

ICS Standard Good Urodynamic Practices and Terms 2016

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Thanks!



Thanks!



International Continence Society Good Urodynamic Practices and Terms 2016: Urodynamics, uroflowmetry, cystometry, and pressure-flow study

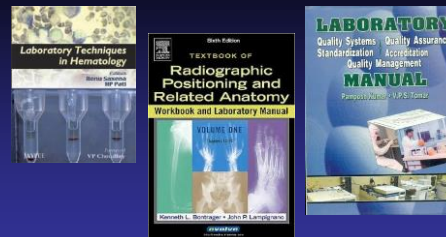
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Aims: The working group initiated by the ICS Standardization Steering Committee has updated the International Continence Society Standard "Good Urodynamic Practices" published in 2002.
Methods: On the basis of the manuscript "ICS standard to develop evidence-based standards", a new ICS Standard was developed in the period from December 2013 to December 2015. In July, a draft was posted on the ICS website for membership comments and discussed at the ICS 2015 annual meeting. The input of ICS membership was included in the final draft before ICS approval and subsequent peer review (for this journal).
Results: This evidence-based ICS-GUP2016 has newly or more precisely defined more than 30 terms and provides standards for the practice, quality control, interpretation, and reporting of urodynamics, cystometry and pressure-flow analysis. Furthermore, the working group has included recommendations for pre-testing information and for patient information and preparation. On the basis of earlier ICS standardizations and updating according to available evidence, the practice of uroflowmetry, cystometry, and pressure-flow studies are further detailed.
Conclusion: ICS-GUP2016 updates and adds on to ICS-GUP2002 to improve urodynamic testing and reporting both for individual care and scientific purposes.

KEYWORDS:
clinical practice standard and quality, cystometry, incontinence, lower urinary tract dysfunction, pressure-flow study, urodynamics, uroflowmetry

Standards



Urodynamics practice and evaluation should be as standardized as other diagnostics and medical techniques, and be equally trustworthy

Improving Urodynamic Studies

- Preparation for the study
- Conduct of study
- Interpretation/Reporting

Preparation: Informing the patient

Conclusions:

- Information leaflets about UDS are often too difficult to understand.
- Young adults and patients with pelvic pain may have a relatively negative experience with UDS

Recommendation:

- Communicate effectively with patients so that they become actively engaged in the test
- An explanatory leaflet about UDS using positive words will be appreciated by the majority

Preparation: Database

- History
- Physical exam
- Urinalysis
- Validated symptom score
- Medications
- FVC-BD to capacity & determine fill rate

A bladder diary prior to UDS is a basic quality measure

Preparation: Testable Hypothesis

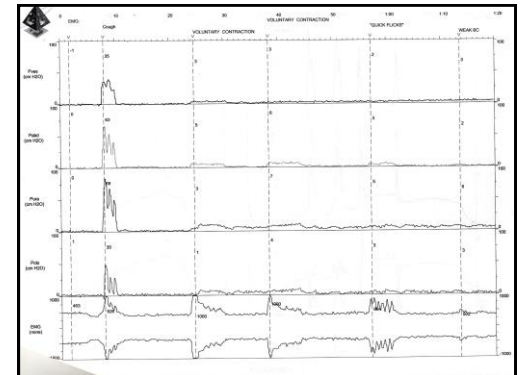


Conduct: Free Uroflow

- Preferred position (record)
- Determine if representative
- Repeat if not representative

Conduct: EMG

- Demonstrate responsiveness
- Check on pelvic floor function
 - Voluntary contraction
 - Anal wink reflex
 - BC reflex
- Set EMG gain



Conduct: Cystometry

- Filling rate 10% of functional capacity
- Position—not supine
- Report sensations (FSF, FDV, SDV)
- End fill, “strong, not uncomfortable need to void”
- Document other sensations
- Mark permission to void
- Repetition

Conduct: Pressure-Flow

- Position of patient
- Position of flowmeter
- Document residual
- Document representativeness

Conduct: Quality Control

- Responsibility of everyone performing UDS testing.
- Required throughout testing.

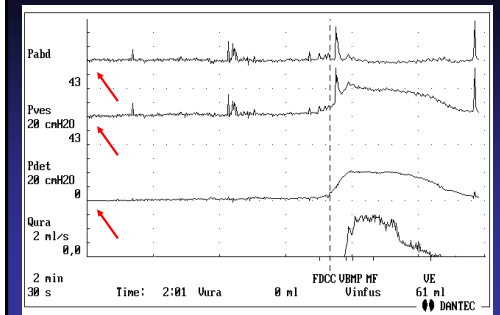
Conduct: Quality Control

- Plausible pressures
- “Dead” signal
- Pressure drift
- Poor pressure transmission

