

## Moderated Posters 5: Education, Economics and Technology

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#### MP-05.01

##### Urology Residents on Call: Investigating the Workload

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**Introduction and Objectives:** On call medical services assumed by residents represent many hours of hard work. As part of an effort to ameliorate our on call system, we examined phone calls received by residents on call. Our objectives were to evaluate the characteristics of phone calls received by residents on call and to determine residents' perception of these calls. We also looked into the response of residents to the different calls to update and standardise practice regarding response to calls and implement strategies to reduce unnecessary calls.

**Methods:** We prospectively collected information about calls on standardised papers with the participation of all residents (10) in our program over the time of 2 selected periods of 4 weeks. Residents answered pre and post collecting period questionnaires.

**Results:** A total of 254 calls were recorded on 47 on call days in 2 on call lists. (first period only, complete results will be presented for the two periods). There were 3.6 calls per weekday and 10.7 calls per weekend day. The resident was required to go to the hospital for 18% of calls (21% in weekend days and 15% in weekdays). Most of the calls (70%) were perceived as relevant or very relevant. In contrast, residents estimated that 77% and 86% of calls were relevant in the pre and post collecting periods respectively. Calls came from nurses 65% of the time, clerk staff 4%, other doctors 23%, pharmacists 4%, telephonists 1% and other/no data 3%. On post collecting period questionnaires, only one resident estimated that he reported less than 80% of calls, and another reported 80-95% of calls. All others reported 95-100% of calls.

**Conclusions:** We have a better idea of what calls represent in the resident work load. Call reasons seem to be globally adequate. However, room for improvement remains. Strategies to reduce unnecessary calls would be worthwhile, such as organising a reference system for patients in clinics.

#### MP-05.02

##### Contemporary Cost-effectiveness Analysis Comparing Sequential BCG and Electromotive Mitomycin versus BCG Alone for Patients with High-risk Non-muscle Invasive Bladder Cancer

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**Introduction and Objectives:** Sequential BCG and electromotive mitomycin (sequential therapy) has been shown in a randomized prospective trial to be superior to BCG alone (BCG therapy) in patients with high-risk non-muscle invasive bladder cancer (NMIBC). We aimed to compare costs and benefits of these two treatment strategies by performing a 5- and 10-year cost-effectiveness study.

**Methods:** A Markov model was developed to estimate the incremental cost-effectiveness ratio over a 5- and 10-year period. Estimates of progression and death as well as treatment efficacy were obtained using the data from the only randomized trial comparing sequential therapy to BCG therapy. Calculated costs included (1) medical costs (physician fees), (2) drug costs (cost of drug, its preparation, and instillation), and (3) hospital costs (pro-

cedure and admission fee and cost of tests and procedures done during surveillance). Medical and hospital costs were estimated from the Regie de l'assurance maladie du Quebec (RAMQ) and Ministère de la Santé et des Services sociaux (MSSS) lists. Drug costs were obtained from pharmacy records. Patients were allowed a second course of induction therapy.

**Results:** Sequential BCG and electromotive mitomycin is associated with a higher initial material cost for induction and maintenance therapy. The average effectiveness for the BCG group was 4.39 years with a mean cost of \$5846 (range \$1101-\$8326) per patient. The sequential group resulted in an average effectiveness of 4.65 years, with a mean cost of \$17,425 (range \$5088-\$19,388) per patient. The 5-year incremental cost-effectiveness ratio of sequential versus BCG therapy was calculated at \$43,995 per life-year gained. The corresponding figure over a 10-year period was estimated at \$15,965 per life-year gained.

**Conclusions:** Our results suggest that sequential therapy is a cost-effective treatment for patients with high-risk NMIBC.

#### MP-05.03

##### Developing the Bladder Utility Symptom Scale: A Multiattribute Health State Classification for Bladder Cancer

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**Introduction:** In bladder cancer (BCa), treatment-related decision making is heavily preference-based. This is particularly important given multiple treatment options for several stages of the disease and the lack of randomized controlled trials to inform guidelines. Thus, a measure is required that adequately captures patient preference-based health-related quality of life (HRQOL).

