Committees

1. Current definitions, classification and epidemiology of sexual dysfunction in men and women
   Marita McCabe & Ira Sharlip

2. Psychological and interpersonal dimensions of sexual function and dysfunction in both sexes, ethical and socio-cultural aspects
   Lori Brotto & Kevan Wylie

3. Clinical evaluation and symptom scales used in assessment sexual dysfunction in men and women
   Lorraine Dennerstein, Dimitrios Hatzichristou & Raymond Rosen

4. Experimental models for the study of women's and men's sexual function
   Petter Hedlund & James Pfaus

5. Sexual health and illness (focusing on cancer, CVD, DM and depression)
   Luca Incroci & Michael Krychman
6. Current and future diagnostics and treatment targets for sexual dysfunctions, including stem cell based therapies
   Irwin Goldstein & Tom Lue

7. Standards for clinical trials in women's and men's sexual dysfunction evaluating research designs and outcomes assessment
   William Fisher & Lior Lowenstein

8. Physiology and pathophysiology of men’s sexual arousal and penile erection (including endocrine aspects)
   Arthur Burnett & Mario Maggi

9. Priapism, Peyronie's Disease, penile trauma and reconstructive surgery
   Gregory Broderick & David Ralph

10. Disorders of orgasm and ejaculation in men
    Juza Chen & Marcel Waldinger
11. Implants, mechanical devices and vascular surgery for erectile dysfunction
   Laurence Levine & Allen Morey

12. Pharmacotherapy for erectile dysfunction, testosterone deficiency and sexual rehabilitation after treatment for prostate cancer
   Mohit Khera & Andrea Salonia

13. The physiology women's sexual function and pathophysiology of women's sexual dysfunction (which will include sex hormones)
   Susan Davis & Roy Levin

14. Treatment of women's sexual desire, arousal and orgasmic disorders
   Sheryl Kingsberg & James Simon

15. Women's sexual pain disorders
   Andrew Goldstein & Caroline Pukall

16. Existing and future educational needs and platforms
   Eli Coleman & Ian Eardley
Vice Chairs

Michael Adams - Canada
Stanley Althof - USA
Anita Clayton - USA
Annamaria Giraldi - Denmark
Francois Giuliano - France
Wayne Hellstrom - USA
Chris McMahon - Australia
John Mulhall - USA
Sharon Parish – USA
Current ED Treatment Approaches

Male patient diagnosed with ED

1st line therapies

Oral ED therapies

Prescribed by both Urologists & PCPs

~75%

2nd line therapies

Urethral and topical Alprostadil

ICI

Vacuum pump

<5%

Primarily prescribed by Urologists

~5%

<10%

~5%

<1%

3rd line therapies

Penile implant

Corrective vascular surgery

~5%

<1%

Source: Adapted from American Urologic Association Treatment of ED Guidelines, emedicine.com, L.E.K. Consulting Interviews and analysis.
Principles of Sexual Medicine

1. Evidence-based principles
2. Patient-centered framework
3. Similar management framework for both men and women

A balanced and integrated approach to clinical evaluation and treatment of sexual dysfunctions
Current view of sexual dysfunction (SD), as a multifactorial problem, with interacting contributing factors.
## Types of Sexual Dysfunctions

<table>
<thead>
<tr>
<th>TYPES</th>
<th>CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Psychogenic</td>
<td><strong>Absence</strong> of biological findings</td>
</tr>
<tr>
<td>2. Organic</td>
<td>Biological findings, <strong>NOT</strong> significant mental (cognitive) or emotional (affect) distress</td>
</tr>
<tr>
<td>3. Mixed</td>
<td>Biological findings, <strong>significant</strong> mental (cognitive) or emotional (affect) distress</td>
</tr>
</tbody>
</table>
The ICSM-5R (5 steps-revised) Algorithm for the Management of Sexual Dysfunctions in Men and Women.

Man / Woman with sexual complaints

**STEP 1** Basic Evaluation

MANDATORY
1. Sexual history
2. Medical history
3. Psychosocial history

HIGHLY RECOMMENDED
- Physical exam
  If indicated:
  - Lab tests

**STEP 2**

No further specific investigation required

**STEP 3**

- Patient / partner education
- Shared decision making

**STEP 4** Treatment

- Counseling/Lifestyle modifications
- Psychological
  (cognitive-behavior sex therapy)
- Medical
  (pharmacotherapy, devices)
- Surgical

**STEP 5** Follow-up

- Symptom relief
- Overall sexual wellbeing
Sexual History Aims

- Identify the sexual problem(s)
- To delineate possible contributing factors
- To clarify the patient’s and partner’s treatment goals
### Sexual History Steps

1. Define the sexual problem(s) in as much detail as possible

2. Identify whether the sexual problem reported is primary or secondary to another disorder

3. Identify if the problem is generalized or situational, lifelong or acquired

4. Determine the sexual context and sexual stimuli provided

5. Determine the level of distress about the problem

6. Assess sexual beliefs, cultural background in relation to sexuality issues

7. Ask about sexual activity and satisfaction prior to the onset of the problem

8. Ask about negative traumatic or humiliating sexual experiences
# Sexual History: Don’t Forget!

1. **Sexual activity**
   - number and gender of a patient’s sexual partners
   - length of the relationship

2. **Fertility status / contraception**
   - number of children / abortions
   - prevention of pregnancy strategies
   - infertility problems / therapies

3. **STDs**
   - HIV
   - HPV
   - infections (gonorrhea, chlamydia, etc)

4. **Sexual Practices**
   - patient and family attitudes
   - sex beliefs / socio-cultural influences
   - self stimulation / masturbation
   - sex practices / variations

5. **Sexual experiences**
   - sexual development / body image
   - abuse / trauma

6. **Sexual problems and satisfaction**
   - past (before problem if possible)
   - present

**Finishing up question:**

*Is there anything else about your sexual life that I need to know about to ensure you receive good sexual health care?*
Differentiating Sexual Problems on the Basis of Contributing Factors

- Psychogenic SD
- Mixed Etiology SD
- Organic SD
Psychosocial History

• Ask about daily mood and fatigue

• Ask about body image concerns, especially genital image

• Check for mental disorders/psychopathology (past history and current)

• Assess personality characteristics, self-esteem, self-efficacy, sexual self confidence, extroversion, perfectionism etc.

