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MP-03.01

Incidence, Management and Prevention of Peri-Operative and Delayed Adverse Events of GreenLight HPS™ Laser Photoselective Vaporization Prostatectomy (PVP)

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Introduction and Objectives: We report the incidence, prevention and management of perioperative (<30 days) and delayed (>30 days) adverse events in patients treated with GreenLight HPS™ laser photoselective vaporization prostatectomy (PVP).

Methods: Patients had American Urological Association Symptom Score (AUASS), Quality of Life (QoL) score, Sexual Health Inventory for Men (SHIM), serum prostate specific antigen (PSA), maximum flow rate (Qmax) and post void residual (PVR) determinations and volumetric prostate measurements with transrectal ultrasonography (TRUS). AUASS, QoL, SHIM, Qmax and PVR were evaluated up to 24 months post–surgery. Adverse events were recorded perioperatively and at each follow–up interval.

Results: 206 consecutive patients with a mean age of 67.4 ± 9.4 years, prostate volume of 69.1 ± 41.0 mL and PSA of 2.3 ± 0.7 ng/mL underwent GreenLight HPS™ laser PVP. Mean laser and operative times and energy usage were 13.6 ± 10.3 minutes, 32.2 ± 24.0 minutes and 91.8 ± 69.8 kJ, respectively. All were outpatient procedures. Perioperative complications included nonsignificant intraoperative bleeding (2.9%), postoperative clinically non–significant hematuria <7 days duration (58.1%), hematuria requiring clot evacuation (0.9%), urinary retention requiring temporary recatheterization (5.1%), urinary tract infection (4.6%) and prostatitis (0.4%). Delayed complications included hematuria (1.0%), retrograde ejaculation (37.4%) and bladder neck contracture.

Conclusions: GreenLight HPS™ laser PVP has a low incidence of perioperative and delayed adverse events.

MP-03.02

Photoselective Vaporization of the Prostate (120W) for the Treatment of Benign Hyperplasia of the Prostate: 6-month Experience in Ontario

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Introduction and Objectives: Although the gold standard for surgical treatment of BPH is TURP, recent innovations in energy-based interventions have provided alternative treatment options for patients with BPH. Among them, photoselective vaporization of the prostate (PVP) which may have several advantages over TURP in regards to improved perioperative safety, shorter catheterization time, shorter hospitalization, faster symptomatic improvement, and less morbidity. The study objectives were to prospectively evaluate the clinical effectiveness of PVP using a 120 W KTP (potassium-titanyl-phosphate) laser in Ontario.

Methods: This study was a multi-site, prospective trial to evaluate the 6-month effectiveness of PVP (120 W GreenLight HPS™ Laser Therapy) for the treatment of BPH. The study was conducted at St Joseph's Healthcare Hamilton, The Scarborough Hospital and Trillium Health Centre. Patients who were already booked for surgical treatment of BPH using either PVP or TURP at one of these three hospitals were approached to participate in this study. Subjects were assessed during the post-operative period (Day 1-10) and at 1-month and 6-month after the date of the procedure in terms of: baseline characteristics, International Prostatic Symptom Score (IPSS), maximum flow rate (Q max) prostate-specific antigen (PSA), post-void residual (PVR) volume, health-related quality of life (EQ-5D questionnaire) and sexual function (SHIM questionnaire). Means and standard deviations (SDs) were reported at baseline and 6-month.

Results: As of October 1, 2011, 134 PVP patients had 6-month data. The mean age of patients was 67.4 years (SD = 7.6). Prostate size was 47.0 cc (SD = 18.0). At baseline, the average flow rate was 5.6 mL/sec (SD = 2.2) while post-void residual volume was 104.2 mL (SD = 107.2). Only seven percent of PVP patients were hospitalized following the procedure. Between baseline and 6-month, the average IPSS decreased from 21.8 (SD=6.8) to 8.2 (SD = 6.8) while the Qmax increased from 11.1 mL/sec (SD = 4.2) to 17.3 mL/sec (SD = 10.4). PSA and PVR values decreased from 3.3 ng/dL (SD=5.2) to 2.8 ng/dL (SD=2.8) and from 104.2 mL (SD =107.2) to 28.9 mL (SD=48.5), respectively. In terms of HRQoL, on a 0 to 1 scale where 0 is the utility associated with death and 1 the utility associated with a perfect health state, the utility scores increased from 0.86 (SD = 0.14) at baseline to 0.90 (SD =0.12) at 6-month. There was no apparent change in SHIM scores at baseline (12.4; SD =7.8) and at 6-month (12.1; SD = 8.6).

