History of Single Patient Use Anesthesia Breathing Circuits in USA

A little history as to how the USA came to use Single Patient Use Anesthesia Breathing Circuits (SPU ABC) is helpful.

History Prior to SPU ABCs Placed into Service

More than 30 years ago, black rubber tubing held in place by a "Christmas tree" (metal plate with flanges) was the common connection between the patient and the anesthesia machine. Typical uses were one circuit for a day (or patient) and simply wash the circuit and hang to dry for use the next day. When patient charge items started, the circuit manufacturers sold circuits labeled "disposable". However, anesthesia providers did not change their practice – many continued to use the circuit as before. The reason the USA uses circuits labeled "Single Patient Use" was decided by 6 men in a conference room in New Jersey. There is no study showing disposing a circuit after one use reduces the risk of cross-contamination. This was purely a marketing decision. Other companies were either ahead of them or followed suit.

Patient Charge Items / Diagnosis Related Groups (DRGs)

After SPU ABCs came into use, hospitals charged patients for most items consumed by a patient during their stay. DRGs changed that process. However, anesthesia providers liked the light weight and ease of use of the SPU ABCs. As a result, hospitals were persuaded the SPU ABCs were necessary as an infection control item. There has never been a study that shows SPU ABCs reduce or prevent cross-contamination. Common sense says if you throw away the connecting tubing between the patient and the machine the patient will be protected (but not the machine or anesthesia provider), but no study proves this.

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Decision Process Outside the USA

Outside the USA, the issue of patient charge items never surfaced. As a result, the decision-making process was different. Bacterial / viral filters were available and use of a filter at the wye became common practice. Again, common sense says if you protect the circuit from contamination, then the patient, circuit, machine, and anesthesia provider are protected. For a cross-contamination to occur, an organism would have to travel through two filters - one to get into the circuit and then through a second (new) filter on the next patient. The odds of an organism passing through two filters are enormous. There are many studies documenting the effectiveness of using filters in this manner.

Legal to Use

It is legal to use a circuit labeled SPU for MPU if documentation (Policy and Procedure) is in place.

Pass Accreditation

Facilities using SPU labeled ABCs have passed inspection by all the accreditation agencies – JCAHO, CMS and AAAHC.

Sustainability Initiatives

Reduction in the use of plastics is preferable to recycling today. MPU of an ABC can reduce the number of circuits sent to landfill by up to 60% depending on the change frequency.

Increased Room Turnover Efficiency

Replacing the filter and mask is all that is necessary to turn the room. Disposing and replacing the anesthesia circuit takes more time.

Protection of Patient and Care Provider

By filtering next to the patient, the anesthesia circuit and ancillary equipment (CO_2 lines, absorber, internal workings of the machine) are protected from the patient. A new filter protects the next patient from the anesthesia equipment.

What are the results

In > 60,000,000 uses of filter devices in N. America, Europe and Asia, there has never been a cross-contamination reported to any regulatory agency. It is also true there has never been a cross-contamination reported to any regulatory agency in any country where a SPU ABC has been used and discarded after one patient.

The results are the same.

Caution: federal law restricts this device to sale by or on order of a physician.

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