• Ask about previous relationships with men or women

• Ask about social skills, such as flirting or social networking

• Ask about life stressing factors, such as financial, work/job stress
### Relationship / Partner issues

- Assess relationship satisfaction, love, intimacy, trust, power dynamics etc.

- Assess communication skills and whether the patient feels free to communicate the preferred sexual stimulation with partner

- Also ask about partner’s sexual function

- Ask about attraction between partners

- Ask how the couple copes with the problem. Pressure (imposed by patient or by the partner) may exacerbate symptoms

- Ask specifically about the partner’s attitude and reaction towards this sexual problem

- Ask about partnered sexual activity and physical intimacy
# Medical History: Don’t Forget!

<table>
<thead>
<tr>
<th>1. Life style</th>
<th>5. LUTS - Continence status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>Genito-urinary tract infections (prostatitis, yeast infections, etc)</td>
</tr>
<tr>
<td>Nutrition Weight (BMI, waist circumference)</td>
<td>Lower urinary tract symptoms (BPH-overactive bladder)</td>
</tr>
<tr>
<td>Alcohol, Recreational Sleep</td>
<td>Incontinence (stress, urge, mixed, post-prostatectomy)</td>
</tr>
<tr>
<td>Occupation (working/leisure time)</td>
<td></td>
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<tr>
<td>Moving problems</td>
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<table>
<thead>
<tr>
<th>2. Cardiovascular disease</th>
<th>6. Kidney disease</th>
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<tbody>
<tr>
<td>Coronary disease</td>
<td>Renal insufficiency</td>
</tr>
<tr>
<td>Heart diseases</td>
<td></td>
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<tr>
<td>Hypertension</td>
<td></td>
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<tr>
<td>Peripheral vascular diseases</td>
<td></td>
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<tr>
<td>Cerebrovascular disease</td>
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<table>
<thead>
<tr>
<th>3. Diabetes mellitus</th>
<th>7. Neurological problems</th>
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<tbody>
<tr>
<td>Vascular disease</td>
<td>Parkinson’s</td>
</tr>
<tr>
<td>Peripheral neuropathy</td>
<td>Multiple Sclerosis</td>
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<tr>
<td>Endocrinopathy</td>
<td>Spine injury</td>
</tr>
<tr>
<td>Renal impairment</td>
<td>Others</td>
</tr>
<tr>
<td>Retinopathy</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>4. Endocrinopathies</th>
<th>8. Trauma or injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyper/hypogonadism</td>
<td>penis, pelvis, perineum, testes, rectum</td>
</tr>
<tr>
<td>Thyroid diseases</td>
<td></td>
</tr>
<tr>
<td>Steroids</td>
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<tbody>
<tr>
<td>(medical and surgical)</td>
<td>depression, anxiety, other psychiatric conditions</td>
</tr>
<tr>
<td>bladder, prostate, rectum</td>
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</tbody>
</table>


Key Elements in the Physical Examination

- Complete genital exam (in men digital rectal)
- Secondary sexual characteristics
- BP, heart rate, peripheral pulses, edema
- Vibratory sensation
- Lower extremity strength and coordination
Laboratory Tests for General Medical Conditions affecting Sexual Function

- Hormonal status (sex hormones, gonadotropins, TSH)
- Fasting glucose
- Lipids
- Others, if indicated (e.g. PSA)
Sexual Dysfunction: Follow-up

**Follow-up patients**
- Sexual function status
- Changes in health status
- Continuing education

**Adjustment to treatment**
- Acceptance of treatment (patient/partner)
- Satisfaction with treatment
- Alternative treatment options

**Sexual satisfaction**
- Relationship
- Sexual intimacy
- Partner satisfaction
- Sexual life satisfaction

**Tailoring treatment**
- Patients’ needs
- Partners’ needs
Summary and Recommendations for the Management of Sexual Problems for Men and Women

1. The three principles
   a. patient-centered framework
   b. evidence-based principles
   c. similar management approach for sexual problems in both men and women

2. The revised ICSM algorithm is the gold standard management approach

3. Sexual, medical and psychosocial history is mandatory

4. Physical examination is highly recommended

5. Laboratory tests are optional, as indicated
# Erectile Dysfunction: Indications for Specialized Testing

1. Lifelong, generalized ED where an organic cause (e.g., vascular insufficiency) is suspected

2. Acquired, generalized ED, suggestive of vasculogenic disease, in order to identify either latent CAD or consider for surgery

3. Acquired, generalized ED, suggestive of neurogenic disease, in order to identify either latent neurological disorder (e.g. MS) or symptoms (diminished sensation)