Conclusion: PVP is associated with a reduced number of admissions to hospital and clinical improvements over time.

MP-03.03

Holmium Laser Enucleation of the Prostate (HoLEP): Long Term Durability of Clinical Outcomes and Complication Rates over 10 Years Follow up in a Large Patient Cohort

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Introduction and Objectives: The aim of our study is to assess the long term durability of the subjective and objective outcomes and complication rates.

Methods: A retrospective analysis of 949 patients treated with HoLEP between March 1998 and September 2010, in a single center. Study variables included measurement of maximum urinary flow rate (Qmax), post void residual urine (PVR), international prostate symptom score (IPSS) and quality of life (QoL). Follow-up evaluations were done for the patients during their visits over 10 years follow up postoperatively. Complications rates were also recorded.

Results: The median age of the patients, pre and post operative PSA, prostate volume and operative time were 70 years, 4.3 ng/mL, 0.6 ng/mL, 81 grams and 96 minutes respectively. The mean follow up period was 62 months. The mean preoperative PVR, Qmax, IPSS and Qol were 311 mL, 7.9 mL/sec, 19 and 3.8 respectively. Postoperatively; all the variables showed a significant improvement starting at first month of follow up, and kept significantly low over the whole duration of follow up.

At 1 month, 1 year and 10 years follow up, the mean PVR was 48, 31.7 and 20.7 c.c, mean Qmax was 22, 24.6 and 27, mean IPSS was 7, 4.4 and 3.6 and mean Qol was 1.7, 1 and 0.7 respectively. Patients with acute urinary retention represent 36% (343 patients) of our cohort. Postoperatively; the mean PVR was 45, 25.7 and 52, mean Qmax was 21.5, 24.3 and 23.4, mean IPSS was 7.3, 4.4 and 3.8 and mean Qol was 1.7, 1 and 0.7 at 1 m, 1 y and 10 y respectively.

Persistent urge and stress incontinence was found in 1% and 0.5% respectively.

Bladder neck contracture and urethral stricture developed in 0.8% and 1.6% of patients, respectively. The reoperation rate as a result of recurrent obstruction because of residual adenoma was 0.7% of patients.
Conclusion: HoLEP represents an effective treatment modality for men with symptomatic benign prostatic hyperplasia, with very low rate of complications over a long duration of follow up. Patients who improve from baseline to early follow-up will maintain improvement at later follow-up.

MP-03.04

Randomized Control Trial of Transurethral Resection of the Prostate after Intraprostatic Injection of Local Anesthetic with Epinephrine

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Introduction and Objective: Epinephrine is used to reduce surgical bleeding and improve visualization in various otolaryngological and neurosurgical operations. Transurethral resection of the prostate (TURP) remains the gold standard therapy for obstructive benign prostatic hyperplasia, however visualization can be impaired by bleeding during the procedure. As a result, we investigate the use of intraprostatic epinephrine injection prior to TURP to reduce peri- and intraoperative bleeding.
Methods: Patients were randomized to receive either 20 cc of transurethrally injected intra-prostatic 1% lidocaine with 1:200,000 epinephrine or saline (placebo), in a double blind fashion. TURP followed immediately, using the modified Nesbit technique. Total blood loss, number of arteries requiring spot coagulation, resection time, visibility and safety parameters were recorded. All surgeries were performed by three urologists in a teaching environment.
Results: 30 patients were randomized to either epinephrine group (n=15) or placebo group (n=14). The groups were similar with regards to age, BMI, prostate volume, indication for treatment and preoperative 5-alpha-reductase inhibitor and alpha-blocker usage. There was a greater mean blood loss for the placebo group (44.0 ± 34.9 g) than for the epinephrine group (20.7 ± 9.3), p=0.038. There were 2 transfusions in the placebo group and 1 transfusion in the epinephrine group (p=0.543). The mean number of arteries requiring focal coagulation was not significantly different, at 12.3 (SD 6.8) for the placebo group and 9.9 (SD 4.9) for the epinephrine group, p=0.297. There were no differences in mean resection time between epinephrine group (45.1 ± 14.2 min) and placebo (47.8 ± 13.6 min), p=0.604. The visual quality of the surgical field was significantly better, based on our 5 point scale, for patients in epinephrine group (p=0.028). Complications were rare, with no significant differences in cardiac arrhythmias nor changes in blood pressure in either treatment group.
Conclusions: This is the first randomized clinical trial investigating the use of intraprostatic epinephrine pre-TURP. Intraprostatic epinephrine injection prior to TURP significantly decreases the blood loss and improves the visual quality of the surgical field.

