



Joint statement on minimum standards for urodynamic practice in the UK

Report of the urodynamic training and accreditation steering group:
April 2009

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Prepared by a working party representing:

Association for Continence Advice

British Association of Paediatric Urologists

British Association of Urological Nurses

British Association of Urological Surgeons

British Society of Urogynaecology

Chartered Society of Physiotherapists

Royal College of Nursing Continence Care Forum

United Kingdom Continence Society

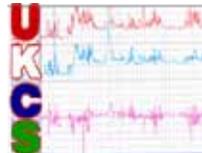
Urogynaecology Nurse Specialists Network



Professionals United in
Continence Care



THE BRITISH ASSOCIATION
OF UROLOGICAL SURGEONS



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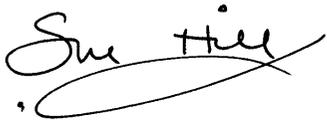
Foreword

I am delighted to provide the foreword to this *Joint statement on minimum standards for urodynamic practice in the UK*. Urodynamics play an important part in the care pathways of patients with lower urinary tract symptoms as outlined by the Department of Health in '*What is Physiological Measurement?*'.¹ Ensuring that clinicians are developed to be practitioners, partners, and leaders is critical for delivering high-quality care. I hope that in this area of clinical practice, both of these documents will be used to develop the workforce for the future, to deliver safe and effective care and to improve the patient experience.

This document reflects the multidisciplinary working between several professional societies; it is a clear and successful attempt to bring coherence and consistency to an area of clinical practice that involves, and is delivered by, many different healthcare professionals, which should be applauded. As with any such initiatives, its required development has both vision and commitment, and I sincerely thank everyone involved for their hard work.

This report now needs to be taken forward by professionals, managers, and commissioners alike to ensure that the aspirations are translated into benefits for patients

Professor Sue Hill PhD DSc CBiol FIBiol Hon MRCP OBE

A handwritten signature in black ink that reads "Sue Hill". The signature is written in a cursive style with a large, sweeping underline.

**Chief Scientific Officer
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¹Department of Health. *What is Physiological Measurement? A guide to the tests and procedures conducted by Physiological Measurement diagnostic services*. London, DH: 2008
Available at: www.18weeks.nhs.uk/Content.aspx?path=/achieve-and-sustain/Diagnostics/Physiological-measurement

List of abbreviations

BAUS	British Association of Urological Surgeons
BSUG	British Society of Urogynaecology
CBD	Case-based Discussion
CME	Continuing Medical Education
DOP	Direct Observation of Procedure
ICCS	International Children's Continence Society
ICS	International Continence Society
LUT	Lower urinary tract
LUTS	Lower urinary tract symptoms
MDT	Multi-disciplinary Team
mini CEX	mini Clinical Examination
OSAT	Objective Structured Assessment of Training
PMETB	Post-graduate Medical Education and Training Board
QoL	Quality of Life
RCOG	Royal College of Obstetricians and Gynaecologists
RCS	Royal College of Surgeons

Introduction

The term 'urodynamics' is used to describe a group of physiological tests that are used in clinical practice to investigate abnormalities of lower urinary tract function. They are commonly carried out in acute hospitals in urology or gynaecology departments, but may also be used in specialised units, for instance paediatrics or spinal injuries.

The ability for service providers and practitioners to be able to demonstrate their continuing competence is to become a central part of revalidation/recertification.

This document presents recommended minimum standards for the provision of urodynamics services in the NHS. It has been developed by a multidisciplinary group convened from all of the major professional organisations involved in provision of urodynamics services:

Association for Continence Advice

British Association of Paediatric Urologists

British Association of Urological Nurses

British Association of Urological Surgeons

British Society of Urogynaecology

Chartered Society of Physiotherapists

Royal College of Nursing Continence Care Forum

United Kingdom Continence Society

Urogynaecology Nurse Specialists Network

This manual has been compiled for the benefit of service commissioners and providers to help them benchmark their services against an agreed national standard. It presents recommendations and minimum standards on the following:

- general recommendations
- training in urodynamics
- maintenance of expertise in urodynamics
- the set up of urodynamic departments
- modular curricula and assessment tools for training

1 General recommendations

1.1 Urodynamicists should conform to the standards of good practice as laid out by their professional organisations. Examples are listed in the references section.

1.2 Urodynamic tests should always be used in the context of a full understanding of the clinical problem and never in isolation.

1.3 Although there is debate about the precise clinical utility of these tests there is widespread international agreement that the tests must be performed to a high professional and scientific standard if they are to be meaningful and avoid being misleading. These standards have already been described in detail by the International Continence Society (*Good Urodynamic Practice*, 2002) and by the *WHO International Consultation on Incontinence* from 2005. The elements of good practice are that there should be:

- a clear indication for, and appropriate selection of, relevant test measurements and procedures (asking the right question)
- precise measurement with data quality control and complete documentation (ensuring the answer has the best chance of being correct)
- accurate analysis and critical reporting of results (reviewing the results and answering the question).