4. Treatment failure / complications

5. Medico-legal situations

6. Research purposes
### Specialized Tests for Organic Erectile Dysfunction

<table>
<thead>
<tr>
<th>VASCULAR - IMAGING</th>
<th>LEVEL OF EVIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intracavernous Injection Pharmacotesting (ICIP)</td>
<td>2B</td>
</tr>
<tr>
<td>Color Duplex Doppler Penile Ultrasound (CDDPU)</td>
<td>2B</td>
</tr>
<tr>
<td>Dynamic Infusion Cavernosometry and Cavernosography (DICC)</td>
<td>2B</td>
</tr>
<tr>
<td>Arteriography</td>
<td>2C</td>
</tr>
<tr>
<td>CT angiography</td>
<td>4D</td>
</tr>
<tr>
<td>MRI</td>
<td>4D</td>
</tr>
<tr>
<td>Infrared Spectrophotometry</td>
<td>4D</td>
</tr>
<tr>
<td>Radioisotope Penography</td>
<td>5D</td>
</tr>
<tr>
<td>Neurophysiologic Tests for Organic Erectile Dysfunction</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>NEUROPHYSIOLOGIC - OTHERS</strong></td>
<td></td>
</tr>
<tr>
<td>Nocturnal penile tumescence and rigidity (NPTR)</td>
<td>2B</td>
</tr>
<tr>
<td>Audio-visual sexual stimulation with or without: pharmacologic stimulation (oral, ICI)</td>
<td>3C</td>
</tr>
<tr>
<td>Bulbocavernousus Reflex Latency</td>
<td>2B</td>
</tr>
<tr>
<td>Biothesiometry (vibratory thresholds)</td>
<td>3C</td>
</tr>
<tr>
<td>Bulbocavernousus Reflex Latency</td>
<td>3C</td>
</tr>
<tr>
<td>Dorsal Nerve Conduction Velocity</td>
<td>3C</td>
</tr>
<tr>
<td>CC-EMG (corpus cavernosum electromyography)</td>
<td>3C</td>
</tr>
<tr>
<td>Erectiometer / Rigidometer</td>
<td>4D</td>
</tr>
<tr>
<td>Plethysmography / Electrobioimpedence</td>
<td>4D</td>
</tr>
<tr>
<td>MRI or PET scanning of brain (during AVSS)</td>
<td>5D</td>
</tr>
</tbody>
</table>
Summary and Recommendations: Specialized Diagnostic Tests for Erectile Dysfunction

Five diagnostic tests are recommended (grade B):

1. Color Duplex Doppler Penile Ultrasonography (CDDPU)
2. Intracavernous Injection Pharmacotesting (ICI)
3. Dynamic Infusion Cavernosometry Cavernosography (DICC)
4. Nocturnal Penile Tumescence and Rigidity (NPTR)
5. Selective Internal Pudendal Arteriography (SIPA)
Erectile Dysfunction: Referrals

Indications for ED patients’ referrals

1. ED in the absence of cardiovascular co-morbidity or other factors (ED may be the first presenting symptom of cardiovascular disease requiring treatment)

2. Peyronie’s disease and concomitant ED in whom surgery is considered

3. Young men with a recent history of pelvic / perineal trauma in whom vascular surgery is considered

4. Primary ED in whom a congenital veno-occlusive dysfunction or arterial anomaly is suspected

5. Medicolegal cases

6. Treatment failure
Impact of Chronic Conditions

- Pain
- Psychological
- Physical limitations
- Medication/Tx side effects
- Physiological
- Partner(s) relationship

Sexual Health
Evaluation & Management of Sexual Dysfunction in Chronic Medical Illness

Multi-faceted effects

Direct
- Vascular
- Psychiatric
- Neurological
- Hormonal
- Psychological
- Anatomical damage

Indirect
- Changes - perception, sensory, motor
- Incontinence
- Tremor
- Fatigue
- Anxiety
- Pain

Iatrogenic
- Medication
- Radiation
- Surgery

Contextual
- Social & situational factors

Stevenson and Elliott. 2007.
• Bladder cancer Men
  – Nerve-sparing cystectomy has a positive impact on erectile function that may be enhanced with penile rehabilitation. Grade C

• Prostate Cancer
  – Watchful waiting has less impact on sexual function compared to active treatment modalities: Grade C.
  – Phosphodiesterase-5 inhibitors are effective in about half of patients: Grade A

• Testicular/Penile Cancer
  – Preservation of maximal penile shaft is advocated so as to allow continual sexual function: Grade B.
  – Early psychological counseling and routine sperm banking support regarding sexuality during and after testicular treatment is recommended: Grade C.

• Colorectal cancer
  – The combination of radiotherapy and surgery leads to more dysfunction than either treatment alone: Grade B.
  – Nerve-sparing with total mesorectal excision is promising in preserving erections: Grade C
Chronic Illness : Recommendations: Highlights

• Cardiovascular
  – Detection of ED provides an opportunity for CVD risk reduction (1a)
  – ED not only shares risk factors with CVD but is also itself an independent marker of increased risk for CVD (1a)
  – ED is a marker of significant increased risk of CVD, CAD, stroke and all-cause mortality (1a), as family history, myocardial infarction, smoking and hyperlipidaemia (1a)

• Lower Urinary Tract Symptoms (LUTS) Males
  – **Active Surveillance:** in the long run, all domains of sexual function tend to deteriorate with time (A, Level 1a)
  – **Alpha-Blockers:** effect on ED is variable during a short period, with men reporting either no change or a modest improvement. Effect on EjD is significantly affected by tamsulosin and silodosin (A, Level)
  – **5-ARIs:** effect on sexual function in men with LUTS is modest but global with effects on penile erection, ejaculation and desire (A, Level 1a)
• **Rheumatological Disorders**
  – The contributing role of neuroinflammation, depression, fatigue and anxiety in sexual dysfunction should be more clearly demonstrated Level c
  – Joints inflammation, pain, deformity and stiffness should be better appreciated in their impact on body image, body feelings, self-esteem, sexual confidence and assertiveness Level C
  – The issue of sexual function after the onset the RDs should be addressed with patients and with their partners (Level B)

• **Dermatological Disorders (Psoriasis, Vitiligo)**
  – Skin diseases should be systematically evaluated, given their impact on all dimensions of women’s sexuality (sexual identity, sexual function and sexual relationships) Level CX
  – The specific role of associated autoimmune comorbidities should be better investigated level (C)

• **Myomas**
  – Further studies should consider their impact on sexual identity (fertility), sexual function, and sexual relationship (Level C)
  – Impact of different treatments (medical vs surgical) and among surgical treatments (laparoscopic myomectomy vs interventional treatment open/closed) on sexuality deserve further investigation
SubCommittee
Priapism Update

Co-Chairs
Gregory Broderick (USA)
David Ralph (UK)

Members
Trinity Bivalacqua (USA)
Hossein Sadeghi-Nejad (USA)
Chapter Outline

1. Definitions
2. Epidemiology
3. Priapism in Children
4. Pathophysiology
5. Research
6. Evaluation
7. Management of Ischemic Priapism
8. Surgical Management of Ischemic Priapism
9. Management of Sickle Cell Disease Associated with Ischemic Priapism
10. Management of Recurrent Ischemic Priapism
11. Management of High Flow Priapism
12. Sexual Health Function Outcomes
1. Definitions

• **1.2 Priapism** is a full or partial erection that continues more than 4 hours beyond sexual stimulation and orgasm, or is unrelated to sexual stimulation.

