Fundació Puigvert

Paediatric Urology Fellowship Frogram. Division of Paediatric Urology.Department of Urology Fundació Puigvert. Universitat Autònoma de Barcelona.

INTRODUCTION OF FUNDACIÓ PUIGVERT

Fundació Puigvert is a leading international centre specialized in the diagnosis and treatment of pathologies and functional disorders of the urinary tract. Fundació Puigvert also treats male genital pathologies and disorders of reproductive and sexual health in individuals and couples. It is located in the premises of the Hospital de la Santa Creu i Sant Pau. They constitute a general, university and a high complex hospital setting, jointly carrying out welfare, teaching, training and research activities.

Fundació Puigvert is a non-profit entity founded 50 years ago. It is a leader in its field and has a highly trained, experienced and prestigious medical staff who work within comprehensive multidisciplinary teams. It is a University Hospital (Universitat autònoma de Barcelona) and part of the Integrated Public Health System of Catalonia (Sistema Sanitari Integral d'Utilitizació Pública de Catalunya–SISCAT).

Recognised as pioneering and innovative, Fundació Puigvert has always been proactive in addressing emerging patient needs and offers care and comprehensive treatment of proven effectiveness within settings of the highest quality. It employs highly advanced technology and is among leading hospitals in the Western world in terms of the volume of activity in its various specialties.

Fundació Puigvert has always been committed to innovation and offers the services of a specialised University Hospital whose reputation and prestige are the result of its proven professionalism, safety standards and quality and of the permanent commitment to people's health. Fundació Puigvert is governed by a Board with members from civil society.

The health team, comprising doctors, nurses, nurses' assistants and other professionals, work side by side to offer patients the best possible service. The superspecialisation, expertise and extensive experience of the team ensure that patients receive thorough and accurate diagnostic check-ups and are treated in a unique and personalised manner by means of a wide range of treatment options, including the most advanced. The main services that we offer are: urology, nephrology, andrology and assisted reproduction.

We receive referrals at a regional, national and international level. **We are a national center of reference (CSUR) in vesical exstrophy, in crossover kidney transplant, in complex glomerular diseases (CSUR) and a reference center for renal disease (UEC).**

The Board of Member States approved Fundació Puigvert to become a new full Member of the respective European Reference Networks **eUROGEN (WS1, WS2, WS3) and ERKnet** last December 2021.

The Urology Department of Fundació Puigvert treats all urological pathologies and dysfunctions. Personalised treatment appropriate to the individual patient is delivered in the fields of oncology, reconstructive surgery, paediatric urology, lithiasis, functional disorders and female urology. It is also engaged in delivering innovation in a range of surgical techniques: endoscopy, laparoscopy, robotics, shock wave therapy, cryotherapy, brachytherapy and percutaneous approaches.

The European Board of Urology granted in 2008 the accreditation of EBU-Certified Training Centre to the Urology Department. This accreditation was renewed in 2013 and 2018).

The European Board of Urology certificated of accreditation EBU-EAU host cente in the field of Pediatric urology in 2021.

The European Board of Urology certificated of accreditation EBU-EAU host cente in the fields of Stone diseases, Prostate Cancer, Transplantation, Urothelial Cancer, Renal Cancer and Female Urology and Incontinence in 2021.

A pioneer and leader in its specialties

Fundació Puigvert is a leader in all its specialties and has been a pioneer in achieving important medical milestones. The most significant in recent years are:

- First baby born within the Catalan Health System through oocyte vitrification prior to cancer treatment (2016)
- **First full robotic kidney transplant in Europe (2015)**
- **First living donor transplantation involving a kidney from a blood group-incompatible donor. Immunoadsorption technique (2013**)
- First birth of twins worldwide without predisposition to hereditary colon cancer using a new technique of genetic diagnosis (2012)
- First living-donor kidney transplant chain in Spain and with the participation of a "good Samaritan" (2011)
- First centre to use aircraft to transport kidneys from living donors (2011)
- First baby in Spain free of the BRCA1 mutation, thanks to assisted reproduction (2011)
- **First living donor kidney extraction in Spain using the Da Vinci robot (2010)**
- **First laparoscopic kidney transplant in the world (2009**)
- First urethra and bladder reconstruction from the small intestine in Spain (2009)
- **First Da Vinci Robot cystectomy to be performed in Spain (2009)**
- First birth baby free of the disease thanks to preimplantation genetic diagnosis for Steinert's disease within the Spanish public health system (2008)

- First complete reconstruction of the penis in Spain with a new system that allows the patient to retrieve the main sexual functions (2008)
- First implantation of penile prosthesis in Catalonia with the *Momentary Squeeze* system (2007)
- First centre to develop a genetic test for diagnosis of bladder cancer using urine (2007)
- **First Da Vinci Robot paediatric pieloplasty in Spain (2007)**
- First centre in Spain to operate with the Da Vinci robot (2005)
- First kidney transplant in Spain between people who are not relatives (2004)