**Methods:** We created a novel HRQOL questionnaire for BCa (the Bladder Utility Symptom Scale (BUSS)) in a stepwise, iterative fashion with conceptual framework development, item generation, item reduction, question design and pilot testing. A systematic literature search in Medline, Embase, CINAHL and PsychInfo was performed to generate initial items on the HRQOL effects of BCa and its treatments. Purposive sampling was used to accrue patients of different ages, genders, disease severities and treatment histories to generate items important to all BCa patients. The impact method was used for item reduction. The questionnaire was pilot tested for face and content validity.

**Results:** After a comprehensive literature review of 1275 citations, 170 full text articles were identified from which 169 unique items relevant to BCa patients were abstracted by two reviewers. In consultation with 47 BCa patients and 12 BCa experts various BCa-specific and generic domains and items important to their HRQOL were confirmed. A questionnaire with 10 multiple-choice questions and one visual analogue scale was created to address the most important items as rated and approved by BCa patients and experts. Twenty iterations of the BUSS were generated through pilot testing and interviews with 5 BCa experts and 40 BCa patients.

**Conclusions:** The BUSS multiattribute health state classification system is a comprehensive instrument designed to measure global HRQOL for BCa patients. The next steps in its development are field testing, followed by generation of weights to calculate BUSS utility scores.

#### MP-05.04

##### Comparison of Transurethral Urologic Procedure Wait Times Between Privately and Universally Funded Health Care Systems: What Changes May Be Expected with a Shift in Funding Source?

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**Introduction and Objectives:** Surgical wait time is the most visible and often contentious quality of care indicator when comparing the U.S. model of private health care with the Canadian model of public health care. We compared wait times for oncologic (transurethral resection of bladder tumour; TURBT) and non-oncologic procedures (transurethral resection of prostate; TURP) between international centres. We also assessed patient factors affecting wait times, with the aim to eliminate barriers to improve patient care.

**Methods:** We did a consecutive retrospective chart review of 495 TURBT and 375 TURP patients at two centres. One centre was a privately funded academic centre in New York State (USA), while the other was a publically funded academic centre in Ontario (CAN). We determined wait time from referral to clinic and decision for surgery to date of surgery. We examined patient factors for their affect on wait time.

**Results:** Median TURBT wait time from decision for surgery to date of surgery was shorter in the USA (24 days; 25th-75th percentile: 13-37 days) then CAN (35; 21-53)  $p < 0.01$ . Median TURBT wait time from referral to clinic was significantly shorter in the USA (13 days) then CAN (25 days)  $p = 0.026$ . Median TURP wait time from decision for surgery to date of surgery was also shorter in the USA (29; 13-47) then CAN (58; 41-101) ( $p < 0.01$ ). Factors associated with shorter wait times were procedure site (USA), procedure type (TURBT), and being a new patient in USA. Medicaid insurance, being a new patient in CAN and cancellations were associated with longer wait times.

**Conclusions:** This is the first data comparing U.S. and Canadian health care systems to examine waiting times for TURP and TURBT procedures. The publically funded centre had a slightly longer wait time for oncology but significantly longer wait time for non-oncology procedures. A publically funded system may triage oncologic over non-oncologic procedures to manage their longer wait times.

#### MP-05.05

##### An Analysis of the Readability of Patient Information Materials for Common Urologic Conditions

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**Introduction:** The Canadian Urologic Association (CUA) publishes freely accessible patient information materials (PIM) on common urologic conditions. Current recommendations suggest that PIM be written at the 4th to 6th grade level to facilitate understanding in low literacy patients. We sought to evaluate the readability of the CUA's PIM.

**Methods:** All PIM were accessed through the CUA website (<http://www.cua.org>). For each document we recorded the average number of characters per word, words per sentence, sentences per paragraph and graphics per PIM. The Flesch Reading Ease Score (FRES) and the Flesch-Kincaid Grade Level (FKGL) were determined for each PIM. Low FRES scores are associated with text that is more difficult to interpret and FKGL scores indicate the approximate reading grade level required to understand the text. We hypothesized that the complexity of materials may vary by disease state and affect PIM readability. Average readability values were calculated for the CUA generated PIM categories based on anatomical disease site. The Kruskal-Wallis test was used to identify differences between PIM categories.