2 Training standards

- 2.1 Urodynamics should only be performed by, or under the direct supervision of, an individual who has been fully trained and certified
- 2.2 This series of documents presents a standard for training which we would expect to be applied across the UK together with one system of certification. It is recognised that there are other systems by which a trainee can become certified to a similar level of competence.
- 2.3 Urodynamics are carried out in a variety of patient groups including men, women, children, and patients with neurological disease. A different level of training is required for each of these and these detailed 'modules' are described in Modules A to E along with the competencies and recommended competency assessments.
- 2.4 Trainees should acquire the basic level of training first (Module A). In some cases (e.g. urogynaecology) the trainee may wish only to obtain training and experience in women (Module A1). Further modules of advanced training can be completed after basic training.
- 2.5 Clinicians currently providing a urodynamics service will not have undertaken training as set out in this document. They should, however, be able to show that they have received training that is equivalent. It is recognised that many will have acquired expertise through a combination of continuing medical education (CME), clinical experience, participation in multidisciplinary teams (MDT), teaching, and audit, and that such experience will often equate to or exceed the value of a formal training scheme.

3 Maintenance of expertise

- 3.1 The maintenance of expertise requires regular practice and a sufficient workload.
- 3.2 Routine urodynamics should be carried out within urodynamics departments. At least 200 studies per annum should be performed within the department to maintain expertise
- 3.3 In any patient group (women, men, children, neuropaths) a workload of less than 30 patients per annum would be inadequate to maintain expertise and these cases should be referred to a centre that is able to maintain that level of activity.
- 3.4 For any one independent urodynamicist a workload of less than 30 patients per annum would be inadequate to maintain expertise and these individuals should refer cases to a colleague.
- 3.5 It is recognised that in some highly specialised departments, which function in relative isolation from other services, it may be impossible to achieve the numbers suggested above. However, these highly competent departments will be able to demonstrate their expertise in other ways.

4 Urodynamics departments

- 4.1 Urodynamic testing forms only one part of a patient's care pathway, which should include history and examination, simple investigations, conservative management strategies, and interventions as needed. The tests should not be performed in isolation.
- 4.2 A urodynamics department should operate within the context of a multidisciplinary team, which holds regular meetings to discuss patient management relating to urodynamic findings.
- 4.3 A urodynamics department should operate under the clear direction of a senior urodynamicist. This will usually be either a urologist with a special interest in lower urinary tract dysfunction or a urogynaecologist.
- 4.4 A department should define the scope of its expertise (2.1 and 3.3 above) and not undertake to provide a urodynamics service outside of that scope.
- 4.5 Urodynamic reports should be written to answer the urodynamic question. This will involve not only the information obtained from performing the urodynamic test but should also incorporate information obtained from the relevant clinical history, pre-urodynamic investigations and examination findings. Where possible a management plan should be included in the report.

- 4.6 Urodynamicists should be able to demonstrate that they have maintained continuing education in the field of urodynamics.
- 4.7 Departments should undertake regular audits appropriate to their field of practice. Examples might include rates of UTI following urodynamic tests, number of inconclusive studies, number of studies abandoned and the reasons for this.

5 References

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Skills for Health

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Urodynamics module A1 (female) and A2 (male)

Description of minimum standards for training

This document is designed to give you a simple overview of the curriculum and minimum standards required to perform Level A1 (female) and Level A2 (male) laboratory urodynamics. It outlines the knowledge base, clinical competencies, and professional skills you require for certification in basic urodynamics. It also describes the learning and assessment tools that will be used to achieve these competencies.

Please note that the main documents have been written in a PMETB format and, therefore, read down the columns not across the rows. The main curriculum documents are divided into four areas:

1. knowledge base
2. setting up the equipment
3. preparation of the patient and conducting the test
4. training and supervision.

Knowledge

During your training (or before) you will develop a knowledge of female (A1) and/or male (A2) pelvic anatomy and pathophysiology (including anorectal anatomy and pathophysiology) with particular reference to conditions causing lower urinary tract symptoms in relation to urinary tract dysfunction and continence status.

You will need to understand the basic principles of urodynamic testing (demonstrating an understanding of fluid dynamics), the need for urodynamics, and which test is relevant to investigate the patient's symptoms.

To fulfil this aspect of accreditation you should have attended one of the following courses:

- Bristol Urological Institute 3-day certificate course, including venues in Newcastle, Manchester, and London
- an equivalent International Continence Society (ICS) accredited course
- BSUG/RCOG course (currently module A1 only).

Performing urodynamics

When performing urodynamics you will need to demonstrate an ability to prepare and maintain a safe and clean environment. This requires knowledge of good practice in clean and sterile techniques (including single use equipment), infection control policies, and risk assessments. You will be expected to have an understanding of the ICS guidance on *Good Urodynamic Practice*. You should be aware of local policies relating to:

- decontamination of equipment and disposal of consumables
- manual handling
- intimate examinations and chaperoning
- patient privacy and dignity

- infection control
- emergency procedures.

You will understand the bearing that other medical conditions and medication could have on the test and the need to stop certain medications, e.g. anticholinergics. You should understand the effect that lower urinary tract symptoms (LUTS) may have on quality of life (QoL) including the relevance of appropriate questionnaires. You should be able to interpret pre-urodynamic investigations, such as a voiding diary and be able to take a relevant history to allow you to formulate a urodynamic question. You should also understand the possible complications and side-effects of the procedure and be able to take appropriate informed consent prior to commencing urodynamic testing. You should know when it is appropriate to defer the investigation.