INTRODUCTION OF PAEDIATRIC UROLOGY DIVISION

The Division of Paediatric Urology at the Fundació Puigvert is integrated within the Department of Urology. It was created in 1976 by Dr. José María Garat and Dr. Rafael Gosalvez, being a centre of reference in bladder exstrophy and other complex genital malformations in Spain. It evaluates, diagnoses, and treats infants, children, adolescents and adults with disorders of the genitals, urinary tract, bladder, and kidneys. The department has a reputation for clinical excellence and has pioneered minimally invasive techniques in paediatric urology. The Paediatric Division is staffed by experienced physicians who are associated teachers of Urology from the Universitat Autònoma de Barcelona, leaders and innovators dedicated to state of the art urologic care, surgical expertise and research in all aspects of paediatric Urology. The staff includes two full time and certified paediatric urologists, Anna Bujons MD, PhD, FEAPU, Erika Llorens MD, FEBU, José María Garat MD, PhD part time Paediatric Urology Consultant, one resident and one or two extra official fellows. The division is closely linked to the Department of Paediatric Nephrology within the Paediatric Urology Nephrology Centre, Andrology Department, Endocrinology and Gynecology Department.

The emphasis of the Uropaediatric Division is on uro-genital reconstructive surgery with minimally invasive surgery such as endourological, laparoscopic and robotic procedures. Fundació Puigvert pioneered in Spain in the use of robotic surgery for complex paediatric urology procedures performing in 2007 the first robotic pyeloplasty in children. In addition, it is also emphasized the management of stones in patients with metabolic or anatomic disorders (ESWL, RIRS, ECIRS mini and micropercutaneous nephrolitotomy).

The Uropaediatric Division also performs paediatric uro-oncology surgery (including testes tumours, rhabdomyosarcoma malignancies of the genital urinary tract) and surgical and non-surgical treatment of neurogenic and non-neurogenic urinary incontinence and it is trained to deal with young children with hypospadias, hydrocele/hernia, testicular torsion, undescended testicles, vesicoureteral reflux, hydronephrosis including ureteropelvic junction obstruction, primary obstructive megaureter, ureterocele, ectopic ureter, multicystic dysplastic kidney, urinary infections, and other more complex urological problems such as ambiguous genitalia, posterior urethral valves, bladder diverticula, and bladder exstrophy as well as surgical management for end-stage renal disease/renal transplantation in adults and teenagers with urogenital disorders.

The Paediatric Urology Division has become national centre of reference in exstrophy-epispadias, being trained to follow these kind of patients until adulthood with a transitional medical team as well as urologists specialized in congenital malformations.

Special counseling programs, such as the bladder exstrophy support group and the spina bifida support group are available for children and their families to learn, receive emotional support and meet others who have shared similar experiences.

The Paediatric Urology Division is integrated into the Urology Department of the Fundació Puigvert, which gives it a great capacity for transversal interdisciplinary work, taking advantage of the experience in other fields of Urology. It is part of the multidisciplinary team in connection with the Paediatric Department (Neonatology Unit, Paediatric Oncology, Paediatric Nephrology, Paediatric Surgery, Physioterapy and rehabilitation, Neurosurgery, Paediatric Intensive Care), Nuclear Medicine, Radiology department (TC, MRI), and Gynecology. In this way, it is possible to provide coverage to the newborn with highly complex urological malformations, which requires coordinated team work until adulthood. At the same time, the fact that this division is integrated into the Urology department makes it possible to follow up and continue treating patients who, once they reach adulthood, require continued attention for their congenital urological pathology within the same field. Usually the follow-up is carried out by the members of the unit and, if necessary, continuity in care and possible surgeries in adulthood, are carried out through the Reconstructive Urology Unit of the Urology Service of the Puigvert Foundation.

DESCRIPTION OF THE FELLOWSHIP PROGRAM

GOALS AND OBJECTIVES

The fellowship in Paediatric Urology will be established in two years (clinical and research fellowship) directed by Anna Bujons, M.D. PhD, FEAPU.

The broad goal of the fellowship is to train urologists or paediatric surgeons in the subspecialty area of paediatric urology and reconstruction so that they can advance paediatric urologic research and provide the highest level of care to the paediatric urologic patient. In addition, it is the goal of the program to make the trainee proficient in performing clinical research, writing abstracts and reports and presenting at scientific meetings. The objectives are to develop well trained academic physicians as well as increase the number of fellowship trained subspecialists in paediatric urology in Spain.

The focus of the first year of fellowship is clinical training. The diversity of surgical expertise of our faculty offers the fellows opportunities to train in open, laparoscopic, robotic and endoscopic procedures. In addition to the hands-on surgical training described below, fellows will also receive lab-based surgical training through our virtual urotraining simulation program. The fellows will improve their surgical skills in technologically advanced simulators that allow the virtual interventions simulation such as endourological, Laparoscopy and robotic procedures with the aim of optimizing the training and shorten the learning curve.