• **1.3 Ischemic priapism (IP)** is a persistent erection marked by rigidity of the corpora cavernosa, and little or no cavernous arterial inflow.

• **1.4 Recurrent Ischemic Priapism (RIP) or Stuttering Priapism** describes a pattern of recurring, unwanted, painful erections. The term ‘stuttering’ has historically described recurrent unwanted and painful erections in men with Sickle Cell Disease. RIP is associated with early morning or nocturnal erections and can occur in any patient with a prior history of IP.

• **1.5 Nonischemic priapism (arterial, high flow)** is a persistent erection caused by unregulated cavernous arterial inflow. High flow priapism is associated with a history of blunt trauma to the penis, straddle injury to the crura or an iatrogenic needle injury in boys and adults.
2. EPIDEMIOLOGY

• 2.1 Ischemic Priapism:
  • Reports on the etiology of priapism are greatly influenced by the prevalence of SCD in that community.
  • lifetime probability of a man with SCD developing ischemic priapism ranges from 29% to 42%.

• There is a wide variety of reported associations: alpha adrenergic receptor antagonists, anti-anxiety agents, anticoagulants, antidepressants, antipsychotics, antihypertensives, attention deficit/hyperactivity disorder agents, recreational drugs, genitourinary trauma and surgical interventions, hematologic dyscrasias, hormones therapy, toxin mediated (spider bites, scorpion sting, jelly fish stings), metabolic conditions, neoplastic infiltration, neurogenic conditions, and vasoactive erectile agents.
3. Priapism in Children

• Priapism in children and adolescents is most commonly related to SCD.

• The commonest causes of priapism in children are sickle cell disease (65%), leukaemia (10%), trauma (10%), idiopathic (10%), and pharmacologically induced (5%).

• Phosphodiesterase type 5 Inhibitors are used both intravenously and orally for the management of severe pulmonary hypertension in children, a 1% incidence of priapism have been described with at therapeutic dosages.

• Priapism in children has been reported following accidental over-dosage of father’s PDE5 I medications.
4. Pathophysiology

- Hemolysis and reduced nitric oxide is implicated in the pathogenesis of pulmonary hypertension, leg ulcers, priapism and stroke in SCD patients. [3/B]
- Increased blood viscosity is believed to be responsible for painful crises, osteonecrosis, and acute chest syndrome. [3/B]
- SCD patients with priapism have a fivefold greater risk of developing pulmonary hypertension. [3/B]
- SCD priapism is associated with reduced hemoglobin levels and increased hemolytic markers. [3/B]
- SCD ischemic priapism is associated with sleep hypoxemia. Oxyhemoglobin desaturation during sleep is associated with prior history of ischemic priapism. [3/B]
5. Research

- Dysregulation of the nitric oxide (NO), cyclic-GMP (cGMP) signaling cascade with subsequent impaired phosphodiesterase type 5 (PDE5) enzymatic activity is a primary mediator of priapism in number of experimental mouse models.

- Additional mediators in animal models of priapism
  - Adenosine
  - Opiophins
  - RhoA and Rho-kinase (ROCK)

- In 2015 the first psychometric instrument that measures ‘priapism experience’ was published.
  - Priapism Impact Profile (PIPQ) is a 12 item questionnaire which assesses: QoL, Sexual Function and Physical Wellness
Priapism Evaluation

• In order to initiate appropriate management, the physician must determine whether the underlying priapism hemodynamics are ischemic or non-ischemic. [4/B]

• Emergency management of ischemic priapism is recommended. [3/B]

• Physical examination of the penis and perineum are recommended to assess the degree of tumescence or rigidity; elicit pain; identify evidence of trauma. [4/B]

• Malignancies are rare etiologies of priapism, examination of the abdomen, testicles, perineum, rectum, and prostate may help identify a cancer primary. [4/C]

• Evaluation should include a complete blood count, white blood cell with blood cell differential, platelet count, and coagulation profile. [4/B]
Priapism Evaluation

• A sickle cell prep and hemoglobin electrophoresis should be requested. [4/B]
• Urine and plasma toxicology should be done if narcotic or prescription psychoactive drugs are suspected from history. [4/B]
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• Urine and plasma toxicology should be done if narcotic or prescription psychoactive drugs are suspected from history. [4/B]
• Urine and plasma toxicology should be done if narcotic or prescription psychoactive drugs are suspected from history. [4/B]
Priapism Evaluation

- An initial corporal blood aspirate is recommended to differentiate ischemic from nonischemic priapism (visual assessment of the brightness of color as an indirect assessment of penile oxygenation). [4/B]

- A corporal blood gas is recommended to assess pH, PO2, and PCO2. The corporal blood gas will differentiate ischemic from nonischemic priapism. [3/C]

- Color duplex Doppler Ultrasound is recommended in the evaluation of high flow priapism (if this technology is available). Imaging should include penile shaft and transperineal assessment of the crural bodies. CDU should be done with the lower extremities abducted. [3/C]
Priapism Evaluation

- CDU is recommended in the evaluation of a full or partial erection following treatments for ischemic priapism. The differential diagnosis includes: resolved ischemia with penile edema, persistent ischemia, post-ischemic hyperemic state and a high flow priapism due to laceration of cavernous artery or arteriole. [3/C]

- Penile arteriography to differentiate ischemia from high flow is not recommended in the initial evaluation of priapism. [4/B]

- Selective internal pudendal arteriography is recommended in the treatment of high flow priapism. [3/B]

- Magnetic Resonance Imaging is not recommended in the initial evaluation of priapism. [4/B]
Priapism Evaluation