You should be aware of the limitations of uroflowmetry, particularly in the male (A2), and of factors that influence the results. You should be aware of the different types of flowmeter and their relative merits/disadvantages; you should be familiar with at least one type of flowmeter. You should know how to minimise artefacts and have knowledge of the safe and correct use of the measurement devices used in your department.

You will need to be aware of the relative importance of post-void residual urine, to be able to measure this and decide whether it is necessary or desirable to drain the bladder prior to performing the urodynamics.

You should be aware of the indications for prophylactic antibiotics, e.g. recurrent UTI, valvular heart disease, recent hip replacement surgery.

You should have knowledge of suprapubic and urethral catheters and stomas, relevant to urodynamics, and be able to choose an appropriate site and catheter for catheterisation. You should be able to perform female (A1) and/or male (A2) urethral catheterisation for cystometry. You should be able to insert an abdominal pressure catheter in the rectum, vagina, or stoma, recognising any gross pathology and taking appropriate action.

When conducting filling cystometry you will be expected to be able to set up and check the calibration of the equipment, understand the operational parameters, know the correct use and limitations of the equipment/test, and be able to choose an appropriate filling rate and, if necessary, alter the filling rate according to clinical circumstances. You should be able to recognise test artefacts and to make urodynamic observations, which both inform the test and allow a urodynamic diagnosis to be made on completion of the test. You should be able to ensure that the quality of the trace is maintained throughout the investigation. You should be able to decide when to terminate the test or perform a second fill and when it is not necessary to undertake a pressure-flow study.

During voiding cystometry you should be aware of the importance of pressure-flow relationship and be able to interpret pressure-flow plots, and relate these to voiding dysfunction (A2).

You will be expected to remove the catheters safely at the end of the investigation.

On completion of the test you should be able to explain the findings to the patient and write a comprehensive report correlating the observations with the patient's symptoms.

Training and supervision

In order to achieve the above competencies training will be supported by:

- attendance at urodynamic clinics under the guidance of an identified preceptor
- training in insertion of urethral and rectal catheters (if not in core training)
- mandatory training (basic life support, infection control, manual handling)
- attendance at a regular multidisciplinary team meeting (MDT).

Assessment will be in the form of a log of cases, objective structured assessments of training (OSATs), direct observations of procedure (DOPs), mini clinical examination (mini-CEX), and case-based discussions (CBDs). In addition, you will be expected to perform a relevant audit.

Urodynamics module A1 (female) and A2 (male) Curriculum and minimum standards for training

The minimum standards required to perform Level A1 (female) and Level A2 (male) laboratory urodynamics have been divided into four categories as outlined below:

1. knowledge base
2. setting up the equipment
3. preparation of the patient and conducting the test
4. training and supervision.

1. Knowledge base

Learning outcomes:

- Demonstrate knowledge of the anatomy and pathophysiology of female/male urinary tract in relation to urinary tract dysfunction and continence status.
- Demonstrate an understanding of fluid dynamics, bladder and urethral function, the need for urodynamics, and which test is relevant to investigate the patient's symptoms.
- Understand the basic principles of urodynamic testing.

To fulfil this aspect of accreditation the applicant should have attended one of the following courses:

- Bristol Urological Institute 3-day certificate course, including venues in Newcastle, Manchester, and London.
- An equivalent ICS accredited course (depending on the training programme, evidence of the course content may need to be submitted).
- BSUG/RCOG course (currently A1 only).

2. Setting up the equipment

Learning outcomes: demonstrate an ability to set up, use and maintain the equipment and the measures necessary to achieve quality control

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment	SfH competences
<ul style="list-style-type: none"> • Prepare and maintain safe and clean environment • Knowledge of good practice in clean/sterile technique • Awareness of local infection control policies and risk assessments • ICS guidance on Good Urodynamic Practice • Awareness of different types of flowmeter and their relative merits/disadvantages • Knowledge of measurement devices and their correct and safe use • Decontamination of equipment and disposal of consumables 	<ul style="list-style-type: none"> • Preparation of clean and safe environment • Ability to set up flowmetry equipment in order to minimise artefacts • Demonstrate familiarity with at least one type of flowmeter • Set up equipment for filling and voiding cystometry • Demonstrate knowledge of single use equipment 	<ul style="list-style-type: none"> • Preparation of environment, demonstrating clean/sterile technique • Appropriate selection of catheters • Ability to check calibration of equipment, use external pressure transducers with three-way taps, secure connections, and establish zero pressures • Select an appropriate filling rate 	<ul style="list-style-type: none"> • Attendance at urodynamic clinics • Attendance at theoretical course 	<ul style="list-style-type: none"> • DOP • OSAT 	<ul style="list-style-type: none"> • GEN2 • GEN3 • GEN6 • IPC2 • HSC22 • CHS170

3. Preparation of the patient and conducting the test

Learning outcomes:

- obtain informed consent from the individual
- demonstrate the knowledge required to undertake urodynamic assessment of female/male lower urinary tract symptoms (LUTS)
- perform catheterisation to record intra-vesical and intra-abdominal pressure for subtracted dual channel cystometry.