The fellows will become an important part of the academic and clinical practice which performs in excess of 250 covering the entire scope of pediatric urology. During the first year, the fellow is actively involved in clinical duties and patient care

The second year of fellowship is a clinical and research training year. For those interested in basic science, the laboratory research year in the tissue engineering laboratory. Fellows completing the two-year program will have clinical skills and will have achieved proficiency in study design and data analysis.

GENERAL COMPETENCIES

It is expected that, during the training program, paediatric urology residents will become competent in the following six areas at the level expected of an independent surgical practitioner: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

1. ***Patient Care*** that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Paediatric Urology fellow must demonstrate knowledge and manual dexterity appropriate for their training level and be able to develop and execute patient care plans.

2. ***Medical Knowledge*** about established and evolving biomedical, clinical, and cognate (e.g., epidemiological and social-behavioral) sciences and the application of this knowledge to patient care. A Paediatric Urology fellow is expected to critically evaluate and demonstrate knowledge of pertinent and current scientific information.

3. ***Practice-Based Learning and Improvement*** that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care. A Paediatric Urology fellow is expected to critique personal practice outcomes and demonstrate recognition of the importance of lifelong learning in surgical practice.

4. ***Interpersonal and Communication Skills*** that result in effective information exchange and teaming with patients, their families, and other health professionals. Paediatric Urology fellow is expected to communicate effectively with other health care

professionals, counsel and educate patients and families, and effectively document practice activities.

5. ***Professionalism**,* as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population. Paediatric Urology fellow is expected to maintain high standards of ethical behavior, demonstrate a commitment to continuity of patient care, and demonstrate sensitivity to age, gender, and culture of patients and other health care professionals.

6. ***Systems-Based Practice*** as manifested by actions that demonstrate an awareness of and response to the larger context and system of health care and effectively call on system resources to provide optimal care. A Paediatric Urology fellow is expected to practice high quality, cost-effective patient care; demonstrate knowledge of risk-benefit analysis; and demonstrate an understanding of the role of different specialists and other health care professionals in overall patient management.

CLINICAL GOALS

The clinical side of the education is implemented so that the fellow gets a progressive exposure and responsibility in the examination, establishment of diagnosis, management of patients, and management of expected complications in paediatric urology patients.

The educational conferences lay the foundation block on which the fellow will build the knowledge of patient management. The clinical training is a progressive, concentrated, hands on training very carefully designed so that a fellow, at the completion of training, becomes a safe, knowledgeable, and compassionate surgeon. Throughout the fellowship experience, clinical competence will be assessed on a regular basis by supervisory faculty based on direct observation at bedside, in the operating room, the out-patient clinics, and on work and teaching rounds. This information is recorded on evaluation forms, which are reviewed and maintained in the paediatric urology resident's file. The Paediatric Urology Program comprises the complete range of diagnostic and treatment options for every urologic problem a child or young adult might have, from urinary tract infection and dysfunctional voiding to complex congenital urinary tract anomalies.

- **Open surgery**: Experience in all aspects of open surgery in the child with a urological problem. This includes major reconstructive, renal, ureteral, bladder and urethral surgery in boys and in girls. Genital surgery in both sexes as well as DSD surgery. Management of the fetus with a paediatric urological problem is also emphasized.
- **Minimally Invasive Surgery (MIS)**: Experience in endoscopic, including laparoscopic and robotic surgery. This should include diagnostic as well as therapeutic intervention and should include vaginal, urethral, vesical and ureteral surgery, as well as laparoscopic diagnostics and therapeutics.

