A new education tool is helping to improve the way operating teams respond to fire.

DVD based on a dramatic fire evacuation incident in an operating theatre in New Zealand is now available for worldwide distribution and should prove a valuable teaching tool. Titled I Smell Smoke, the DVD re-enacts the circumstances of a fire event that happened at the Anglesea Procedure Centre in Hamilton during a laparoscopic gynaecological procedure.

The theatre was evacuated and the patient was removed from the scene safely and uneventfully. But why didn’t the alarms go off in a building less than 12 months old that was fully compliant? And why didn’t the smoke detector detect the smoke?

The DVD demonstrates how a fully compliant operating theatre does not necessarily provide adequate fire safety systems in the event of a fire in or near the operating theatre. It also shows the realities of evacuating a patient mid surgery, the more realistic time frames involved in a real fire event and how a real life evacuation can be quite different to what is practised.

On the DVD the fire scenario is recreated by the Procedure Centre in conjunction with the Fire Consultants using hot and cold smoke with the original operating team re-enacting the...
operation and subsequent evacuation. The presentation includes the re-enactment plus subsequent findings as well as demonstrating the differences between the theory and what actually happened.

In this incident there was smoke billowing into theatre, the fire alarm had not gone off and there was no idea where the smoke was coming from. Fortunately, there was no one injured in the incident but the outcome could easily have been different.

**What happened**

A smouldering fire started in the motor switch in the fire rated plantroom above the operating theatres.

The smoke got drawn into the A/C intake and down into the theatre. The plantroom smoke detectors didn’t operate until after the smoke was smelt in theatre 2. Even when they did operate they didn’t sound the alarms and they also did not shut down the A/C. The theatre 2 smoke detectors did not operate and the theatre staff in the middle of a laparoscopy were unaware that smoke was coming into the theatre.

Luckily the surgeon from the adjacent theatre 1 who hadn’t yet started surgery came into theatre 2 and upon entering immediately smelt smoke that the occupants had been completely unaware of.

The lights were turned on and the smoke was seen and the New Zealand Fire Service was called. The theatre 2 team immediately started preparing the patient for evacuation to the recovery fire cell. The theatre 1 patient was removed to a safe place and that team came to help the theatre 2 team.

It took the two theatre teams (two surgeons, two registrars, two anaesthetists, two anaesthetists technicians, four theatre nurses and manager) about 8-10 minutes to prepare the patient who was undergoing ‘minor’ laparoscopic surgery for evacuation. All of this time smoke was filling the theatre.

The staff suffered from smoke inhalation from the time they were in the smoke-filled theatre although luckily not seriously. It could have been a lot worse had there not been so many extra theatre staff on hand to assist.

**The DVD shows the realities of evacuating a patient mid-surgery and the time frames involved in a real fire**

Spreading the word

Nicky van Praagh, who documented the incident, has been asked to make a presentation at meetings and conferences in New Zealand and Australia and decided the best way to make it available further afield was by making a DVD.

“I have presented it at meetings in New Zealand, at the International Day Surgery Conference in Australia and the Theatre Managers and Educators Conference in Christchurch. In addition there have been several requests for information from hospitals in Australia and a visit from the educator at the Royal Hobart Hospital in Tasmania wanting to use it as a teaching tool for their hospitals,” van Praagh said.

The presentations that the Fire Consultant and van Praagh have delivered have certainly created awareness in the different industries of the realities of evacuating an operating theatre and the effect the air flows have on the smoke detectors in theatre. “In that respect the project has been very successful,” said van Praagh.

Nicky van Praagh was the 2010 National Award Winner of the Leaders in Quality Award, NZ Private Surgical Hospitals Association. The judges were particularly impressed with the innovative approach the hospital took to learning from the incident. The use of re-enactment, videoing and the involvement of external agencies to assist them in improving their processes was quite unique and a thorough process. Their willingness and openness to share their learning and advance operating theatre fire awareness with the New Zealand health sector and overseas is applauded. The judges also commended Anglesea Procedure Centre for their efforts in attempting to influence national fire safety standards, which will have the ultimate benefit of improving patient and staff safety.

An outcome of the re-enactment was that a working party was set up between the Society Of Fire Protection Engineers, the Institution Of Fire Protection Engineers, New Zealand Fire Service and the Department Of Building And Housing. The working party looked at the building code requirements for hospitals and other specialised occupancies and what special requirements were needed for the group. It resulted in changes to the Acceptable Solution to which fire engineers design to.

By Phillip Quay

The dvd is available for $95 (plus GST).

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