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment	SfH competences
<ul style="list-style-type: none"> • Anatomy and pathophysiology of female (A1) and male (A2) LUT • Knowledge of anorectal anatomy and pathophysiology • Manual handling policies • Guidelines on intimate examinations and chaperoning • Understanding patient privacy and dignity • Infection control policy • Relationship with other medical conditions, pharmacotherapy, QoL • Awareness of the limitations of uroflowmetry in clinical diagnosis and factors that influence the results (A2) • Awareness of the relative importance of post-void residual urine • Knowledge of suprapubic and urethral catheters and stomas • Indications for prophylactic antibiotics • Clean and sterile handling techniques • ICS standardisation of terminology for LUT function • ICS guidance on Good urodynamic practice 	<ul style="list-style-type: none"> • Obtaining informed consent • Interpretation of pre-test voiding diary and urine testing • Taking a clinical history in order to formulate a urodynamic question • Position the individual comfortably in a safe environment • Ability to measure post-void residual urine using hand held ultrasound device • Perform female (A1) or male (A2) urethral catheterisation for cystometry • Insert abdominal pressure catheter in rectum, vagina, or stoma • Recognise gross anorectal pathology and take appropriate action • Ability to select an appropriate filling rate • Ability to decide when to carry out filling cystometry alone, and when voiding cystometry is required 	<ul style="list-style-type: none"> • Explanation of nature and purpose of procedure to patient and obtain informed consent • Demonstrate an understanding of effects of medication and the need to stop taking certain medications prior to the test, e.g. anticholinergics • Demonstrate an understanding of when to defer the investigation • Ability to interpret a variety of flow traces including normal, abnormal, and artefacts (A2) • Safe positioning of patient • Assess urine residual and consider need for drainage at start of filling cystometry • Ability to choose appropriate site and perform sterile catheterisation for bladder filling and measurement of pressure • Ability to choose appropriate site (rectum, vagina, or stoma) and perform catheterisation for measurement of abdominal pressure • Secure taping of catheters 	<ul style="list-style-type: none"> • Attendance at urodynamic clinics • Mandatory training (infection control, manual handling) • Training in urethral catheterisation if not in core training • Training in inserting rectal catheter 	<ul style="list-style-type: none"> • Training record • MiniCEX • DOP • Case log 	<ul style="list-style-type: none"> • GEN4 • GEN5 • CC01 • CHS6 • CHS39 • CHS76 • HSC32 • HSC223 • HCS_UD1 • HCS_UD2 • IPC6 • PC1

3. Preparation of the patient and conducting the test (continued)

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment	SfH competences
<ul style="list-style-type: none"> • Knowledge of conditions causing LUTS • Understand the operational parameters, correct use and limitations of equipment/test • Urodynamic observations • Knowledge of filling rates • Knowledge of the importance of pressure/flow relationship during voiding (A2) • Complications and side-effects of the procedure • Knowledge of emergency procedures 	<ul style="list-style-type: none"> • Understand observations, and their clinical significance, and recognise test artefacts • Know when appropriate to perform a second fill • Ability to interpret pressure–flow plots, and relate these to voiding dysfunction (A2) • Safe removal of catheters on completion of test • Awareness of own level of responsibility and accountability 	<ul style="list-style-type: none"> • Recognise when the presence of phimosis, hypospadias, urethral stricture, or sphincter spasm may interfere with investigation and take appropriate action (A2) • Recognise when the presence of uterovaginal prolapse may interfere with the investigation and take appropriate action (A1) • Maintain quality throughout the investigation • Ability to alter the filling rate according to clinical circumstances • Interpret trace artefacts and observations during the investigation • Adapt procedure/trouble shoot according to clinical circumstances • Write a comprehensive report correlating the observations with the patient’s symptoms • Explain the findings to the patient • Perform a relevant audit • Keep a log of cases 	<ul style="list-style-type: none"> • Attendance at urodynamic course • Attendance at urodynamic clinics • OSAT • Attendance at urodynamic clinics • Attendance at mandatory hospital basic life support training 	<ul style="list-style-type: none"> • OSAT • DOP • OSAT • CBD • Mini CEX 	<ul style="list-style-type: none"> • CC02 • GEN7 • EUSC01 • CHS40 • CHS41 • CHS83 • GEN7 • GEN62 • GEN63 • GEN77 • IPC7 • IPC9 • HCS_UD3 • HCS_UD4

4. Training and supervision

1. Training must initially be given under the supervision of an identified preceptor. This should normally be for a minimum of 20 sessions if 3–4 patients are seen per clinic. It is anticipated that this would involve attending a regular clinic for a period of 6 months.
2. Within the first 12 months of commencing practical training, the trainee should attend a relevant theoretical course.
3. Written evidence of observations of clinical practice and formal testing of a minimum of 30 cases must be undertaken and completed to the satisfaction of preceptor before the trainee is deemed competent to practice unsupervised.
4. Attendance at a regular MDT meeting to present and discuss interesting or challenging management of cases seen.