- **Outpatient paediatric urology**: Experience in all aspects of outpatient care with graded responsibility.
- **Spinal defects and neurourology**: Includes the knowledge of the physiology and pharmacology of voiding dysfunction, (obstructive and irritative phenomena, urinary incontinence and dysfunctional voiding). In addition, it includes knowledge of urodynamics. This broadly defined as the data that relate to bladder and outlet parameters during the filling and emptying phases of micturition. It also includes the antenatal, newborn and subsequent care of children born with spinal defects.
- **Paediatric andrology and disorders of sex development**: Addresses the long-term care of children born with cryptorchidism or DSD or who develop a varicocele, and the long-term treatment to maximize fertility and minimize carcinoma formation for these children when they become adults.
- **Stone disease in children**: Includes endourology and lithotripsy. It also includes the knowledge of the pathogenesis of urinary stone disease and evaluation and management. Endourology and lithotripsy refer broadly to the specialized techniques used to treat some varieties of stone disease. Endourology further includes the use of special endoscopic techniques to diagnose and manage disorders of the upper urinary tract other than stone disease.
- **Urologic trauma**: Includes the evaluation and management of trauma to all parts of the genitourinary system in males and females.
- **Infectious disease**: Includes a working knowledge of those factors involved in the pathogenesis of urinary infection, both lower and upper tract; of the bacteria, fungi, viral and other organisms involved; and of the various techniques used to diagnose and to treat infection. Expertise in the indications for specific use of antimicrobials and side effects of treatments are stressed.
- **Reconstructive urology**: This includes the use of innovative techniques for the reconstruction of renal, ureteral, vesical, urethral, penile and vaginal congenital and acquired anomalies. This includes indications for and techniques for construction of continent urinary reservoirs.
- **Renal transplantation**: This includes a working knowledge of the urologic factors involved in renal transplantation and their application. Also included is knowledge of the reconstruction required in the recipient born with bladder or ureteral congenital anomalies to provide for successful long-term function of the transplanted kidney.
  The fellow is involved in the adult transplantation program.
- **Urologic imaging**: This broadly refers to all fields involved in the radiologic study of urologic disease including urography, retrograde upper tract studies, urethrography and cystography including imaging of the perineal anatomy in children born with DSD anomalies, urologic ultrasound, computerized tomography, magnetic resonance imaging, angiography and the various types of interventional uroradiology.

Areas of training will include:

1. Management of the patient with anatomical genital, urethral, bladder and kidney abnormalities.

   Objectives:

   1. Understand the embryology of the urethra.
   2. Identify various congenital and acquired condition of prepuce.
   3. Classify the various degrees of hypospadias.
   4. Become adept in the surgical management of the hypospadias.
   5. Develop an anatomical and surgical understanding of treatment of rare disorder of exstrophy-epispadias complex. The fellow would also learn the management of urinary incontinence and bladder neck reconstruction in this subset of patients.
   6. Treatment of bladder diverticulae and stone disease.

2. Anomalies and malformations of the groin, testis and processus vaginalis, management of paediatric undescended testicle.

   Objectives:

   1. Know the embryology of the testes and testicular descent.
   2. Understand the surgical principles involved with the repair of the undescended testicle.
   3. Know the indications for the use of laparoscopy in the management of patients with non palpable testes.
   4. Surgical repair of paediatric hernia and hydrocele.

3. Develop expertise in the management of Uretero-Pelvic Junction (UPJ) anomalies

   Objectives:

   1. Understand the role of prenatal ultrasound in the diagnosis of UPJ obstruction and evaluation of pre-natal hydronephrosis.
   2. Learn the SFU classification of hydronephrosis.
   3. Recognize the clinical spectrum of presentation of UPJ obstruction.
   4. Understand the role of renal nuclear scan in the management of patients with UPJ obstruction.
   5. Understand the various surgical approaches to the management of patients with UPJ obstruction including open, laparoscopic and robot assisted pyeloplasty.
   6. Understand follow up strategies in patients having undergone repair.

4. Management and work-up of paediatric urinary tract infection and treatment of vesicoureteral reflux.

   Objectives:

   1. Manage a paediatric patient with UTI using appropriate antibiotics.
   2. Understand the classification system for vesicoureteral reflux.
   3. Know and interpret the radiographic studies for the diagnosis of vesicoureteral reflux
   4. The fellow perform the ultrasounds in the diagnosis and follow-up of the patients about congenital malformations
   5. Understand the non-operative management of vesicoureteral reflux.
   6. Role of subureteral bulking agent in endoscopic management of VUR.
   7. Know the surgical indications and techniques for the treatment of vesicoureteral reflux (open, laparoscopy and robotic procedures).

5. Diagnose, evaluate and treat paediatric patients with adrenal disease.

   Objectives:

   1. Understand the physiology of the normal adrenal gland.
   2. Recognize the clinical manifestations of the congenital adrenal hyperplasia (CAH).
   3. Institute appropriate diagnostic steps in evaluation of the CAH syndrome.
   4. Understand and institute appropriate endocrinology and surgical treatment of CAH, including genitoplasty.
   5. Counseling of families of patients with the CAH.
   6. Recognize, evaluate and treat patients with benign and malignant neoplasm of the adrenal, including adrenal hemorrhage, adrenal adenoma, pheochromocytoma, and neuroblastoma.

6. Diagnosis and management of ureteral anomalies

   Objectives:

   1. Understand the embryology and physiology of the normal ureter.
   2. Recognize the clinical spectrum of the megaureter.
   3. The fellow perform the ultrasounds in the diagnosis and follow-up of the patients about congenital malformations.
   4. Understand management strategies for the patient with a megaureter (endourological, open, laparoscopy and robotics).

4. Recognize the Meyer Weigert rule and clinical implication of duplicated collecting system including ureteral ectopia and ureterocele.
5. Know the surgical options in the management of patients with ureteral duplication and associated renal anomalies.
6. Recognize the rare condition of ureteral stricture.
7. Manage paediatric voiding dysfunction and neurogenic bladder secondary to spinal dysraphism.