MP-03.05

Short-Term Outcomes of Greenlight Enucleation of the Prostate (G-LEP): Comparison of Outcomes to Standard Greenlight 120W HPS Vaporization in Prostate Volumes Greater than 80cc

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Introduction and Objectives: The most common technique of photoselective vaporization of the prostate (PVP) for benign prostatic hyperplasia (BPH) involves centripetal tissue vaporization only. With less effective energy delivery over time (fiber degradation), poor surgical capsule (endpoint) discrimination while vaporizing and suboptimal effectiveness of Greenlight 120W-HPS in larger prostates, we sought to reproduce the principles of prostate enucleation and evaluate a hybrid technique in glands > 80cc.
Methods: The G-LEP technique was performed in 25 consecutive men with a prostate >80 cc by a single surgeon (KCZ) between May-Sept 2010. G-LEP involved adenoma incision at 5 and 7-oclock positions followed by 3,9 and 12 o'clock incisions down to the surgical capsule. Side-fire vaporization along the capsule was carried out thereby enucleating TURP-like tissue strips for retrieval. Functional followup included International Prostate Symptom Score (IPSS), Quality of Life (QoL), serum prostate specific antigen (PSA), maximum flow rate (Qmax), post void residual (PVR) determinations and volumetric measurements with transrectal ultrasonography (TRUS). Functional evaluations were performed at 1 and 3 months. Outcomes were compared to a sizematched- cohort of 25 men who previously underwent vaporization-only PVP. Change in baseline outcomes and complication rates were retrospectively assessed.
Results: Mean age, PSA and prostate size for the G-LEP and control PVP cohorts were 68 vs 69 yrs, 4.3 vs 4.7 ng/mL and 76 vs 73 g, respectively (all p>0.05). Mean laser time, operative time and energy usage were 35vs 48 min; 63 vs 80 min; and 227 vs 325 kJ respectively (p<0.05 for all). At 3 months, mean IPSS improved 64%vs57%, Qmax increased by 197% vs 173% and PVR decreased by 88% vs 72%, respectively (p<0.05 for all). Mean encleated tissue weight was 29.2 g (range 15-49). Mean decrease in pre-operative PSA at 3 months was 68% vs 50% (p<0.01), respectively. Hospital stay, catheterization time and complication rates were comparable between groups.
Conclusions: While both cohorts demonstrated significant improvements in baseline voiding parameters, short-term analysis demonstrates that G-LEP provides superior short-term outcomes to standard HPS-PVP in men with prostate volumes >80cc. G-LEP also appears to be more time-efficient, consumes less energy and obtains tissue for pathological evaluation. Further follow-up is required to assess the durability of G-LEP to PVP vapolization-only for large prostate glands.