5. Skills for Health

Skills for Health competences relevant to urodynamics referenced in this document: www.skillsforhealth.org.uk

Number of competences: 36

CC01: Assess bladder and bowel dysfunction

CC02: Insert and secure urethral catheters

CHS170: Develop clinical protocols for delivery of services

CHS39: Assess an individual with a suspected health condition

CHS40: Establish a diagnosis of an individual's health condition

CHS41: Develop and agree treatment plans for individuals

CHS6: Move and position individuals

CHS76: Obtain informed consent for interventions or investigations

CHS83: Interpret and report on the findings of investigations

EUSC01: Take a presenting history from an individual to inform assessment

GEN13: Synthesise new knowledge into the development of your own practice

GEN2: Prepare and dress for work in clinical/therapeutic areas

GEN3: Maintain health and safety in a clinical/therapeutic environment

GEN36: Make use of supervision

GEN39: Contribute to effective multidisciplinary team working

GEN4: Prepare individuals for clinical/therapeutic activities

GEN40: Contribute to the development of the multidisciplinary team and its members

GEN5: Support individuals during and following clinical/therapeutic activities

GEN6: Prepare environments and resources for use during clinical/therapeutic activities

GEN62: Collate and communicate information to individuals

GEN63: Act within the limits of your competence and authority

GEN7: Monitor and manage the environment and resources during and after clinical/therapeutic activities

GEN77: Perform first line calibration on clinical equipment to ensure it is fit for use

HCS_UD1: Prepare working environment for urodynamic investigation

HCS_UD2: Measure urine flow rate and residual bladder volume

HCS_UD3: Assess storage function of bladder and urethra

HCS_UD4: Assess voiding function of bladder and urethra

HCS_UD5: Assess the function of the bladder and urethra by ambulatory monitoring—only for ambulatory tests

HSC22: Support the health and safety of yourself and individuals

HSC223: Contribute to moving and handling individuals

HSC32: Promote, monitor, and maintain health, safety, and security in the working environment

IPC1: Minimise the risks of spreading infection by cleaning and maintaining environments in health and social care settings

IPC2: Perform hand hygiene to prevent the spread of infection

IPC6: Use personal protective equipment to prevent the spread of infection

IPC7: Safely dispose of healthcare waste, including sharps, to prevent the spread of infection

IPC9: Minimise the risks of spreading infection when removing used linen

Urodynamics module B (Video-urodynamics)

Description of minimum standards for training

For certification in Video-urodynamics you will need to demonstrate the following additions to the basic modules (A1 and/or A2):

- knowledge of the radiological appearance of bladder neck anatomy, function, descent, and pelvic organ prolapse
- understanding of dyssynergia between the bladder and the bladder neck or the distal sphincter and grades of vesico-ureteric reflux
- radiation protection certification and understanding of contrast medium usage and allergies.

In performing the test you will need to be able to appropriately assess residual urine and decide whether to drain this or proceed without doing so.

You will be assessed on the appropriate use of screening to answer relevant clinical questions. You should be able to demonstrate anatomy and function of the bladder neck, sphincter mechanism, and bladder contours; recognise anatomical abnormalities, bladder diverticula and the presence of vesico-ureteric reflux during filling and voiding; and detrusor bladder neck or detrusor sphincter dyssynergia. You should recognise the need to repeat the study in some circumstances.

This will require attendance at video-urodynamic clinics, MDT meetings, and relevant courses as well as obtaining certification in radiation protection via a relevant course.

Urodynamics module B (Video-urodynamics) Curriculum and minimum standards for training

The minimum standards required to perform video-urodynamics, Level B, have been set out into four categories as outlined below:

1. Knowledge and basic requirements
2. Setting up the equipment
3. Preparation of the patient and conducting the test
4. Training and supervision.

Competency in the video-urodynamics module (B) should be in addition to female and male laboratory urodynamics (A1 and A2).

1. Knowledge and basic requirements

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge of modules A1 and/or A2 • Knowledge of bladder neck anatomy, function, descent, and effect of pelvic organ prolapse • Dyssynergia between the bladder and the bladder neck, or the distal sphincter • Grades of vesico-ureteric reflux • Knowledge of radiation protection issues • Understand contrast medium usage and allergies 	<ul style="list-style-type: none"> • See relevant modules 	<ul style="list-style-type: none"> • See relevant modules • Appropriate use of these tests 	<ul style="list-style-type: none"> • Attendance at video-urodynamic clinics 	<ul style="list-style-type: none"> • Modules A1 and/or A2 signed off • DOP • CBD • Certified completion of radiation protection course

2. Setting up the equipment

As per other modules

3. Preparation of the patient and conducting the test

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> Knowledge as for modules A1 and A2 	<ul style="list-style-type: none"> Appropriate assessment of residual urine and awareness of need to empty or proceed without doing so 	<ul style="list-style-type: none"> Takes suitable radiation protection precautions—in particular to avoid exposure of other individuals and self Checks patient allergies to contrast Awareness of radiation risk with pregnancy Appropriate use of screening to answer relevant clinical questions Able to demonstrate anatomy and function of the bladder neck, sphincter mechanism, and bladder contours Recognises anatomical abnormalities: cystocele, bladder neck mobility, bladder diverticula and presence of vesico-ureteric reflux during filling and voiding Able to recognise detrusor bladder neck or detrusor sphincter dyssynergia Recognises need to repeat study in some cases 	<ul style="list-style-type: none"> Attendance at video-urodynamic clinics (at least 20 sessions) 	<ul style="list-style-type: none"> DOP

4. Training and supervision

- The trainee should be certified in modules A1 and/or A2 prior to commencing this module.
- Training must be done under the supervision of an identified preceptor. This involves the trainee having performed video-urodynamics on a minimum of 40 patients, which should be done to a standard acceptable to the preceptor before the trainee is allowed to practice unsupervised.
- Attendance at regular MDT meetings to present and discuss interesting cases.