• There are three possible roles for Magnetic Resonance Imaging in the stepwise management of priapism
  • Identify arteriolar sinusoidal fistula
  • In ischemic priapism (> 36 hours) to demonstrate the presence and extent of tissue thrombus and corporal smooth muscle infarction
  • In the imaging of corporal metastasis causing malignant priapism. [3/C]
Ischemic Priapism Management

• For drug-induced prolonged erection in (< 4 hours) intracavernous injection of a sympathomimetic drug is recommended as the first step. [4/B]

• Ischemic priapism is an emergency. When left untreated, resolution may take days – weeks and erectile dysfunction invariably results. [3/B]

• The recommended initial treatment of ischemic priapism (> 4 hours) is the decompression of the corpora cavernosa by aspiration. Aspiration should be repeated until no more dark blood can be seen coming out from the corpora and fresh red blood is obtained. [3/B]
Ischemic Priapism Management

• Aspiration followed by the ICI of a sympathomimetic drug is recommended in the treatment of ischemic priapism. [3/B]

• There is evidence that irrigation with normal saline alone is less effective than sympathomimetic injection. [3/B]

• Effective reversal of priapism has been documented with dilute injections of: ephedrine, or epinephrine, or etilefrine, or metaraminol, or phenylephrine. [3/B]

• Phenylephrine is a sympathomimetic drug with selective alpha-1 adrenergic receptor actions. Phenylephrine lacks beta-mediated ionotropic and chronotropic cardiac effects. If available, it is the recommended agent for intracavernous management of ischemic priapism. [3/C]
Ischemic Priapism Management

• Clinicians are advised to consult their pharmacies and develop clear mixing and dosing protocols for safe administration of sympathomimetic drugs.

• Sympathomimetic effects on peripheral vasculature and heart include hypertension and bradycardia. Blood pressure monitoring is recommended if repeated sympathomimetic dosing is given in attempts to reverse ischemic priapism. In patients with significant cardiovascular risks, electrocardiogram monitoring is recommended. [4/B]
Ischemic Priapism Management

• Phenylephrine should be concentrated as 100-200 mcg/mL in normal saline and administered intracavernously as 0.5 mL to 1.0 mL. Lower concentrations should be used in children and adults with cardiovascular disease. Dosing may need to be repeated every 5–10 minutes. [4/B]

• Terbutaline oral therapy is not recommended for the treatment of acute ischemic priapism. [3/D]
Ischemic Priapism Management

- Surgical management of ischemic priapism is recommended after repeated penile aspirations and injections of sympathomimetics have failed or if such an attempt has resulted in a significant cardiovascular side effect. [3/B]

- It is recommended that patients be counseled that erectile function outcomes decline significantly when priapism has lasted greater than 24–36 hours and that complete ED is anticipated if priapism persists for greater than 48 hours, without intervention. [3/B]
Ischemic Priapism Management

• The objective of shunt surgery is reoxygenation of the cavernous smooth muscle. The shared principle of shunt procedures is to re-establish corporal inflow by relieving venous outflow obstruction. This requires creation of a fistula between the CC and glans penis, CC and corpus spongiosum, or CC and dorsal or saphenous veins. Shunt procedures are subdivided on the basis of anatomic location on the penis. (Clinical Principal)
Ischemic Priapism Management

• A distal percutaneous cavernoglanular shunt should be the first choice of shunting procedures because it is technically easier to perform than proximal shunting. [3/B]

• Percutaneous distal shunting is less invasive than open distal shunting and may be performed with local anesthetic in the emergency department. [4/C]

• The patient should be counselled about the complications of distal shunting include: wound infection, glans skin necrosis, urethral laceration. [4/B]

• The development of hematuria or blood at the meatus is suggestive of urethral injury and catheter drainage should be initiated. [3/B]
Ischemic Priapism Management

- T shunt is recommended as the first choice for shunting procedures following failed penile aspiration and intracorporal phenylephrine. [3/B]

- T shunt is recommended if ischemic priapism has been present for 24 hours without intervention. Progression to bilateral T shunts and dilator tunneling should be based on failure to detumesce or palpable evidence of distal cavernous thrombus. [3/B]
  - There have been no comparative studies of T shunting or dilator tunneling or a stepwise approach based on duration of ischemic priapism.
  - T shunting has in several contemporary series shown 100% efficacy for ischemic priapism of 24 hours, with diminished efficacy (30%) when initiated after 48 hours of ischemic priapism.
Ischemic Priapism Management

- The key factors to successful surgical reversal of ischemic priapism are evacuation of thrombus, re-establishing cavernous inflow and maintaining patency of the shunt. (Clinical Principle)

- Three suggestions have been made to prevent shunt obstruction and subsequent failure: compressive penile dressings should be avoided; the patient should periodically squeeze and release the distal penis to ‘milk’ the shunt maintaining patency; anticoagulation should be an integral part of ischemic priapism shunting.  [4/C]
  - The literature contains only one such recommendation for perioperative anticoagulation for the prevention of premature shunt obstruction in ischemic priapism.
Ischemic Priapism Management

- Color duplex Doppler ultrasound should be considered in the evaluation of a full or partial erection after interventions for ischemic priapism, if an erect state is evident. [4/C]

- Consideration may be given to immediate implantation of a penile prosthesis for unresolved ischemic priapism for men who have failed penile shunting or who present with > 48 hours of ischemia and have clinical or radiographic (MRI) evidence of penile thrombosis. Consideration should be given to the longest period of ischemia before recommending implantation of penile prosthesis. [3/B]
Ischemic Priapism Management

• Patients should be counselled about the complications related to immediate implantation of penile prosthesis for unresolved ischemic priapism are significantly high. These include infection, urethral injury, device migration or extrusion through shunting sites, and higher rates of revision surgery. [3/B]

• Outcomes counselling: in men presenting with ischemic priapism durations > 36 hours, reversal is associated with significant rates of ED and in men with ischemic priapism > 48 hours complete erectile dysfunction may be inevitable. [3/B]
SCD associated ischemic priapism should be managed with aspiration, alpha adrenergic pharmacologic reversal and distal shunting in a step wise manner consistent with ischemic priapism. [3/B]