MP-03.06

Obesity and Benign Prostatic Hyperplasia: Analysis of a Large Cohort Undergoing Transrectal Ultrasound Guided Prostate Biopsy

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Introduction: Obesity is an emerging epidemic of increasing public health concern. Recent studies have begun to elucidate associations between benign prostatic hyperplasia (BPH) and obesity. Our objective was to further delineate the relationships between anthropometric data and both prostate volume and lower urinary tract symptoms (LUTS).
Methods: We studied a prospective cross-sectional cohort of 931 Canadian men not taking 5-alpha reductase inhibitors who underwent transrectal ultrasound (TRUS) and prostate biopsy for cancer suspicion. Clinical and demographic data were collected using questionnaires, including the American Urological Association Symptom Score (AUA-SS), and chart reviews. Associations of clinical and demographic parameters were determined with univariate and multivariate linear regression using log transformations of outcome measures.
Results: Patients with a body mass index (BMI) of <25.0, 25.0-29.9, and ≥ 30.0 had a mean TRUS-measured prostate volume of 43.8cc, 49.0cc, and 54.3cc, respectively. Univariate log-transformed linear regression analysis showed that each 1 kg/m^2 increase in BMI corresponded to a 1.3% increase in prostate volume (p<0.0001). Multivariate analysis showed that both height (p=0.001) and BMI (p<0.0001) were associated with prostate volume. Increasing BMI (p=0.007) was associated with lower AUA-SS. Height was not associated with AUA-SS (p=0.78). Age, PSA, absence of prostatic nodule on TRUS, and history of prior biopsy were also correlated with prostate volume in multivariate analysis (p<0.0001).
Conclusion: Our univariate and multivariate models support the association between prostate volume and BMI. The association between LUTS and obesity is less clear in the literature and depends on the study population and anthropometric measures used. We noted in our study

a statistically significant inverse relationship between BMI and LUTS, which would suggest that the relationship between obesity and LUTS remains to be well defined.

MP-03.07

The Use of a Wide Bore 18-Gauge Needle for Intralesional Treatment of Peyronie's Disease Is Safe and Practical

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Introduction and Objective: Intralesional injection of verapamil (ILVI) is a commonly used non-surgical treatment for Peyronie's Disease (PD). For most urologists, a 23 to 25-gauge needle is used following dorsal penile nerve block, although some report ILVI without anesthetic. A narrow bore needle is likely to lower the incidence of common side effects (pain and ecchymosis). However, the use of such mid-range bore needle gauge may be associated with less penetration and delivery of teh drug tnto the plaque. Our aim was to specifically evaluate wide-bore 18 gauge needle feasibility and safety in a large prospective cohort.

Methods: Our institution has established a hospital-funded ILVI program. Capacity is 42 men injected per week (12 week course). 242 ILVI patients (July 2009-December 2010) were evaluated during narrow to wide-bore transition. Work-up includes pre-ILVI, 3 month post-ILVI, and 6-9 month follow-up ultrasound. Penile block is used (10 cc 1% xylocaine, no epinephrine).

ILVI dose is 15 mg verapamil in 10 cc total volume and delivered via 1.2x40 mm 18 gauge needle (US guided if non-palpable septal scar) using a single skin puncture and passage in and out of the plaque(s) while injecting within tracts. Post-injection, penile compression over the injection site for 10 minutes (no wrap) is performed.

Results: We did not find any increased incidence of injection-related complications with the wide-bore needle regimen compared to previously reported data on prior standard narrow-bore needles. All patients completed their injection program. 16 men (single episodes) developed ecchymosis that resolved prior to their injection. No other treatment-related complications were observed.

Conclusions: The use of 18 gauge wide-bore needle optimizes penetration and drug delivery into the PD plaque.

MP-03.08

Retrospective, Multi-Center Length and Erectile Function Outcomes after Implantation of Inflatable Penile Prostheses with Limited Length and Girth Expansion Cylinders

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Introduction and Objective: Implantation of a 3-piece inflatable penile prosthesis (IPP) is a reliably effective and durable treatment for erectile dysfunction (ED). Changes in penile length and geometry can adversely affect patient satisfaction with IPPs, and proper counseling is required prior to surgery to manage and sometimes reset expectations. Herein we report our collective post-operative outcomes for patients who chose to receive IPPs with cylinders that allow for limited length and girth expansion (LGX) after appropriate counseling. Patients, including those with Peyronie's disease, scarred corpora or fibrosis due to radical pelvic surgery, were counseled on their options and all chose an LGX model.

