

Kurling for Kids 2011 – Equipment Proposal

3D Endoscopic Vision Head Mounted Display - \$96,000

RMIS (Minimally Invasive Surgery) is the new frontier of surgical innovation whereby surgery is done through "keyholes", under camera guided vision. The advantages to the patient are significant, with reduced pain and better cosmesis resulting in an earlier discharge from hospital and quicker return to activities of daily living.

The current standard technology is dependent on a 2-dimensional image projected on a regular flatscreen TV monitor. This is cumbersome for the surgeon because 2D vision does not provide depth of field,; hence there is some "trial and error" motion before finding the correct depth of field. This is especially problematic when doing precise reconstructive procedures which require suturing.

The advent of 3D imaging technology allows the surgeon to have a precise 3-dimensional vision similar to the "real world", thus permitting precise motion and precision suturing. This is all the more important in children where structures are smaller and the margin of acceptable error smaller.

The Viking 3D Vision system consists of a special camera and dual-optic surgical telescope which send 3D images to a flatscreen monitor, upon which the entire surgical team can see a 3D image by wearing simple 3D glasses. A 3D Endoscope significantly improves visualization and enhances the ability of the surgeon to perform delicate endoscopic dissection and suturing. The enhanced depth perception produced by 3-D endoscopes has been demonstrated to improve the performance of minimally invasive surgical procedures. This is all the more important in children where structures are smaller and the margin of acceptable error smaller.

MIS surgery is under constant development in most fields of surgery, but especially within Urology at the Montreal Children's Hospital where we have been leaders in novel applications such as laparoscopic pyeloplasty, laparoscopic ureteral reimplantation, laparoscopic partial nephrectomy, retroperitoneoscopic nephrectomy and adrenalectomy. These particular procedures are of benefit to children with congenital anomalies, renal failure or kidney tumours.

More than twenty patients per year will be examined and treated with the 3D Endoscopic Vision Head Mounted Display and will greatly benefit from this new technology.