Urodynamics module C (Urodynamics in neuropathic patients)

Description of minimum standards for training

For certification in urodynamics in neuropathic patients you will require knowledge of the ICS standardisation of terminology in neurogenic lower urinary tract dysfunction and neurophysiological tests in addition to modules A1 and/or A2, and B. This will require an understanding of neuropathic incontinence including urge, sphincter weakness, and overflow. You will need to understand the importance of leak point pressures and have a general knowledge of common neurological conditions and their effects on the anatomy and physiology of the urinary tract, including related and relevant neurological conditions such as spinal shock, autonomic dysreflexia, post traumatic syringomyelia, and hydrocephalus; the effects of neurological conditions on male and female sexual and reproductive function; and knowledge of commonly associated gastrointestinal tract dysfunction.

In addition you will need an appreciation of the relative importance of assessing risk to renal function in the control of continence, appropriate use of a suprapubic catheter, handling of the severely disabled patient, strapping and control of patients with severe spasticity, temperature control in the neuropath, skin protection in the anaesthetic patient, perineal hygiene, infection avoidance; and also knowledge of the risks, prevention, and treatment of autonomic dysreflexia.

It is particularly important to be aware of the need for a reduced filling rate and to know when it is appropriate to repeat the study.

The skills assessed in this module include the ability to conduct a basic neurological assessment, recognise which urodynamic test is most appropriate for the patient, check for infection, use antibiotic prophylaxis appropriately, be aware of temperature variations, use screening to identify bladder stones, and to diagnose vesico-ureteric reflux and incontinence. You will be expected to be able to catheterise the patient with sphincter spasm, assess residual urine volumes acting on these appropriately, and identify detrusor sphincter dyssynergia. You should know how to manage autonomic dysreflexia and how to initiate triggered voiding. You should be able to advise the patient when treatment is necessary to avoid upper tract deterioration, and to describe treatment options to patients when renal function is not in jeopardy but different options exist for optimal control.

Training for this module will require attendance at video-urodynamic clinics with neuropathic patients, attendance at neuro-urology clinics, and attendance at a spinal injuries course such as that run in Sheffield.

Urodynamics module C (Neurogenic bladder dysfunction) Curriculum and minimum standards for training

The minimum standards required to perform urodynamics in patients with neurogenic bladder dysfunction, Level C, have been set out into four categories as outlined below:

1. Knowledge and basic requirements
2. Setting up the equipment
3. Preparation of the patient and conducting the test
4. Training and supervision

Competency in the neuropathic module (C) should be in addition to female and/or male laboratory urodynamics (A1 and/or A2) and video-urodynamics (B)

1. Knowledge and basic requirements

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge of modules A1/A2 and B • ICS standardisation of terminology in neurogenic lower urinary tract dysfunction • Knowledge of neurophysiological tests • Understanding neuropathic incontinence including urge, sphincter weakness, and overflow 	<ul style="list-style-type: none"> • See relevant modules • Ability to conduct a basic neurological assessment 	<ul style="list-style-type: none"> • See relevant modules • Understand appropriate use of these tests 	<ul style="list-style-type: none"> • Attendance at video-urodynamic clinics with neuropathic patients • Attendance at neuro-urology clinics 	<ul style="list-style-type: none"> • Modules A1/A2 and B signed off • DOP • CBD

2. Setting up the equipment

As per other modules

3. Preparation of the patient and conducting the test

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Handling of the severely disabled patient • Risks, prevention, and treatment of autonomic dysreflexia • Skin protection in the anaesthetic patient • Infection avoidance, perineal hygiene • An appropriate use of a catheter to undertake urodynamics • Set up for measuring synchronous flow rate • Strapping and control of patient with severe spasticity • Understanding temperature control in the neuropath • Common neurological conditions, e.g. spinal cord injury, multiple sclerosis, spina bifida, stroke, head injury, and Parkinson's disease, and their effects on the anatomy and physiology of the urinary tract • Related and relevant neurological conditions including spinal shock, autonomic dysreflexia, post traumatic syringomyelia, and hydrocephalus • The effects of neurological conditions on male and female sexual and reproductive function • Knowledge of likely associated gastrointestinal tract dysfunction • Importance of reduced filling rate • Appreciate relative importance of assessing risk to renal function and control of continence • Know when appropriate to repeat study • Understand importance of leak point pressures • Recognise which urodynamic test is most appropriate for the patient • Role of ambulatory urodynamics 	<ul style="list-style-type: none"> • Specific neurological assessment • Check for infection; appropriate use of antibiotic prophylaxis • Recognise temperature variations • Ability to identify bladder stones, use screening to diagnose vesico-ureteric reflux and incontinence • Antibiotic usage with intermittent catheterisation and indwelling catheters • When the test should be done on the residual urine, without emptying the bladder • Be able to identify detrusor sphincter dyssynergia 	<ul style="list-style-type: none"> • Appropriate use of filling rates • Appropriateness of test in patients with a catheter <i>in situ</i> • An appropriate use of a catheter to undertake urodynamics • Catheterisation of the patient with sphincter spasm • Ability to conduct the test • Ability to reduce filling rates according to clinical situation • Ability to assess residual volumes and act on these if required • Ability to manage autonomic dysreflexia • Ability to initiate triggered voiding • Ability to advise patient when treatment is necessary to avoid upper tract deterioration • Ability to describe treatment options to patient when renal function is not in jeopardy but different options exist for optimal control 	<ul style="list-style-type: none"> • Attend urodynamic clinics dedicated to neurourology • Attendance at neurology clinics • DOPS 	<ul style="list-style-type: none"> • DOP • Observation in clinic • CBD • Supervised assessment of 50 neuropathic patients