Methods: Medical records for patients implanted with LGX IPP devices in 4 surgical centers were retrospectively reviewed to examine collective outcomes associated with their use. Pre-operative Sexual Health Inventory-Men (SHIM) and Erection Hardness Scores (EHS) were also compared to scores at 4.5 to 12 months of follow-up. Penile length measurements (stretched and/or with IPP maximally inflated) taken at baseline (pre-operative, intra-operative, or within 3 weeks of surgery) were compared to post-operative measurements through up to 12 months of follow-up. Patients were instructed to cycle their IPPs for up to 1 hour per day beginning between 2 and 6 weeks post-operatively through at least 3 to 6 months, and to continue cycling or using their devices at least 3-4 times weekly thereafter.

Results: In total, 201 men were implanted with the LGX IPPs. Radical prostatectomy was the most common identified cause of ED (47% of patients), followed by Peyronie's disease (28%). The mean pre-operative SHIM score was 4.0, which improved by 17.9 points to 21.9 post-surgery. EHS scores were recorded at a single center, and improved by 2.8 to a mean of 3.9 at 12 months after implantation. Mean penile length at baseline was 13.7 cm for a total of 108 patients measured, and increased by 0.3 cm at 3 to 6 months, and by 1.9 cm at 12 months.

Conclusions: In our collective experience, implantation of 3-piece IPPs with LGX cylinders is associated with nearly complete restoration of erectile function and hardness. With instructions for regular device cycling beginning soon after surgery, patients can maintain or regain penile length in the months after penile implant placement.

MP-03.09

Testosterone Replacement Therapy Following Radical Prostatectomy

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Introduction and Objective: Testosterone replacement therapy (TRT) has historically been contraindicated in hypogonadal men with a history of prostate cancer, even after definitive treatment. Accumulating evidence has recently supported the concept that increasing testosterone levels may be safe in selected patients. We performed this analysis to examine the association between TRT and recurrence of prostate cancer after radical prostatectomy (RP).

Methods: We analyzed a cohort of men who underwent RP as the sole treatment for localized prostate cancer and received TRT for hypogonadism. Patients who presented with symptoms of hypogonadism (HG) underwent serum testosterone testing before noon. Men were diagnosed with HG if they had early morning total testosterone (T) levels <300 ng/dL on two separate occasions. Patients with organ confined disease, 2 post-operative (within 3 months of RP) non-detectable PSA levels, Gleason sum 7 or less and a nomogram-generated 10 year progression-free probability (PFP) of ≥90% were considered ideal candidates for TRT. T supplementation dosage was titrated to maintain T levels ideally at 500-600 ng/dL. Immediate lab testing was conducted 2-4 weeks after commencement, every 3 months in year one, and 6 monthly thereafter. A biochemical recurrence (BCR) was considered a PSA level >0.05 based on our institution's laboratory protocol.

Results: 43 men had an average age at RP of 60±8 years. The mean time to start TRT post-RP was 25±25 (range 2-109) months. 26% commenced TRT within 6 months, and 42% within 12 months. The mean time on TRT was 20±20 (range= 1-98) months. At the commencement of TRT, the mean T levels = 241+85 ng/dL, and post-supplementation, the mean T levels = 588±345 ng/dL representing a mean increase in total T level of 324±366 ng/dL. The form of T supplement used was: 87% transdermal gels, 9% clomiphine citrate, 4% intramuscular T injections. All but three subjects had a 10-year PFP ≥90%. Only one subject (with a 10 year PFP = 27%) had a BCR (PSA=0.12) at 34 months after RP (16 months after starting TRT).

Conclusions: This study provides further evidence that strongly supports the concept that early post-RP TRT may be safely administered to select hypogonadal men after RP.

MP-03.10

Bladder Neck Preservation with a Running Vesicourethral Anastomosis and Urinary Continence following Robot-Assisted Laparoscopic Prostatectomy (RALP)

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Introduction and Objectives: As the population ages in the PSA era, consequences of detecting more clinically localized prostate cancer is putting more men at risk for treatment-related morbidity, specifically urinary incontinence and erectile dysfunction. We review our initial RALP experience, focusing on post surgery continence rates.