**Results:** Across all PIM, FRES values were low (mean 47.5, SD 7.47). This corresponded to a median FKGL of 10.5 (range 8.1-12.0). Among PIM categories, the Infertility and Sexual Function PIM exhibited the highest average FKGL (mean 11.6), however differences in scores between categories were not statistically different ( $p = 0.38$ ). The average number of words per sentence was also highest in the Infertility and Sexual Function

PIM and significantly higher than other categories (mean 17.2,  $p = 0.01$ ). On average there were 1.4 graphics displayed per PIM (range 0-4) which did not vary significantly by disease state ( $p = 0.928$ ).

**Conclusions:** Current PIM published by the CUA may be too complex for low literacy patients. All PIM tested require at least an 8th grade reading level and most require at least a 10th grade reading level.

#### MP-05.06

##### Validation of an Intraoperative Assessment Tool for Evaluation and the Provision of Feedback during Robotic-assisted Radical Prostatectomy Training

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**Introduction and Objectives:** Robotic-assisted radical prostatectomy (RARP) is becoming the gold standard for treatment of localized prostate cancer. Standardized metrics for RARP evaluation do not exist; thus, the development and validation of an assessment tool is timely. We are currently validating a RARP assessment tool that will allow for evaluation and the provision of feedback throughout the learning curve.

**Methods:** Thirteen expert RARP surgeons served on our Delphi panel to create a comprehensive inventory of RARP steps for the development of an intraoperative assessment tool. Experts rated and provided feedback on primary and sub-steps. Over three iterations, 100% consensus was reached. Residents were then recorded as they independently performed the RARP steps of 'dropping the bladder' and 'ligation of the dorsal venous complex'. Five robotic videos each from PGY3 to PGY5 level residents and 5 randomly-selected expert videos were edited to include these two steps. Videos have been distributed to 22 expert RARP surgeons who will serve as raters throughout the validation process. Raters are blinded to level of training and will anonymously evaluate each step using a tailored anchored 5-point Likert scale and an overall 'pass/fail' rating. This assessment method will continue until all steps have been evaluated as part of the validation process.

**Results:** Through the Delphi study, steps were decreased by 13% and a skip pattern was incorporated, with no attrition until the last round (final  $n = 12$ ). The inventory contains 13 critical steps with 52 sub-steps. The assessment tool will be piloted in our urology program and revisions will be made as necessary.

**Conclusions:** Our team has developed the first comprehensive inventory of RARP steps to help guide the development of a novel, psychometrically sound intraoperative RARP assessment instrument. This tool has the potential to be incorporated into urology curricula and used for future credentialing of RARP surgeons.

#### MP-05.07

##### The iPad in Urology Residency Training - Feasibility and Description of Multiple Applications

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**Introduction and Objectives:** Mobile technology is now commonly utilized in healthcare in general and medical education in particular. All faculty and residents within the Urology residency training program at the University of Ottawa have been issued iPads and now utilize multiple iPad applications for both educational purposes (teaching, learning and evaluation), and patient care delivery. We report the results of an initial survey of residents and teaching faculty concerning their use of a variety of iPad applications, and provide a description of how we currently utilize the iPad in our training program.

**Methods:** A 38 item survey was developed and pilot-tested, and was subsequently administered electronically to all teaching faculty and residents within the Urology residency program at the University of Ottawa. A reminder was sent out electronically 2 weeks after the initial distribution.

**Results:** Overall response rate was 80% (25/31), 100% (17/17) amongst residents and 57% (8/14) amongst faculty. 100% of residents utilize their iPad at least daily for purposes of both patient care and education. 100% of faculty utilize their iPad daily for patient care, and 75% (6/8) use

their iPad at least 1-2 times per week for purposes of CME. 100% of all respondents felt that use of the iPad has improved their efficiency in delivering patient care, and 88% felt that the QUALITY of patient care had also been enhanced by using the iPad. The majority of both staff and residents (88%) felt that that completing resident evaluations would be made easier by use of iPad-based applications.

**Conclusions:** The use of iPad-based applications for both clinical care and education has been feasible and well-received by both faculty and residents at the University of Ottawa. Since administration of the survey, we have further developed a variety of teaching and evaluation methods utilizing the iPad platform with a favourable initial response from both faculty and residents.

