high instance of smoking in the part of the world where I work these patients are vulnerable to post-op respiratory complications."

The Benefits of Nasal High flow

Nasal High Flow Oxygen therapy is promising in its ability to overcome some of the most common post-operative complications, very good at humidifying the airway, delivering a reasonable fraction of inspired oxygen and delivering a little bit of pressure to the lower airway to help open up the airways and keep them open, particularly those patients whose lungs have collapsed down during cardiac bypass surgery. The evidence is that Nasal High Flow is very well tolerated, patients find it comfortable and the studies show a real potential to improve length of stay and reduce critical care co morbidity.

Previous 12 Month Consumable Cost	
Product	**Annual Usage**
CPAP Mask	440
Head Strap	440
CPAP Circuit	769
CPAP Hood	145
Total Consumable Cost	**£28,486**

Implementing Nasal High flow

We had been looking to introduce Nasal High Flow Therapy to our units for several years but for a variety of reasons not been able to move it forward. We then had an opportunity to move forward on Nasal High Flow as we needed to replace some of the hardware currently used to deliver more advanced Respiratory support.

The FD140 ticks all the boxes, it is easy and intuitive for the nursing staff to set up and use, quick to turnaround for medical engineering, and most importantly it's very well tolerated and comfortable for patients. An additional benefit is the ability to easily step up to CPAP or wean down to ward level respiratory support.

THE FD140 patient experience

If I select my patients correctly I know that Nasal high flow therapy will be better tolerated than what we used previously and reduce the need to step up to CPAP.

However, when CPAP is required, with the FD140 the step up and changeover to CPAP with the same device is very easy.

If you can reduce length of stay, then economically that's a big benefit for the Unit. Since the introduction of the FD140 as part of a package of changes in our unit, we have seen initial encouraging signs that a reduction in mean LOS may be occurring in patients requiring advanced respiratory support.

Minimising things like CPAP hood usage is also economically beneficial. The Universal face mask seems to be very well tolerated and the patients are very comfortable.

Since implementing in our department we have seen a reduction in hood usage by more than 95% which would equate to almost £18,000 savings on consumable costs per year.

At Liverpool Heart and Chest, we have introduced 22 FD140 systems and universally my colleagues and I are very happy. The experience has confirmed that delivering combined Nasal High Flow and CPAP with the FD140 has both financial and patient benefits.

Although initial results are promising we await publication of further data regards reduction in length of stay.

2015-16 data

- 885 patients received higher level respiratory care (87% cardiac, 9% thoracic)
- Total therapy days 2057, average 2.32 per patient
- Total length of stay 5763 days, average 5.61 per patient

The Cost benefits of reducing ICU length of stay (LOS)

Level 2 bed c. £900 per day

- Reduce LOS by 0.5 days in half the patients, save £198K
- Reduce LOS by 1 day in half the patients save £396K.