Methods: Consecutive patients who underwent transperitoneal RALP by a single surgeon (CW) were reviewed. Using an anterior approach, a bladder neck sparing dissection was preferentially performed. Following prostate and seminal vesicle mobilization, the urethrovesical anastomosis was completed using a running double-armed 3-0 Monocryl suture ± bladder neck tailoring when appropriate. A 20 Fr urethral catheter and Jackson-Pratt (JP) drain was placed. On POD 5 or 6 (clinic logistics), the catheter was removed following normal cystography. American Urological Association Symptom Score (AUASS), Quality of Life (QoL) score, daily pad use and urinary continence were evaluated at 6 weeks, q3 months during the first 2 years and q6 months thereafter.

Results: 219 patients were identified, having a mean age of 61.9 ± 8.4 years and PSA of 6.0 ± 4.5 ng/mL. Mean operating room time was 202.6 ± 56.4 minutes and estimated blood loss was 101.0 ± 147.5 mL. 4 (1.8%) patients had bladder neck reconstruction, while 185 (84.5%) had bilateral, 19 (8.7%) had unilateral and 15 (6.8%) did not undergo nerve sparing prostatectomy. 2 (1.0%) pTx, 31 (14.2%) pT2a, 13 (5.9%) pT2b, 144 (65.7%) pT2c and 29 (13.2%) pT3 cancers were reported, having a mean prostate volume of 44.8 ± 12.7 mL. Mean hospitalization was 1.2 ± 0.9 days and median urethral catheter duration was 5.0 ± 3.5 days. At 6 weeks, mean AUASS and QoL score were 6 ± 3 and 1 ± 1, with 1.3 ± 1.4 reported pads per day usage. Of the 146 patients having a minimum 12 month follow-up, 136/146 (93.1%) achieved urinary continence without pads within 12 months, with a mean time to continence of 10.8 ± 8.7 weeks. Adverse events included 5 (2.2%) prolonged urine leak, 3 (1.4%) pelvic hematoma, 1 (0.5%) urinary tract infection, 2 (1.0%) deep vein thrombosis and 5 (2.2%) bladder neck contractures.

Conclusions: Our results suggest that a bladder neck sparing dissection in combination with a running 3-0 monocryl vesicourethral anastomosis allows for early return of urinary continence without pads in the majority of patients following RALP.

MP-03.11

AdVance Male Urethral Sling as a Day Procedure: Safe and Cost Effective

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Introduction: The AdVance™ male urethral sling is a treatment option for patients with mild to moderate stress urinary incontinence. Historically, patients were admitted for postoperative care, sometimes for up to 48 hours. We wanted to examine the use of cost-saving day surgery for the AdVance™ sling while monitoring safety outcomes.

Methods: Consecutive patients undergoing AdVance™ male sling insertion at the Ottawa Hospital between November 2008 and November 2010 were counseled preoperatively for day surgery. Patients left the operating room without a catheter and were given a trial of void. Those unable to void were catheterized and discharged home. We closely followed any postoperative complications and unexpected hospital re-admissions. Continence rates were also examined. Admission cost savings were estimated by data from the Ottawa Hospital administration and Canadian Institute for Health Information.

Results: 47 consecutive patients with an average age of 66.6 (SD=6.8) were included in this study. Complete resolution (zero pads) of stress incontinence occurred in 87.7% of our patients who, on average, used 2.0 (SD=1.0) pads per day preoperatively. There were a total of 12 delayed complications including: urinary retention (3), superficial wound infection (4), urinary tract infection (2), delayed wound hemorrhage on plavix, urethral trauma from chronic self catheterization, acute MSK pain and intraoperative hypertension. There were no complications attributed to same-day discharge. There were no unexpected admissions or re-admissions.

Conclusion: Our results demonstrate that male urethral sling insertion may be safely performed as a day surgery. No complications were attributed to the lack of admission. Therefore, in this study alone, we have gained a cost savings of approximately $47,000. This approach to the AdVance™ sling has the potential to save the healthcare system considerable money and resources while ensuring safety and efficiency in clinical care.