### MP-05.08

#### A Multidisciplinary Approach to an Enhanced Recovery Programme for Nephrectomies: What Have We Achieved?

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**Introduction and Objectives:** The Enhanced Recovery Programme (ERP) is an evidence based approach to the perioperative care of patients undergoing surgery, which aims to improve clinical outcomes and patient experience. The concept of early recovery following surgery has gained wide acceptance in various surgical specialities including urology. We introduced a multidisciplinary ERP to improve recovery rates and the quality of perioperative care.

**Methods:** Data was collected prospectively and statistically analysed from the medical notes of 38 patients pre- and 100 patients post-ERP introduction. The primary outcome measures were length of hospital stay and morbidity. Complications were scored according to Clavien-Dindo classification. We also assessed mobilization rates, standardized feeding and analgesic regimens.

**Results:** There was no significant difference between the demographics of the two groups in age, gender distribution, BMI and American Society of Anaesthesiologist grade. When comparing pre- and post-ERP groups the median length of hospital stay improved. This reduced from 8 to 5 days in open cases, and from 5 to 3 days in laparoscopic cases respectively. Patients in the post-ERP group were fed and mobilized earlier with better pain control. The majority of the complications in post-ERP patients were Clavien-Dindo grade  $\leq 2$  (94% laparoscopic and 90% open).

**Conclusions:** The introduction of an ERP has improved the quality of care to patients undergoing nephrectomies. It also has added benefits compared to the routine care and considerably reduces hospital stay as discharge planning is strengthened. Education and motivation of the multidisciplinary team is essential for a successful ERP.

### MP-05.09

#### The Dramatic Rise of Social Media in Urology: Trends in Twitter Use at the American and Canadian Urological Association Annual Meetings in 2012 and 2013

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**Introduction and Objectives:** Social media have become established as tools for rapid information dissemination to a broad audience. A major use has been the compilation of conference-specific messages, known as 'tweets', on Twitter via pre-selected 'hashtags' (short text strings that afford collation of similarly-themed tweets from separate users). We analyzed these tweets, and the expansion of Twitter use between the 2012 and 2013 annual meetings of the Canadian (CUA) and American Urological Associations (AUA).

**Methods:** Publicly available tweets containing the established meeting hashtags were abstracted from an online archive. Tweets were categorized by author type and analyzed for content based on a published classification scheme as either "informative" (communicating data or discussion based research presented at the conference) or "uninformative" (advertisements, status updates, direct messages, or opinions not informing about presented data).

**Results:** We analyzed 5402 tweets over the combined 18 meeting days, of which 4098 were original and 1304 were rebroadcasted prior tweets. There was a 466% increase in Twitter use at the 2013 annual meetings (4591 tweets from 540 accounts) over the 2012 meetings (811 tweets from 134 accounts). Biotechnology analysts published the highest volume of tweets (226; 28%) in 2012; this majority shifted to urologists in 2013 (2765 tweets; 60%). In 2012, 29% were categorized as informative; this proportion increased to 41% at the 2013 meetings. A specific abstract number was cited in 3.9% of original tweets.

**Conclusions:** Twitter has emerged as a significant communication platform at urological meetings, and its use increased dramatically between 2012 and 2013. Urologists have increasingly led this discussion with an increased focus on data arising from meeting proceedings. This adjunct to traditional meeting activity merits the attention of urologists and of the professional associations that host such meetings.

### MP-05.10

#### Enhancing Urology Residency Educational Experience with a Training Program Specific Cloud-based Scalable and Modifiable Learning Resource

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**Introduction and Objectives:** Online resources facilitate the dissemination and accessibility of surgical education information; however, resident needs are often not addressed for faculty-specific procedures or approaches to clinical care, thought-leader sub-specialized practices, etc by traditional or web-based sources. We addressed this by facilitating a residency program specific cloud-based educational resource as an adjunct to the current urological training program at our institution, run by and modified by the residents to optimize their training experience.

**Methods:** Using a commercially available online storage "cloud," a program specific resource database was created. The vendor offers content management security, uptime guarantee, and high-grade SSL encryption on transit and 256-bit AES encryption at rest, thereby offering secure, scalable content-sharing throughout residency training. Compliance to Personal Health Information Protection Act is adhered to when selecting candidate content for this educational resource.

**Results:** Cloud computing is hosted outside a defined and controlled home network, and allows access to all resident staff regardless of physical location. Physical hospital computer architecture need not be utilized, as access to the "cloud" is via mobile devices, thus ensuring portability and compliance with institutional governance. This resource has continually grown with open input and contribution from users at all levels of training. Materials includes surgical videos, staff specific operative and clinical outlines, rounds presentations, and study guides. Content is continually updated; cost is \$5/user/month.