7. Manage paediatric voiding dysfunction and neurogenic bladder secondary to spinal dysraphism

   Objectives:

   1. Understand the role of urodynamic study in the paediatric population and participate in all the procedure.
   2. Know the options for management of the patient with voiding dysfunction and enuresis.
   3. Understand the role of the urologist in the multidisciplinary management of patients with myelo-meningocele.
   4. Understand the role of bladder augmentation in the patient with neurogenic bladder.
   5. Understand the Mitrofanoff technique.
   6. Understand the indications for the Malone procedure.

8. Management of the patient with ambiguous genitalia

   Objectives:

   1. Understand the full spectrum of the biochemical and genetic disorders which lead to DSD.
   2. Know the appropriate diagnostic steps in managing the patient with DSD.
   3. Understand the multi-disciplinary and surgical management of the patient with DSD.

9. Management of paediatric urological tumors

   Objectives:

   1. Understand the pathology of various paediatric renal, testicular, prostatic and bladder tumors and sarcomas.
   2. The fellow also participate in the sarcomas and adrenal tumours performed in our partner hospital (Hospital de Sant Pau) that we are integrated.

2. Understand the principals of multimodality treatment of various tumors.

10. Pre-natal and perinatal urology

    Objectives:

    1. Understand the significance of prenatally diagnosed hydronephrosis and assessment of various fetal maturity characteristics.
    2. Identify congenital renal anomaly impacting the postnatal outcome and provide appropriate counseling regarding the postnatal clinical expectations.
    3. Provide genetic counseling for transmissible disorders of kidney affecting the future pregnancies.
    4. Identify congenital urogenital abnormalities in newborns and advise proper peri-natal management.

11. Management of paediatric urologic emergency

    Objective:

    1. Learn the clinical presentation, examination and diagnostic evaluation of patients with an acute scrotum.
    2. Learn the approach to the patient with paediatric genitourinary trauma.
    3. Learn the diagnosis, treatment and complications of paediatric urinary tract infections.
    4. Review the presentation, diagnosis and treatment of urinary calculi in paediatric patients.
    5. Review the diagnostic work-up and treatment of hematuria in children.
    6. Review management of acute urinary retention and difficult catheterization in paediatric patients.

12. Performance of minimally invasive procedures in paediatric urology: laparoscopy robotic and endourological procedures.

    Objectives

    1. Master paediatric urologic endoscopy including posterior urethral valve fulguration and various treatment options in endoscopic management.
    2. Proficiency in diagnostic and ablative paediatric laparoscopy.
    3. Exposure to paediatric reconstructive laparoscopy.

13. Stone management is completely covered including metabolic evaluation (in specific stone clinics) and laboratory stone analysis. Stone treatment is fully covered

with PCNL, SWL and mainly focused on developing the flexible ureteroscopy technique. We also concentrate on high power laser treatment.

14. Kidney transplant

Objectives: to learn the different kidney transplant techniques (adults) with open MIS(robotics). The fellow is an call in kidney transplant.

RESEARCH

Tissue engineering has grown rapidly over the last few years. Since 2002 the Paediatric Urology division has been developing its early work at Fundació Puigvert's Tissue Laboratories with the aim to obtain, differentiate and grow bladder urothelial and muscular lines. Ever since, we have collaborated with the tissue engineering laboratory in the different research lines initiated as a result of the projects of cooperation established with Dr. Atala's tissue engineering laboratory at the Boston Children´s Hospital. The purpose of such cooperation was to develop bladder urothelial and muscular tissue in the laboratory, with the aim to implant it in a biodegradable organic matrix for future application to patients.

From January 2003 until 2007, development of the experimental work "Association between chromosomal imbalance to 16q24 in bladder cancer and the genetic expression profile of the genes located in this region" (UAB) at Fundació Puigvert's Molecular Biology laboratory has enabled professionals to learn the following molecular biology techniques.

<u>Molecular biology techniques:</u>

- Animal tissue homogenisation for ensuing nucleic acid extraction.
- Animal tissue RNA extraction and purification.
- RNA retrotranscription.
- Real-time quantitative CRP technique.
- Deep knowledge of the SDS 2.1 software for analysing the quantitative CRP results.

<u>Scientific tools mastery:</u>

- Real-time thermocycler (Applied Biosystems 7000)
- Thermocyclers: MJResearch, ABI 9600
- Centrifuges and micro-centrifuges
- Spectrophotometer

During the second year, the fellow combines basic science and clinical science research Areas of research include basic research on bladder and urothelial growth, in our tissue engineering laboratory (IB Biomedical research Sant Pau- Fundació Puigvert). We are working in an in vitro model of urothelial tissue from stem cells derived from adipose tissue. The research project is called *"Generation of an in vitro model of the lower urinary tract from stem cells obtained from adipose tissue. Tissue engineering application for neobladders".*

The trainee will further develop skills of clinical research, retrospective record review, establishment of prospective studies, IRB processes, data analysis, abstract and manuscript preparation and presentation at national and international meetings as well as participate in pharmaceutical industry sponsored clinical trials.