In the best interests of the SCD patient the Urologist should seek hematologic consultation and pediatric consultation in the management of men and boys with SCD, but hematologic therapies alone are not effective in the management of SCD priapism. [3/B]

Other specialists should be consulted for consideration of analgesics, hydration, oxygen, bicarbonate and exchange transfusions. Acute neurologic complications may follow exchange transfusions in SCD patients. [3/B]
Recurrent Ischemic Priapism Management

• A trial of daily oral sympathomimetic therapy (alpha adrenergic) may be used in the management of patients (adults and children) with stuttering ischemic priapism associated with hemoglobinopathies. Dosing efficacy should be monitored for frequency and duration of stuttering episodes, blood pressure, and normal erectile capacity. [3/C]

• A trial of daily oral PDE5 inhibitor therapy may be used in the management of adult patients with stuttering ischemic priapism associated with SCD. Dosing should be initiated under conditions of complete penile flaccidity. Dosing efficacy should be monitored for frequency and severity of stuttering episodes, and PDE5 inhibitor side effects and normal erectile capacity. [3/C]
Recurrent Ischemic Priapism Management

- Oral estrogens are not recommended in the management of recurrent ischemic priapism, because of significant cardiovascular risks. [3/C]

- A trial of GnRH agonists or antiandrogens may be used in the management of adult patients with stuttering priapism. Hormonal agents should not be used in patients who have not achieved full sexual maturation and adult stature. [3/C]

- Patients should be counselled that chronic GnRH or antiandrogen dosing in adult males may affect libido, may affect fertility, and cause gynecomastia, hot flushes, promote osteoporosis, and worsen sexual function. [2/B]
Recurrent Ischemic Priapism Management

• A trial of Finasteride may be used in the management of adult patients with stuttering priapism. [3/B]

• Bacolfen is not recommended in the management of recurrent ischemic priapism. [4/B]

• ICI of phenylephrine should be considered as an adjunct to daily systemic therapies in patients with stuttering ischemic priapism. When administered at home for prolonged morning erections, an injection of an intracavernous sympathomimetic may overt a full-blown episode of ischemic priapism. [3/C]
High Flow Priapism Management

• Injection of sympathomimetic agents is not recommended as treatment for arterial priapism. [3/B]
• High flow priapism may be initially managed with observation. [3/B]
  • There are no comparative studies of intervention versus conservative management of high flow priapism.
• There are sufficient case descriptions of high flow priapism resolving in infants and children to recommend initial watchful waiting. [3/B]
High Flow Priapism Management

• Interventions (embolization or surgery) can be performed at the request of the patient, but should be preceded by a thorough discussion of chances for spontaneous resolution, risks of treatment related erectile dysfunction, and lack of significant consequences expected from delaying interventions. [3/B]

• Selective arterial embolization is recommended for the management of nonischemic priapism in patients who request treatment. [3/B]
  • The embolization with either temporary or permanent materials may cause ED.
  • Overall success rates with embolization are high, although a single treatment carries a recurrence rate of 30 – 40%.
High Flow Priapism: Management

• Surgery requires either ligation of a cavernous artery or intraoperative identification of the fistula and excision of the arteriolar-sinusoidal pseudocapsule. Ligation of a cavernous artery may result in ED (Clinical Principal)

• Color Doppler ultrasound guidance is recommended for the surgical management of high-flow priapism. [3/B]

• Pseudocapsule formation may take up to 6 months or more to form following initial trauma. Excision of a pseudocapsule and selective ligation of the fistula is more likely to preserve erectile function. [3/B]

• Androgen ablation may be considered in HFP. [3/C]
  • Androgen ablation, and antiandrogens interrupt sleep related erections and may be used as an adjunct to embolization or expectant management.
Peyronie’s Disease- Pathophysiology
Grade B - Level 3

• Wound healing disorder in a genetically susceptible individual

• Aetiology is unknown - Multifactorial
Peyronie’s Disease: Patient evaluation

Grade B L 4, Clinical principle/expert opinion

• A detailed history should be obtained with specific emphasis on PD characteristics - onset, duration, pain and deformity, erectile function.

• PDQ is a useful tool – it should be validated across different cultures and countries

• Physical examination should include a genital examination - circumcision status, plaque size/location/consistency, stretched penile length.

• Penile deformity can be assessed using digital photography of an erect penis

• An in-office ICI test is recommended prior to an invasive intervention
Colour penile Duplex U/S provides an objective assessment of various PD characteristics and underlying vascular flow parameters.

Routine use of plain x-rays, CT and MRI is not recommended.
Peyronie’s Disease - Oral Therapy

Vitamin E - No benefit PC (Pryor 1983)
Potaba® - Stabilization PC (Weidner et al 2005)
Colchicine No benefit PC (Safarinejad et al 2004)
Tamoxifen No benefit PC (Teloken et al 1999)
Carnitine – No benefit PC (Safarinejad 2007)
Pentoxifylline – Rat - antifibrotic (Gonzalez-Cadavid 2003)
Tadalafil - With LiESWT- No benefit (Palmieri 2012)
Peyronie’s Disease: Oral therapy

Grade B - Level 2

• Published literature showed minimal or no benefit with respect to deformity reduction with any oral therapy
Peyronie’s Disease: Intralesional therapy

- Intralesional injection therapy has shown some outcome benefits in PD management

1. Collagenase  Grade B – Level 2
2. Interferon α2b  Grade B – Level 2
3. Verapamil  Grade C – Level 3
1. LiESWT: No recommendation is possible at this stage due to inadequate or conflicting data  
   Grade B – Level 3

2. Topical Verapamil and iontophoresis is not recommended  
   Grade B – Level 3

3. The use of penile traction therapy may have benefit  
   Grade C – Level 3
Peyronie’s Disease: Surgical reconstruction

