

The ICU was developed under the direction of Dr. W.E. Spoerel in the mid 1960's so that very ill patients requiring airway management and ventilator support would be managed in one location of the hospital. He was able to get a four-bed ward on the sixth floor assigned for this purpose, so that these patients would not be scattered throughout the hospital in private rooms. Prior to this, they were cared for by private duty nurses and physicians, who had little or no expertise in these areas.

Later when the Middlesex wing opened there were 16 beds plus two isolation rooms developed as a full scale ICU. In 1966 Dr. Jim Bain took over from Dr. Spoerel as the Medical Coordinator until 1968, when I (Dr. Gord Sellery), was appointed to this position. I had had some previous training in Toronto under Dr. Fairley who I believe started the first Respiratory Unit in Canada.

The airway management was a concern because endotracheal tubes were made of a stiff red rubber and had cuffs that required high pressures to inflate. Thus the tubes caused a significant number of complications such as tracheal stenosis if left in place over 48 hours. This complication decreased in the early 1970's with the introduction of PVC tubes that could conform to the anatomy of the airway and maintain an airtight fit with low pressure cuffs.

After 48 hours of endotracheal intubations, a tracheotomy was done in the O.R. under general anesthesia. However these tracheostomy tubes were also made of very stiff red rubber and occasionally erosion into the innominate artery occurred with the expected results.

Mechanical ventilation was sometimes difficult as there were virtually no volume-controlled ventilators. The Bird Mark VII, (*a little green box*), costing \$400 was a pressure controlled device that was driven by either compressed air or oxygen. Patients with a very low compliance were difficult to ventilate and there was no continuing method of measuring tidal volume. The oxygen concentration delivered was very difficult to control as it varied with patients compliance. On many occasions when the ventilator was powered by oxygen the FI O₂ was over 90%. This led to pulmonary oxygen toxicity over about 2 days and was a common cause of ARDS.

To reduce this complication we began to add PEEP (*positive end expiratory pressure*) to the expiratory limb of the Bird. I had some experience with this in Toronto. Together with my resident Dr. Logan Millman, we rigged up a corrugated tube, taped to meter stick and stuck the end of it under 10 cm of water in a chest tube bottle. This was attached to the expiratory limb of the ventilator and presto the patient had 10 cm of PEEP. This worked well until someone filled all the bottles to the top and made it very difficult for any patients to exhale at all against 25 – 35 cm of pressure.

In about 1970, I was able to convince the hospital to purchase a very modern volume controlled ventilator – a Bennett MAI. This was great as it was easy to deliver a set concentration of oxygen, and a known tidal volume. It was sometime before I could get a second ventilator as it had cost almost \$10,000.

In the 1960's there were no respiratory therapists so that Dr. Spoerel and Dr. Bain provided leadership in starting this program at Fanshawe College in 1967. Members of the Anesthesia Department gave many lectures to these students until the program was mature. I was able to get the hospital to hire one graduate of this program for support in the ICU, who would also provide treatments throughout the hospital if the ICU was not busy enough. Thus we had a respiratory therapist during the weekdays in the unit to assist in the care of 12 – 18 patients. Monitoring of patients was somewhat less sophisticated than it is today. I was able to convince the hospital to purchase a grand total of six small ECG monitors for post-op cardiac surgical patients. Because transducers were not in common usage, CVP was measured with a water-filled manometer from a catheter usually in the external jugular vein. This was an advance because prior to 1964 there was no plastic cannula so that IV's were started with steel needles left in the situ. Patients with a CVP all had an ink mark on their anterior axillary line as the zero point.

Although there were no oxygen saturation or CO₂ monitors available, we could assess respiration by arterial blood gases (*10 cc taken from the femoral artery*) and chest x-rays. Thus clinical signs were most important to assess the adequacy of respiratory care.

Blood pressure was measured in the usual fashion by cuff and stethoscope until the Doppler became available. This provided accurate readings but still there was no continuous monitoring. Arterial blood pressure monitoring, as popularized by Dr. Ron Aitken for hypotension during cerebral aneurysm surgery, was only occasionally utilized. It was felt that an in-dwelling catheter in the radial artery would cause ischemia of the hand.

Physician staffing in the ICU was a resident in Anesthesia during his/her rotation, and by the on-call resident in the evenings. The ICU was felt to be an inappropriate location for residents training in other disciplines. As the coordinator of the ICU, I made rounds as often as I could, recognizing that I was booked in the O.R. 0800 – 1800 hours. I had Thursday afternoons “off work” to look after teaching and administration in the ICU.

After 35 years of practice in London, I am amazed and happy with the progress that has been made in providing care for the critically ill patient. The massive increase in monitoring capabilities and new treatment modalities as well as the education opportunities is very impressive, especially in view of where it all started less than 40 years ago.