EDUCATIONAL CONFERENCES

1. Case conference:

Every two Thursdays at 11h a case conference is organized for our Division where interesting and difficult cases scheduled are discussed. It is attended by paediatric urology fellow and physician assistants working with paediatric urologists along with local radiologists and nephrologists. Paediatric urology fellow puts together the cases after discussing them with the attending. Radiological studies of cases are reviewed by paediatric urology residents and rotating general urology with inputs from attending faculty. Differential diagnosis and available treatment options with their results are discussed. This conference provides paediatric urology resident and fellows with an excellent opportunity to be trained in interpretation of complex uro-radiology, critically analyze a difficult case and learn about different treatment options.

2. Journal Club:

Every Friday at 11:00 AM, two recent journals from published literature are discussed to understand current trends of management of different diseases as well as the relative merits of various reports in contemporary journals of interest in paediatric urology. The paediatric urology resident and the fellow would choose the article and provide an analysis of the scientific paper. A faculty member would then summarize or add information and clinical perspective when needed.

3. Didactic session:

Every 2nd Thursday of the month at 8:00 AM, after the case discussion, the paediatric urology fellow, the paediatric urology resident or the rotating urology paediatric urology resident or the faculty presents a didactic lecture covering important topics in paediatric urology. The fellow is expected to present the lecture at least once every three months. This helps to prepare the paediatric urology resident to present it in front of an audience and provides him with an opportunity to use various presentation techniques. The schedule for the conference is carefully worked out by Dr. Bujons.

Regular programme of teaching:

1 Fetal Hydronephrosis
2 Embriology of the Urogenital Tract
3 Renal Agenesis and Associated Anomalies. Multicystic Dysplastic Kidney
4 Renal Duplication Anomalies
5 Ureteropelvic Junction Obstruction
6 Paediatric Renal Trauma
7 Renal Stones
8 Paediatric Renal Tumors
9 Ureteroceles: When is necessary to operate?
10 Megaureter
11 Ectopic Ureter
12 UTI
13 Vesicoureteral Reflux
14 Posterior Urethral valves
15 Bladder Exstrophy
16 Daytime Wetting
17 Tumors of the Lower Genitourinary in Children and Adolescents
18 Paediatric Hernias and Hydroceles
19 Retractile Testes
20 Undescended Testes
21 Testicular Torsion
22 Testis
23 Adolescent Varicocele
24 Phimosis, Paraphimosis, Balanitis, Meatal Stenosis
25 Urethrorrhagia, Urethral Stricture
26 Hypospadias
27 Epispadias
28 Ambiguous Genitalia, DSD
29 Myelodysplasia: From Birth to Adulthood
30 Continent Urinary Diversion
31 Pediatric Lower Urinary Tract.Dysfunction and Associated Constipation
32 Nephrologic Aspects of Urologic Disease
33 Pediatric Primary Nocturnal Enuresis (Bed-Wetting)
34 ESWL, endourology
35 NLP
36 Urodynamics
37 Kidney Transplantation
38 Prune Belly Syndrome

4. Morbidity and Mortality conference:

Every first Friday of the month at 8:00 AM, review cases managed at affiliate institutes resulting in a complication or death at our Department. One paediatric urology resident presents the case while other residents and attendings follow with the discussion. The clinical course, complication, and outcomes are presented followed by discussion by all faculty and paediatric urology residents to designate any point in the clinical course that the complication could have been avoided, what actions could have prevented or minimized the complication, and how to prevent such complications in the future. This meeting is also attended by the nurse liaisons and physician assistants. Minutes of this conference are prepared by the second year paediatric urology fellows.

5. Uro nefro Paediatric -Radiology conference:

Every two Fridays of the month at 11:30 AM, interesting cases performed recently with complex radiological findings are discussed at Hospital de Sant Pau- Fundació Puigvert. The meeting is attended by the paediatric urology and general urology residents and medical students.

The cases are assigned by the attending and prepared for presentation by rotating urology resident and paediatric urology residents. At these meetings, the presenter will select a general urology resident and a case discussion is conducted with inputs from the fellow and faculty. This conference provides the paediatric urology resident with an opportunity to teach the junior residents and provide a perspective of paediatric urology to the medical students.

6. Lithiasis conference:

Every Friday at 12:30AM, interesting cases with complex stones in adults and children are presented together and discussed. In addition, a didactic lecture covering important topics in paediatric and adult stones are presented (laser, metabolic study, access utereral sheath, RIRS).