- Indication for surgical reconstruction: Expert opinion
- Stable and painless disease for at least 6 months
- Diminished ability to have sexual intercourse due to the deformity and/or inadequate rigidity
- Patient’s preference of a rapid and definitive solution

- Informed consent and outcome expectations are imperative. Clinical principle
  - The risks of persistent or recurrent curvature - functionally straight
  - Penile length loss – esp plication
  - Erectile dysfunction – esp grafting
  - Reduced sexual sensation
Peyronie’s Disease: Plication

• Plication surgery is preferred for men with adequate erectile function (with or without pharmacotherapy) and penile length, moderate curvature and without the presence of hourglass deformity Grade B – Level 3

• No plication procedure has been proven to be superior to its counterpart in terms of outcome and complications Grade B – Level 3

• Plication procedures may be performed with low risk of de novo ED and sensory loss Grade B – Level 3
Grafting procedures is the choice of surgery for men with good erectile function, severe deformity (and/or hourglass) and concern about further penile length loss.

There is no ideal graft although synthetic grafts are not recommended.

Erectile function may deteriorate and penile shortening may occur following graft surgery.

Postoperative penile rehabilitation (using pharmacotherapy and/or traction therapy) may improve the outcome.
Peyronie’s Disease: Penile prosthesis

Grade B – Level 3

• Penile prosthesis implantation should be considered in men with complex penile deformities and/or refractory erectile dysfunction

• Adjunctive intraoperative procedures such as penile modeling, plication or graft surgery should be performed at the time of implantation
Peyronie’s Disease: Future direction

Expert opinion

• Further understanding in pathophysiology
• More RCTs
• Longer term outcomes on complex reconstructive surgery/sliding technique
Penile fracture

• Health providers must suspect penile fracture when a patient presents with penile ecchymosis, swelling, cracking or snapping sound heard during intercourse or manipulation of the erect shaft. Penile fracture may be followed by immediate detumescence. (3/B)

• Surgeons should perform surgical exploration and repair in patients with acute signs and symptoms of penile fracture. (3/B)
Penile Amputation

• Surgeons should perform prompt penile replantation in patients with traumatic penile amputation. Patients should be transported to hospitals with microvascular expertise. The amputated appendage should be wrapped in saline-soaked gauze, in a plastic bag and placed on ice during transport. (3/B)
Superficial Thrombophlebitis of the Dorsal Vein (Mondor’s disease)

• Superficial thrombophlebitis of the dorsal vein of the penis is a rare condition (Mondor’s disease) often associated with penile or coital trauma. It presents with a cord-like induration and pain. The diagnosis may be confirmed with Ultrasound or MRI. The recommended management of dorsal vein thrombosis is symptomatic relief (hot soaks and pain control). (4/C)
Other Penile Trauma

• Surgeons should perform exploration and limited debridement of non-viable tissue in patients with extensive genital skin loss (degloving injury) or injury from infection, animal bites or burns (thermal, chemical, electrical). (3/B)
Penile Incarceration

• Penile incarceration or strangulation is a urologic emergency. The most common causes of penile strangulation are circumferential foreign objects. Constricting objects will result in penile edema, progressive ischemia and ultimately penile tissue necrosis. Immediate removal of strangulating foreign body is recommended with subsequent evaluation of the underlying injury (3/B)
Penile Incarceration
Testosterone Deficiency
Recommendation 1: Definition of Testosterone Deficiency (TD)

- **TD is a clinical AND biochemical syndrome** associated with age and comorbidities (Grade B)
- TD may affect the function of multiple organ systems, and result in significant detriment in the quality of life, including alterations in sexual function (Grade B)
- TD results from defects at various levels of the HPG axis (Grade A)
The clinical manifestations of TD are variable

- The appropriate diagnosis of TD is more likely when all 3 of the following symptoms are present: (Grade A):
  - low sexual desire
  - reduced nocturnal and morning erections
  - ED

- Diminished physical vigor, reduced energy and motivation, fatigue, depressive mood, sleep disturbances are often present (Grade B)

- Visceral obesity is often observed, and muscle mass and bone mineral density are often diminished (Grade A)
**INDICATIONS FOR TESTOSTERONE THERAPY**

**Main reasons for TTh in the adult man**  
*as for ICSM 2009*
- men with substantially depressed serum T concentrations, due to significant disruption of the HPG axis (i.e. post-hypophysectomy; anorchid men; atrophic testes)
- men exhibiting signs or symptoms of age-related TD

Blood test used to confirm the diagnosis of TD is
- total T (clinically)
[even though it is recognized TT is an imprecise measure of bioavailable T]

Still matter of debate
- A 3-6 month trial of empiric therapy may be considered in men with suggestive symptoms but without definitely diagnostic blood test results, since there is no absolute T concentration that reliably distinguishes who will or will not respond to treatment, due to substantial inter-individual variation in T physiology
The U.S. Food and Drug Administration (FDA) cautions that prescription testosterone products are approved only for men who have low testosterone levels caused by certain medical conditions. The benefit and safety of these medications have not been established for the treatment of low testosterone levels due to aging, even if a man’s symptoms seem related to low testosterone. We are requiring that the manufacturers of all approved prescription testosterone products change their labeling to clarify the approved uses of these medications. We are also requiring these manufacturers to add information to the labeling about a possible increased risk of heart attacks and strokes in patients taking testosterone. Health care professionals should prescribe testosterone therapy only for men with low testosterone levels caused by certain medical conditions and confirmed by laboratory tests.

Testosterone is FDA-approved as replacement therapy only for men who have low testosterone levels due to disorders of the testicles, pituitary gland, or brain that cause a condition called hypogonadism. Examples of these disorders include failure of the testicles to produce testosterone because of genetic problems, or damage from chemotherapy or infection. However, FDA has become aware that testosterone is being used extensively in attempts to relieve symptoms in men who have low testosterone for no apparent reason other than aging. The benefits and safety of this use have not been established.