4. Training and supervision

1. The trainee should be certified in modules A1 and/or A2 and B prior to commencing this module.
2. Training must be done under the supervision of an identified preceptor. This involves the trainee having done a minimum of 40 video-urodynamics on patients with neurological disease. These should be done to a standard acceptable to the preceptor before the trainee is allowed to practice unsupervised.
3. Training in the neuropathic module must also involve attendance at neuro-urology clinics.
4. Attendance at an approved spinal injuries course, such as that run in Sheffield.
5. Attendance at regular MDT meetings to present and discuss interesting cases.

Urodynamics module D (Ambulatory urodynamics)

Description of minimum standards for training

Ambulatory urodynamics requires the demonstration of additional skills over and above that of the basic modules for urodynamics training.

You will be required to demonstrate a knowledge of the current ICS standardisation document on ambulatory urodynamics and radiation and sterility protocols relating to solid state transducers and air-filled catheters. You will also need to be able to formulate a relevant urodynamic question prior to conducting the test.

This requires a knowledge of the differences between ambulatory and laboratory urodynamic equipment including calibration of equipment, patient preparation before the test, and an ability to assess whether there is a urinary residual in an ambulatory setting.

When performing ambulatory monitoring you will need to demonstrate an understanding of the need for the patient to comply with instructions, particularly their ability to complete a bladder diary, and the need to liaise with the patient to check lines and diary regularly. This will require skills in counselling the patient to record symptoms using the diary and equipment, voiding protocol, and what to do in the event of catheter expulsion using both verbal and written instructions.

You will need an understanding of urodynamic diagnoses and be able to analyse traces with respect to ambulatory traces.

This will require attendance at relevant courses, MDT meetings, and supervision at a unit that undertakes ambulatory urodynamics.

Urodynamics module D (Ambulatory urodynamics) Curriculum and minimum standards for training

The minimum standards required to perform ambulatory urodynamics, Level D, have been set out into four categories as outlined below:

1. Knowledge and basic requirements
2. Setting up the equipment
3. Preparation of the patient and conducting the test
4. Training and supervision

Ambulatory urodynamics is a highly specialised small volume test that should not be expected to be a natural progression from basic urodynamics. Competency in the Ambulatory urodynamics module (D) should be in addition to female and/or male laboratory urodynamics (A1 and/or A2).

1. Knowledge and basic requirements

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge of modules A1 and/or A2 • Knowledge of current ICS terminology of LUTS • Knowledge of the current ICS standardisation document on ambulatory urodynamics 	<ul style="list-style-type: none"> • See relevant modules • Formulate a urodynamic question 	<ul style="list-style-type: none"> • See relevant modules • Appropriate use of these tests 	<ul style="list-style-type: none"> • Attendance at ambulatory urodynamic clinics 	<ul style="list-style-type: none"> • Modules A1 and/or A2 signed off

2. Setting up the equipment

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Prepare and maintain safe and clean environment • Knowledge of good practice in clean/sterile technique • Awareness of local infection control policies and risk assessments • Knowledge of the current ICS standardisation document on ambulatory urodynamics • Knowledge of radiation and sterility protocols relating to solid-state transducers and air-filled catheters • Knowledge of calibration differences with ambulatory equipment 	<ul style="list-style-type: none"> • Preparation of clean and safe environment • Demonstrate knowledge of re-usable equipment 	<ul style="list-style-type: none"> • Setting up of equipment • Appropriate use of these tests 	<ul style="list-style-type: none"> • Attendance at ambulatory urodynamic clinics 	<ul style="list-style-type: none"> • DOP

3. Preparation of the patient and conducting the test

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge as for modules A1 and A2 • Indications for prophylactic antibiotics • Understand the particular need for patient preparation before test • Awareness of need for patient to comply with instructions, particularly ability to complete bladder diary • Understand differences in transducer types and relevance to zeroing • Awareness of the need to check lines regularly • Awareness of need to liaise with patient and check their bladder diary • Knowledge of urodynamic diagnoses and ability to analyse traces 	<ul style="list-style-type: none"> • Appropriate assessment of residual urine and awareness of need to empty or proceed without doing so • Appropriate choice of clothing and ensuring bowels open prior to test • Counselling of patient with regards to using diary and operating equipment 	<ul style="list-style-type: none"> • Ability to insert lines appropriately • Ability to zero equipment appropriately depending on catheter type • Ability to check appropriate pressure measurement • Counselling of patient in recording symptoms using the equipment and instruction on use of the bladder diary, catheter expulsion and voiding protocol using both verbal and written instructions • Ability to utilise bladder diary when reviewing trace with patient • Recognise need to repeat study in some cases 	<ul style="list-style-type: none"> • Attendance at ambulatory urodynamic clinics (at least 20 sessions) • Attendance at MDT meeting • Working within a multi-disciplinary team • Attendance at relevant meetings • Attendance at relevant courses 	<ul style="list-style-type: none"> • DOP • CBD