7. Paediatric Nephrology-Urology-Radiology:

Every two Fridays at 11:30 PM, this conference discusses patients that are shared. Difficult cases, with complex nephrology and urology management issues are presented and discussed. Further management plan and decision for other radiological studies is worked out between the different specialties along with the paediatric radiologist.

8. Perinatology and Fetal Medicine session:

Every Friday at 9:00 AM we discuss with neonatologies, gynecologies and nephrologists the complex prenatal or newborn with urological malformations.

9. Oncology session:

Every two Fridays at 10:00 AM we discuss with oncologists, radiologists, patologists, nuclear medicine and radiotherapists about multidisciplinary treatment in rabdomiosarcoma, wilms tumours.

10. DSD session:

Every first Monday at 3:00 PM we discuss with endocrinologists, genetics and psychologists complex cases of DSD.

11. CEE session:

Multidisciplinary session with orthopaedics, psichologists, fetal medicine unit (ginecologists), nephrologists, neonatologists, andrologists. We share the evolution of our last exstrophy patients.

12. Kidney Transplantation session:

Every Tuesday at 8:00 AM there is a multidisciplinary session with vascular surgeons, radiologists, urologists, paediatric urologists, nephrologists where the complex pre transplant o post transplant cases are presented.

13. Research Project meeting:

Every fourth Thursday of the month, at 8:00 AM the residents and fellows discuss the ongoing clinical and basic research projects. At these meetings, a periodic evaluation of the ongoing research is performed and the goals for the project are assessed and redefined as needed. New prospective projects are discussed at the same time. At these meetings, a critical analysis of presentations for prospective meetings on a national and international level is performed to work out the deficiencies. The objective is to prepare the resident and fellow for presentation in front of the audience and motivate the trainee to write abstracts and manuscripts for peer reviewed journals. The ultimate goal is to motivate the paediatric urology fellow to pursue academic appointments.

Attendance and participation in weekly conferences is mandatory. Fellow should be prepared to discuss pertinent clinical information when presenting cases at various conferences.

REFERRALS AND CONSULTATIONS:

Paediatric urology fellow should respond promptly to all requests for patient referral or urologic consultations. Trainee should promptly contact the responsible attending physician to facilitate the referral. In-patient consultations are to be seen by the fellow on the day of request. After evaluating the patient and writing an initial note, the paediatric urology resident should contact the appropriate attending surgeon who will complete the consultation. In-patient consultations will be included in daily rounds and progress notes will be entered in the record.

Emergency Room consults will be seen promptly by paediatric urology resident or the senior rotating resident under the direction of the fellow and will be discussed with or seen by the responsible surgical attending prior to final disposition.

Consult/referral patients will remain assigned to the responsible attending surgeon unless responsibility for the patient's care is accepted by another attending surgeon. Arranging of transfers between attending in the department will not be delegated to paediatric urology residents, but will be done by direct communication between attending.

CLINICS:

Every effort should be made for a paediatric urology fellow and resident to see patients, both preoperatively and postoperatively, for whom they are the responsible operating surgeon under faculty supervision. A paediatric urology fellow or the senior rotating urology resident must be present at the start of all clinics and remain for the duration of the clinic until all patients have been seen, unless otherwise approved by the attending surgeon. Paediatric urology residents should report to the appropriate attending surgeons covering the clinic regarding all diagnostic and therapeutic decisions on outpatients. It is the responsibility of the paediatric urology resident and fellow to write or dictate a clinic note, order appropriate diagnostic studies, schedule inpatient ambulatory surgical procedures, and communicate with referring physicians, unless otherwise handled by the attending surgeon

ORDERS:

Paediatric urology fellows are responsible for all patient orders, including admission, preoperative, postoperative, and discharge orders. Telephone orders must be signed as soon as possible, and no later than 24 hours after ordered. All orders must be dated and timed. Discharge orders should be written on the day prior to the anticipated discharge.

ROUNDS:

Paediatric urology residents are expected to do rounds at least once daily. These rounds should endeavor to appropriately incorporate the contribution of attending staff, nurses, in efficient diagnostic assessment and therapeutic planning for patient care. A computer printout of the service patient census, including name, hospital number, diagnosis, date of admission, operative procedure and date, surgeon, and referring physician, should be updated daily. The senior paediatric urology resident is expected to see that the progress of each patient is discussed daily with an attending surgeon.

All patients have a planned intervention are revised and discussed with faculty supervision. The indications for surgery, technical details are discussed.

Progress Notes:

Daily notes (dated and timed) should be entered into the progress note section of the chart. Progress notes are generally recorded by rotating senior resident or paediatric urology fellow, and notes by junior residents should be critiqued and must be countersigned by the paediatric urology resident. Notes should be brief but informative about patient condition, planned diagnostic or therapeutic measures, and discharge planning.

Preoperative Notes:

For elective cases, the operating paediatric urology fellow will review the chart (including X-rays, lab, and pathology) and discuss the operative plan with the attending surgeon prior to the operation.