Recommendation 3 : Routine measurement of testosterone in conditions associated with an increased prevalence of low testosterone

• Men presenting with insulin resistance (obesity, T2DM, MetS) and TD signs and/or symptoms should be screened for low testosterone, which is common in these disease states (Grade A)

• Men presenting with infertility should be screened for low testosterone (Grade B)
Recommendation 4: Questionnaires to screen for TD

- Questionnaires are not recommended as a screening tool for hypogonadism due to poor specificity (Grade B)
- The clinical diagnosis of TD should not be based exclusively on questionnaires or structured interviews (Grade B)

Check if you have any of the following:

- 1. Do you have a decrease in libido (sex drive)?
- 2. Do you have a lack of energy?
- 3. Do you have a decrease in strength and/or endurance?
- 4. Have you lost height?
- 5. Have you noticed a decreased “enjoyment of life”?
- 6. Are you sad and/or grumpy?
- 7. Are your erections less strong?
- 8. Have you noticed a recent deterioration in your ability to play sports?
- 9. Are you falling asleep after dinner?
- 10. Has there been a recent deterioration in your work performance?

If you checked question 1 or 7 or any 3 other questions, you may have low testosterone. A simple blood test can determine your testosterone level. Talk with your doctor to see if you should be tested.
Recommendation 5: Laboratory diagnosis of TD

What is the lower limit of NORMAL T?

Endocrine Aspects of Male Sexual Dysfunctions

There are no generally accepted lower limits of normal total testosterone

**Table 2** Biochemical criteria for the definition of male hypogonadism proposed by the different international societies in the field (see references [1,3,4,6])

<table>
<thead>
<tr>
<th>Total testosterone for</th>
<th>EAU, ASA, ISSM</th>
<th>ES*</th>
<th>AACE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe &lt; 8</td>
<td>&lt;2.31</td>
<td>&lt;3.00</td>
<td>2.00</td>
</tr>
<tr>
<td>&lt;10.4</td>
<td>&lt;231</td>
<td>&lt;300</td>
<td>&lt;200</td>
</tr>
</tbody>
</table>

Symptomatic men with serum total testosterone <12 nmol/L should be treated with TTh (Grade C)

*Pituitary imaging is required in the presence of severe secondary hypogonadism (TT < 5.2 nmol/L, 150 ng/dL) and/or panhypopituitarism, persistent hyperprolactinemia, or symptoms or signs of tumor mass effect as headache, visual impairment, or visual field defect.

European EAA = Academy of Andrology; ISA = International Society of Andrology; ISSAM = International Society for the Study of the Aging Male; EAU = European Association of Urology; ASA = American Society of Andrology; ISSM = International Society for Sexual Medicine; ES = Endocrine Society; AACE = American Association of Clinical Endocrinologists.


Recommendation 5: Laboratory diagnosis of TD

The following tests are recommended in patients suspected of having TD:

**Step 1:** Morning serum total testosterone (TT) (Grade A)

**Step 2:** In case of a low T level (< 12 nmol/l, 350 ng/dl or 3.5 ng/ml) (Grade C) 
we recommend:

- To repeat the TT measurement (Grade A) 
[Together with serum LH and prolactin measurements] 
(will be discussed with Committee #8)

- In cases of moderately low or borderline low TT levels, SHBG levels should be assessed (especially in obese or older men) (Grade C) 
(will be discussed with Committee #8)

Male Sexual Dysfunction (ED): 2 concepts!

<table>
<thead>
<tr>
<th>concept:</th>
<th>ED as a symptom</th>
<th>ED as a disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>goal:</td>
<td>Erection “on demand”</td>
<td>Permanent modification of the natural course of the disease: the end of the spectrum being cure.</td>
</tr>
<tr>
<td>instrument:</td>
<td>pharmacotherapy</td>
<td>regenerative medicine</td>
</tr>
</tbody>
</table>

ESWT
SWT mouse ear revascularization

Histology and electron microscopy

Stained non-perfused area as parameter for angiogenesis:

a) before vascular dysfunction
b) immediately after dysfunction as well as after
c) first ESWT,
d) second ESWT
e) third ESWT
f) after follow up within two weeks.

Preclinical Data

In Diabetic Rat SW has the same effect on Erections as Sildenafil

- Mouse penile erection is stimulated by intracavernosal electrical stimulation
- Measurements for GK (diabetic rat with ED) and Wistar (normal rat)
- Both acute sildenafil or Li-ESWT significantly improved erectile responses in GK rats
- Neither treatment restored normal erectile responses

Source: Giuliano et al. ESSM 2015
Surprisingly, this effect is not mediated by a NO/cGMP-dependent mechanism.
Stem cell recruitment by SWT?
First control study on SW and ED

Success according to erection hardness score (EHS) of ≤ 3

IIEF ED Domain scores before and after treatment in both groups
A Doppler US study on 46 ED patients before and after SW treatment

N=16

N=30
Results Hardness Score

EHS (Erection Hardness Score) at baseline and post-treatment

- **Active LIST**
  - Baseline: 18 patients
  - Post-treatment: 20 patients
- **Sham**
  - Baseline: 5 patients
  - Post-treatment: 6 patients

Score distribution:
- 0: 4, 3
- 1: 6, 4
- 2: 6
- 3: 14
Success rate according to MCID
IIEF-EF 2 years Follow Up

<table>
<thead>
<tr>
<th>Time</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m</td>
<td>100.00%</td>
</tr>
<tr>
<td>3m</td>
<td>95.63%</td>
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<tr>
<td>6m</td>
<td>85.13%</td>
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<td>12m</td>
<td>66.21%</td>
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<tr>
<td>18m</td>
<td>62.08%</td>
</tr>
<tr>
<td>24m</td>
<td>51.97%</td>
</tr>
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</table>
Summary

- There’s more to Male Sexual Dysfunction than PDE5i’s
- Surgical approaches were highlighted
- Evolving research and development of novel techniques
- Consensus publication and distribution is the reason we all are SMSNA and ISSM members
- As an Organization this was a major success and speaks to the dynamic nature of our group and colleagues