4. Training and supervision

1. The trainee should be certified in modules A1 and/or A2 prior to commencing this module.
2. Training must be done under the supervision of an identified preceptor. This involves the trainee having performed ambulatory urodynamics on a minimum of 40 patients. These should be done to a standard acceptable to the preceptor before the trainee is allowed to practice unsupervised.
3. Attendance at regular MDT meetings to present and discuss interesting cases.

Urodynamics module E (Urodynamics in children)

Description of minimum standards for training

In order to undertake the module in paediatric urodynamics you must have completed Level A1 (female) and/or A2 (male), and B. In addition you will require knowledge of the anatomy and function of the lower urinary tract in children, including an understanding of voiding dysfunction with particular reference to congenital abnormalities (e.g. myelomeningocele and posterior urethral valves) where urodynamics are routinely indicated. You will need to be aware of the indications for prophylactic antibiotics.

You will also need knowledge of current International Children's Continence Society (ICCS) terminology of lower urinary tract symptoms and grades of vesico-ureteric reflex, and to have obtained certification in radiation protection (covering radiation protection issues including allergies to contrast).

The skills you will require include understanding the particular need for patient preparation before the test such as the need to use sedation in some cases, the need to take written parental consent, and to be able to relate to children and be adaptable. You will be expected to undertake appropriate assessment of residual urine and be able to decide whether to empty the bladder or proceed without doing so. You should be aware of the indications for different filling speeds in children. Radiological skills include using screening appropriately to answer relevant clinical questions; being able to demonstrate anatomy and function of the bladder neck, sphincter mechanism and bladder contours, and recognise anatomical abnormalities, bladder diverticula, and the presence of vesico-ureteric reflux during both filling and voiding. Finally, you should recognise when it is appropriate to discontinue the test or to repeat the study depending on circumstances.

Urodynamics module E (Urodynamics in children) Curriculum and minimum standards for training

The minimum standards required to perform urodynamics in children, Level E, have been set out into four categories as outlined below:

1. Knowledge and basic requirements
2. Setting up the equipment
3. Preparation of the patient and conducting the test
4. Training and supervision

Competency in the paediatric urodynamics module (E) should be in addition to female and/or male laboratory urodynamics (A1 and/or A2) and video-urodynamics (B).

1. Knowledge and basic requirements

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge of modules A1 and/or A2 and B • Knowledge of anatomy and function of the lower urinary tract in children including voiding dysfunction • Knowledge of congenital abnormalities where urodynamics are routinely indicated • Knowledge of current ICCS terminology of LUTS • Grades of vesico-ureteric reflux • Knowledge of radiation protection issues • Understanding contrast medium usage and allergies 	<ul style="list-style-type: none"> • See relevant modules 	<ul style="list-style-type: none"> • See relevant modules • Understand appropriate use of these tests 	<ul style="list-style-type: none"> • Attendance at urodynamic clinics where paediatric patients are seen 	<ul style="list-style-type: none"> • Modules A1 and/or A2 and B signed off • DOP • CBD • Certified completion of radiation protection course

2. Setting up the equipment

As for other modules

3. Preparation of the patient and conducting the test

Knowledge criteria	Clinical competence	Professional skills to be assessed	Training support	Assessment
<ul style="list-style-type: none"> • Knowledge of modules A1 and/or A2 and B • Knowledge of anatomy and function of the lower urinary tract in children including voiding dysfunction • Knowledge of congenital abnormalities where urodynamics are routinely indicated • Knowledge of current ICCS terminology of LUTS • Grades of vesico-ureteric reflux • Knowledge of radiation protection issues • Understanding contrast medium usage and allergies 	<ul style="list-style-type: none"> • See relevant modules • Appropriate assessment of urinary residual and awareness of need to empty or proceed without • Ability to relate to children and be adaptable • Recognise need to change filling speed 	<ul style="list-style-type: none"> • Checks patient allergies with contrast • Takes suitable radiation protection precautions to avoid exposure of other individuals and self • Uses screening appropriately to answer relevant clinical questions • Able to demonstrate anatomy and function of the bladder neck, sphincter mechanism, and bladder contours • Recognises anatomical abnormalities, bladder diverticula and presence of vesico-ureteric reflux, during both filling and voiding. • Recognises need to repeat study in some circumstances 	<ul style="list-style-type: none"> • Attendance at urodynamic clinics where paediatric patients are seen (at least 20 sessions) 	<ul style="list-style-type: none"> • DOP • CBD

4. Training and supervision

1. The trainee should be certified in modules A and B prior to commencing this module.
2. Training must be done under the supervision of an identified preceptor. This involves the trainee having done a minimum of 20 paediatric sessions. These should be done to a standard acceptable to the preceptor before the trainee is allowed to practice unsupervised
3. Attendance at regular MDT meetings where interesting cases are presented and discussed.

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