**Conclusions:** There has been tremendous use and support of this resource within our program as it evolves at the hands of the resident trainees based on their needs. We have found this to be an excellent adjunctive resource for surgical education at all training levels.

### MP-05.11

#### Turning a New "Page" - Pages over Night - What Is Reasonable?

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**Introduction:** It is the traditional role of residents and fellows to carry the first response pager, which may lead to interrupted sleep and fatigue on the next day. Whereas some pages that are urgent and necessary, others do not warrant an immediate response or are not appropriate, and therefore unnecessarily cause fatigue of the responding MD. The purpose of our study was to identify unwarranted pages and to establish ways of reducing them.

**Methods:** Over a period of 2 months, all pages to the department of urology during call hours and their contents where documented, including the responding MD's assessment of the medical necessity of the pages.

**Results:** A substantial number of pages were not considered medically urgent by the responding MD. The cause of many of those pages was

inconsistent parental teaching (verbal and in writing) with the single denominator being the availability of the on-call MD over the phone, lack of triaging and prioritizing on the ward, and lack of awareness of the structure of our service throughout the hospital. Appropriate steps were taken to streamline parental and nursing teaching, to unify the information provided on all paperwork, to raise awareness of the structure of our service, to provide alternative ways of communication, and to restrict the overly easy parental access of the on-call MD by phone.

**Conclusions:** While easy communication and 24/7 availability of MDs are important virtues of the medical profession, unnecessary strain on the responding MDs can and should be avoided. Consistent teaching and alternative ways of communication are paramount.

### MP-05.12

#### **Perspectives of Urology Involvement in Renal Transplantation: A Survey of Canadian Senior Residents**

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**Introduction and Objectives:** The role of urology in renal transplant has become variable with the growth of multi-organ transplant surgeons. However, renal transplant remains a mandatory component of Canadian residency training in urology. We determined the current perceptions and role of urology in renal transplant across Canada.

**Methods:** An anonymous questionnaire was administered to all final-year Canadian urology residents. The survey was devised to assess urological involvement and resident exposure to renal transplant. Responses were closed ended and utilized a validated five-point Likert scale. Descriptive statistics and Pearson's chi-squared test were used to analyze the responses.

**Results:** All residents completed the survey. Urologists were involved in renal transplants at 77.4% of training centres in Canada. Most residents believed that urology should remain highly involved with transplant (77.4%), and that it should be a mandatory component of residency (64.5%). However, barely half of the residents (51.6%) felt they had sufficient exposure to transplant. Only 41.9% would feel comfortable performing a transplant after residency, and these residents were involved in an average of 30 transplant surgeries and 16 laparoscopic donor nephrectomies. A minority of residents had plans for fellowship training (9.7%) or future careers (12.9%) involving renal transplant. There was a positive correlation between the involvement of urology in transplant at a resident's training centre, and the opinion that urology should have an important role in this field ( $r=0.51$ ,  $p=0.003$ ).

**Conclusions:** Renal transplant remains a component of the majority of residency programs in Canada. However, the number of residents intending to pursue fellowship training or a future career that involves transplant remains limited. Consequently, a strong exposure to transplant during residency is vital to ensuring urology remains highly involved in renal transplantation.

### MP-05.13

#### **Impact of Clinical Fellows on Urology Resident Training: Perceptions and Reality**

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**Introduction and Objectives:** Concerns have been raised that fellows may jeopardize the quality of resident training. Our goal was to collect opinions from trainees and staff regarding the impact of fellows on urology resident training, to contrast these findings with objective data outlining surgical experience, and to determine if resident surgical opportunities are altered by an increase in the number of fellows.

**Methods:** Past and present residents and uro-oncology fellows (1998-2012), and current faculty members from the UBC Department of Urological Sciences were anonymously surveyed using a standardized survey about influence of fellows on resident training. Concordantly, a medical record review of patient charts from July 2007 through June 2011 was conducted at four local hospitals affiliated with UBC's urology program to determine the number of surgical procedures conducted by residents and fellows. Four index procedures were reviewed: cystectomy,

partial nephrectomy, nephrectomy and prostatectomy. Data were grouped into two time periods then compared: July 2007 to February 2009 (1 fellow) and March 2009 to June 2011 (2 fellows).