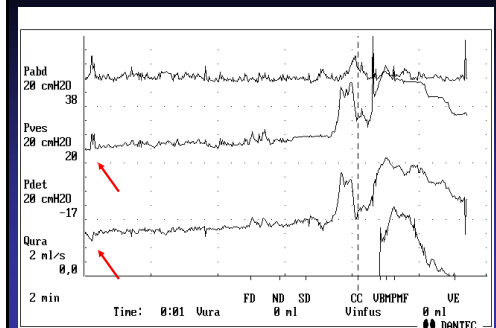
Physiological Pressures

- $P_{abd} = P_{ves}, P_{det} = 0$
- Supine pressures 0-5cm H₂O
- Seated pressures 10-20cm H₂O
- Standing pressures 20-50cm H₂O

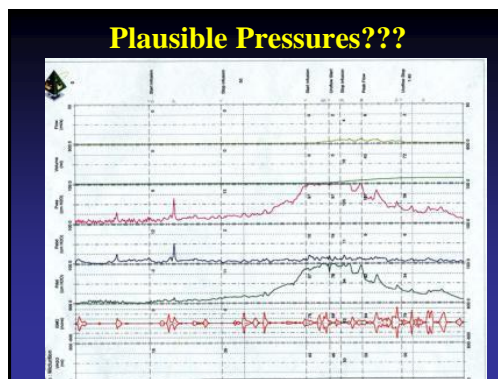
Plausible Pressures??



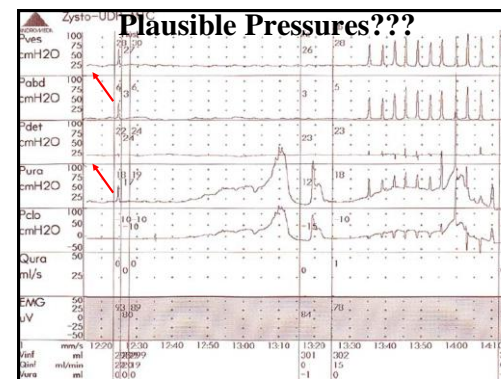
Plausible Pressures???



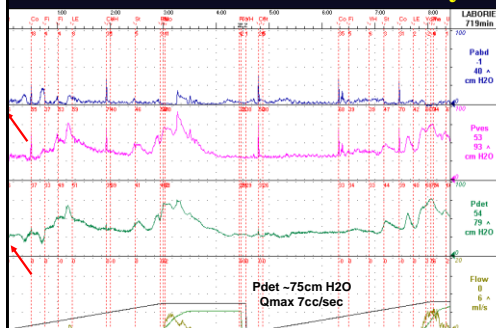
Plausible Pressures???



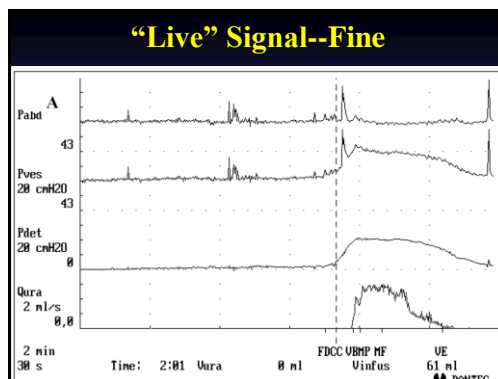
Plausible Pressures???



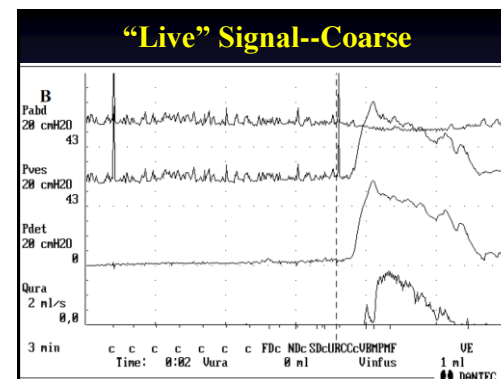
Can make a difference clinically



“Live” Signal--Fine



“Live” Signal--Coarse



[illegible]

Poor Pressure Transmission

Conduct: Quality Control

NOT poor quality issues:

- Rectal contractions
- Dropped Pabd at void
- Straining
- After contraction

Rectal Contractions

2 min Hc ct1 c ct2 cct3 FDN Dec CC VMB PMF 0.0 L Uura VE c

30 s

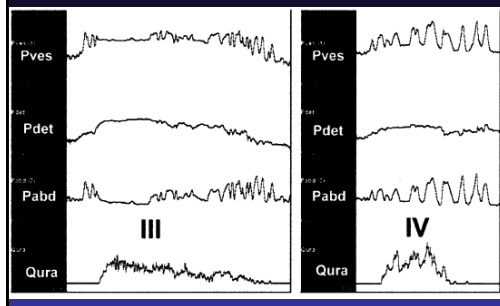
Pabd 40

Pves 20 cmH₂O 42

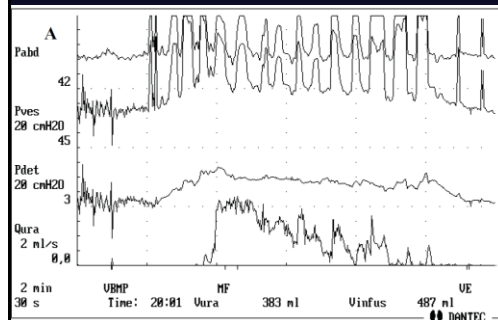
Pdet 20 cmH₂O 2

Qura 2 ml/s 0.0

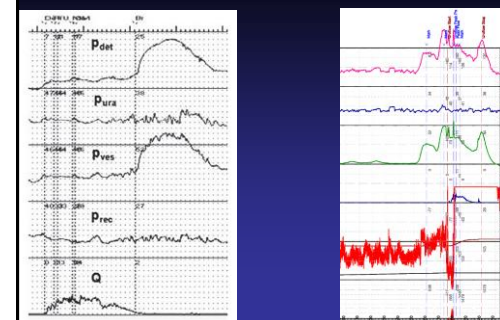
Straining



Straining



After Contraction



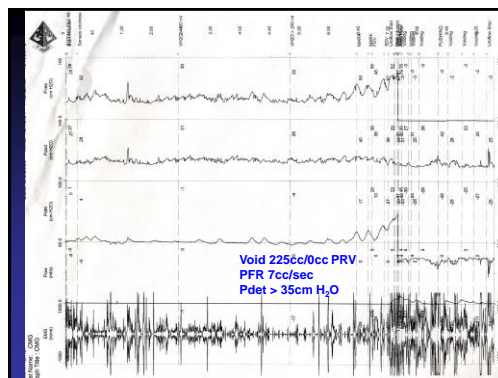
UDS Quality Audit

TABLE 1 The criteria for the retrospective review of traces and percentage of traces meeting each criterion; a good quality cough signal was defined as grade A (see text). The frequency indicates the number of traces (from 100) meeting the standard in the present study

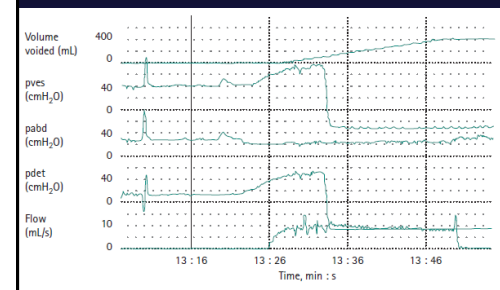
| Criterion | Observed frequency, % |
|--|-----------------------|
| Pressures, cmH ₂ O | |
| Baseline detrusor, 0 to +10 | 86 |
| Baseline intravesical 30–50 (standing patient) | 68 |
| Baseline abdominal 30–50 (standing patient) | 73 |
| Good quality cough signal recorded on the trace before filling | 79 |
| Regular coughs during filling (at least every 1 min or every 50 mL infused*) | 30 |
| Good quality cough signal: | |
| during filling | 87 |
| before voiding | 68† |
| Vesical line remains in place throughout void | 89† |
| Good quality cough signal recorded after voiding | 60† |

*at least one cough every 2 min or every 100 mL infused in 64; †excludes two patients unable to void.

Abrams P et al.: BJUInt 2003



Expelled Catheter



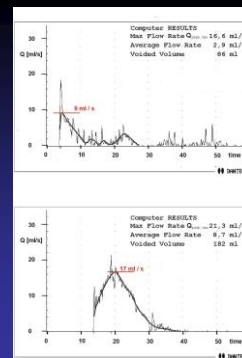
Reporting UDS--general

- Position for each test
- Standard and specific sensations
- Representativeness

Reporting UDS--Uroflow

- Desire to void
- Void volume to 10cc
- Peak flow to 1cc on “smoothed curve”
- Average flow
- Residual to 10cc, method determined

Examples: 18/350/20 or 8/160/xxx



Physiological model & technical limitations:

The limited accuracy of flowmetry and the basic physiology of micturition mandates that we smooth or idealize the flow rate curve.

This can have a major impact on the Q_{max} value

Reporting UDS--Cystometry

- Filling rate
- Volumes and sensations
- Volumes, amplitude, character of DO
- Accounting for diuresis
- Urethral function (EMG or UPP used)

Reporting UDS—Voiding Cystometry

- Volume voided to 10cc
- Detrusor pattern
 - Character of curve
 - Straining present/absent
- Pdet at Q_{max}
- Urethral function (EMG or UPP used)
- Voiding efficiency & plot of Pdet vs. Flow