For inpatient elective cases, a preoperative note must be written by the paediatric urology fellow surgeon in the progress section of the chart with 24 hours prior to operation and only after the patient has been examined by the same paediatric urology resident. It should include:

1. Preoperative diagnosis and basis for diagnosis
2. Planned operation and indications
3. Surgeon
4. Anesthesia
5. Pertinent laboratory data
6. Blood/X-ray requests
7. Operative risks and indications of risks
8. Potential complications discussed
9. Signed consent

For outpatient elective cases, the charts will be reviewed the day prior to surgery and ensure that a preoperative checklist is completed by physician assistants or nurse liaisons.

OPERATING ROOM (OR) SCHEDULE:

The responsible paediatric urology fellow should review the operating room schedule daily to ensure that all planned cases are listed. Paediatric urology residents should review the anatomy and technique of elective cases in standard atlases or by videotape. If possible, briefly discuss the case with the attending surgeon on the day prior to the operation.

We have two full days operating room (Tuesday from 8-20h and Thursday from 9h to 14h)

Operating Room (OR) Etiquette:

A paediatric urology resident and fellow should be present in the OR area 10 minutes before induction of anesthesia. All anticipated instruments, supplies, and special equipment should be requested of the scrub and circulating nurses. The entire operative sequence should be briefly reviewed with the scrub nurse. Special anesthetic needs and patient positioning should be reviewed with the anesthesiologist. The roles of the operating surgeon and first and second assistants should be determined and clearly understood preoperatively. Professional behavior is expected at all times in the OR. Required preoperative preparation includes:

1. Preoperative note and consent complete
2. Latest clinic note and lab results on chart
3. Relevant patient X-ray reports on chart
4. X-rays on view box/PACS system

Operative Notes:

Unless otherwise designated, the responsible paediatric urology resident and fellow should fill out an operative note (dated and timed) in the progress note section immediately following operation, to include:

1. Preoperative diagnosis
2. Postoperative diagnosis
3. Operation
4. Surgeons and assistants
5. Anesthesia
6. Findings
7. Complications
8. Condition

Of note, a simple diagram of the operation performed (when appropriate) is very helpful.

Operative Report Dictation:

An operative note is dictated immediately upon completion of the operation:

1. Patient data
2. Preoperative and postoperative diagnoses
3. Operative procedure
4. Operating surgeon and assistants
5. Anesthesia
6. Operative findings
7. Operative procedure
8. Sponge and needle counts
9. Condition of patient
10. Statement that "the attending surgeon was present for the entire procedure" or "for all major portions of the procedure," as the case may be

EDUCATION

General:

Paediatric Urology fellow and rotating residents develop knowledge and judgment skills though a combination of didactic teaching in conferences and active participation in conferences and seminars, ward rounds, self-directed reading, audiovisual instruction, and attendance at local, regional, national and international meetings. Attendance at teaching conferences is mandatory and attendance is documented.

Medical Student and rotating resident Teaching:

Paediatric Urology residents and fellow have a major role in teaching junior medical students (our institution is integrated at Universitat Autònoma de Barcelona) and rotating urology residents assigned to the service. Every effort should be made to provide residents and students with time to learn, read, and develop basic skills in evaluation and management of paediatric urology patients. The trainee will become competent at teaching at the bedside during rounds, in the operating room, assisting the rotating urology resident in procedures appropriate for their level of training and in grand rounds, journal clubs and weekly radiology and surgical meetings.

PAEDIATRIC UROLOGY FELLOWSHIP EVALUATION

Program director ensures to provide objective assessments patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems based practice.

The program director will meet with the fellow at a minimum of every six months to discuss performance evaluation. In the event that serious deficits are identified in the paediatric urology fellow's performance, meetings with the program director should be more frequent. The fellow would be advised of deficits in performance by attending faculty so as to receive timely feedback and opportunity for remediation.

Department measures for paediatric urology fellow evaluation are as follows:

1. Patient care and management as documented by the faculty, nursing and other support staff and patient survey forms. Major performance deficits will result in a warning and may be grounds for probation.
2. Attendance at departmental academic conferences (Morbidity and Mortality, Lecture Series, etc.) which are mandatory for fellows. Failure to attend more than 75% of any of these conferences will result in a warning and may be grounds for probation.
3. Contributions to the academic and scholarly mission of the department. Major performance deficits will result in a warning and may be grounds for probation.
4. Compliance with all hospital and departmental record-keeping and documentation requirements. This includes timely completion of operative dictation, medical records, case lists (surgical operative logs), and Morbidity and Mortality reports. A pattern of lateness and noncompliance will result in a warning and may be grounds for probation.
5. Personal integrity, which includes strict avoidance of substance abuse, theft, lying, cheating, and unexplained absences. Failure to follow this standard will result in a warning and may be grounds for probation.