**Results:** Residents and fellows had differing opinions in 12 of 17 survey questions ( $p<0.05$ ). The first and second time periods contained 855 and 1360 charts respectively. For the prostatectomy group, fellow opportunities to operate alone with staff increased, resident opportunities to operate alone with staff decreased and residents more frequently operated with both fellows and staff ( $p<0.05$ ). No significant differences were found for the cystectomy, nephrectomy or partial nephrectomy groups.

**Conclusions:** Residents, fellows and faculty have differing perceptions regarding the impact of fellows on resident training. This chart review provides some insight into this difference as the scope of resident training for the radical prostatectomy group did change with the addition of another fellow.

### MP-05.14

#### **An Exploration of Communication Between Surgical Instructors and Trainees and the Effect of an On-screen Frame of Reference Teaching Tool Employed during Urologic Laparoscopic Training**

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**Introduction and Objectives:** Surgical educators are faced with a unique set of challenges when teaching laparoscopic skills. Because the surgical field is projected onto the endoscopic screen in the operating room (OR), much laparoscopic teaching involves verbal and non-verbal communication, such as pointing at the screen to direct the learner. We set out to explore how teaching occurs in the laparoscopic setting both with and without a tool we designed to improve communication in the OR.

**Methods:** We previously showed that using a combination of standardized verbal commands and a transparent overlay (a clock design with x:y triangulation or an alphanumeric coordinate grid) for endoscopic monitors significantly improved laparoscopic teaching in a simulated environment. Using a qualitative grounded theory approach, we are prospectively videotaping laparoscopic urologic teaching cases, focusing first on the typical teaching environment to provide a comparator for cases that will use the teaching tool. All videotapes are transcribed verbatim and are thoroughly observed for non-verbal cues.

**Results:** Seventeen typical cases have been evaluated. Thematic analysis for this group has revealed that the primary means of non-verbal communication involve the instructor pointing to the screen, the patient, and the instrument(s); holding the instrument to guide the learners' movement; and showing the learner the type of hand and/or arm movement required for a given task. Verbal communication is primarily via directional terms such as "right angle," "up," "down," "medial," etc. Learners are often told to visualize the movement before it is completed.

**Conclusions:** Conceptual saturation has been reached in the typical (comparator) group, and the introduction of the on-screen frame of reference tool has begun. We anticipate that the teaching tool (overlay) with standardized communication will become part of our laparoscopic curriculum, with the potential for transfer to other specialties.

### MP-05.15

#### **Telephone Consultations in Urology: Who, When, Where and Why?**

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**Introduction and Objectives:** Telephone consultations are part of a strategy to allow access to diagnostic and treatment facilities. Recent studies have shown that inadequate communication was one of the most common causes of preventable disability and death. Telephone consultations have become a legal professional act in Quebec in 2012. However, the potential benefits and the use of this modality are still unknown. Our objectives were to determine the characteristics of phone consultations made by professionals to urologists and to characterize the urologists' experience with phone consultations.

**Methods:** We performed a prospective study using all billing receipts filed by CHU de Quebec urologists (15) for phone calls received from October 15th 2012 to August 1st 2013. A descriptive analysis was done to collect the principal characteristics of all phone calls received. Moreover, an online survey was distributed to urologists. The survey was composed of 10 multiple-choice questions to review their personal experience.

**Results:** A total of 678 billing receipts were analyzed. The most common reasons for calls were lithiasis (11.5%), hematuria (10.5%) and urinary retention (8.4%). More than 50 reasons for consultations were noted. Most phone calls (57.7%) were made by emergency physicians

and family doctors. The great majority (88.7%) of the calls were placed between 8 and 17'o clock. Most of the calls came from the capital region and the Côte-Nord region. Our survey demonstrated that urologists pay more attention to the documentation of telephone consultations since the RAMQ remuneration plan. A majority of urologists think that the phone consultations they received are pertinent.

**Conclusions:** Lithiasis and hematuria are the primary reasons for telephone consultations. In context, continuing medical education on these subjects could be worthwhile. Our survey demonstrated that RAMQ remuneration plan has improved documentation of phone consultations.