

## **A Standard for Terminology in Chronic Pelvic Pain Syndromes (CPPS): A Report from the Working Group of the International Continence Society Standardisation Steering Committee (ICS-SSC) on Chronic Pelvic Pain**

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**ABSTRACT:**

**Introduction:** Terms used in the area of chronic pelvic pain are not well defined. Many terms in current use are sometimes conflicting and even confusing. An ICS Standard for Terminology has been developed with the aim of improving diagnosis and treatment of patients affected by chronic pelvic pain, facilitating research, enhancing drug development as well as improving reimbursement of treatment. This document looks at the whole person and all the domains (organ systems) in a systematic way. The standard terms presented are intended to serve as a tool for health care providers, as well as for patients to evaluate chronic pelvic pain

**Methods:** A dedicated working group (WG), instituted by the ICS Standardisation Steering Committee (ICS-SSC), extracted information from existing relevant guidelines and consensus documents as well as from scientific research.

The working group consists of a multidisciplinary group of health care providers, basic science researcher and a patient advocate

The report extracted information from existing guidelines on CPPS. These documents were chosen because they are evidence-based and provide a solid base for this document. ICS standardized terminology was utilized to ensure transparency, accessibility, flexibility, and evolution. Several databases such as MEDLINE and Cochrane were utilized in procuring appropriate information on actual research and terminology. The search on Medline was in relation to each domain and to chronic pelvic pain and went from 1980 -2014. Level-of-evidence (LOE) for the diagnosis of CPPS is difficult to assign because of the patient's individual perception of pain and was only assigned when appropriate and was based on the International Consultation on Urological Diseases (ICUD) LOE guidelines.

**Results:** This standard for terminology for female and male patients with CPPS resulted in definitions of terms within nine domains contributing to CPPS. These 9 domains are: lower urinary tract, female genitals, male genitals, lower gastrointestinal tract, musculoskeletal system, neurological system, biopsychosocial aspects, sexual aspects and concomitant extrapelvic disease. Several terms have been replaced or updated based on recent information from the pain literature. Both the multidisciplinary nature of this document and global considerations have been taken into account in order to reach consensus (General agreement among the working group and consultants) where possible.

**Conclusions:** The document presents preferred terms and definitions for symptoms, signs, and evaluation (diagnostic work-up) of female and male patients with chronic pelvic pain. With regards to the lower urinary tract, pain of bladder origin, consensus was not achieved.

**Key Words:** symptom, sign, syndrome, condition, phenotype, chronic pelvic pain syndrome, domain, lower urinary tract pain, hypersensitive bladder, bladder pain syndrome, interstitial cystitis, Hunner lesion, female genital pain, male genital pain, gastrointestinal pain, musculoskeletal pain, neurological pain, biopsychosocial aspects of pain, sexual dysfunction, and extra-pelvic comorbidities.

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- Sohier Elneil: Speaker Bureau for Allergan and Medtronic.
- Matthew Fraser: President at NeuroUroGastro Preclinical Research Consulting, LLC
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**(Marcus do you have any other person that needs to be recognized?)**

#### INTRODUCTION:

This is the first International Continence Society (ICS) published standard of Chronic Pelvic Pain Syndrome (CPPS)

This document, developed under the auspices of the ICS Standardization Steering Committee, aims to: describe the 9 clinical domains involved in CPPS, define terminology,

develop a workup guideline for each specialty, propose a beginning that will be modified by further development and be complementary to other CPPS standards and guidelines.(1)

Global standardization of terms and clear definitions are essential for scientific and clinical progress. In addition, meaningful coding of diseases, nationally and internationally, is dependent on this being achieved. Inappropriate and unclear coding and definitions have negative effects not only on diagnosis but also on the patient's ability to obtain appropriate treatment, reimbursement and social benefits.

The International Continence Society (ICS) has led the way in the development of standards for terminology for dysfunction of the lower urinary tract. The ICS –SSC therefore appointed a working group to produce a Standard for Terminology of Chronic Pelvic Pain(2).

Chronic pelvic pain is the most common indication for referral to women's health services, and accounts for 20% of all outpatient appointments in secondary care(3)

This leads to a substantial burden on limited health care resources. For example, \$881.5 million are spent per year on its outpatient management in the USA, while an estimated £158 million are spent annually on the management of this condition in the United Kingdom National Health Service(3). CPPS is a multifactorial and multidisciplinary condition and terminology can vary in relation to which specialist is looking at the patient. This document is an attempt to look at the whole person and to consider all the domains involved. Each domain is described separately.

Pain in the pelvic area has urologic, gynecologic, gastrointestinal, musculoskeletal, neurologic and/or rheumatologic etiology. Documents that consider all of the pertinent elements of chronic pelvic pain in a multidisciplinary uniform manner are limited. ISAP has provided taxonomy for chronic pelvic pain (4) The EAU Guideline on Chronic Pelvic Pain provides a comprehensive overview of basic science pertaining to pelvic pain and clinical workup and management of CPPS(5)

The scope of this document is to present ICS standards of terminology for symptoms, signs, diagnostic tests and overall evaluation related to the nine domains of CPP: the lower urinary tract (LUT), female genital tract, male genital tract, gastrointestinal (GI) tract, musculoskeletal system, peripheral and central nervous system, psychological aspects, sexual dysfunction and comorbidities. (see figure 1)

This Standard for Terminology should facilitate future research, enhance drug development, improve cost effectiveness and ensure access by the patient to appropriate treatment, reimbursement and social benefits.

#### Methods:

The working group consists of a multidisciplinary group of health care providers, basic science researcher and a patient advocate instituted by the ICS-SSC. The information was extracted from existing relevant guidelines and consensus documents as well as from

scientific research. Several databases such as MEDLINE and Cochrane were utilized in reviewing articles from 1980-2014.

ICS standard for terminology was utilized to ensure transparency, accessibility, flexibility, and evolution(1). Level-of-evidence (LOE) for the diagnosis of CPPS was difficult to assign based on the International Consultation on Urological Diseases (ICUD) LOE guidelines(2) because of the patient's individual perception of pain.

The working group met at ICS Meetings in Beijing and Barcelona and communicated by telephone conference and the Internet. The WG reviewed and discussed documents that provided historical and research insight into the multidisciplinary approach to the evaluation of female and male CPPS.

The ICS defined symptoms, signs, and syndromes of lower urinary tract dysfunction.(6) Symptoms associated with sexual intercourse and genital and lower urinary tract pain as well as genito-urinary tract pain syndromes were added in the revised standard.(7) The European Association of Urology (EAU) defined chronic pelvic pain syndrome in a Clinical Practice.(5, 8) Likewise, the American Urological Association (AUA) provided guidelines for the diagnosis and the treatment of IC/BPS (9). Terminology for sexual dysfunction, female genital pain and pudendal neuralgia were addressed by the International Urogynecological Association (IUGA)/ ICS joint report on the terminology for female pelvic floor dysfunction(10). The International Association for the Study of Pain (IASP) classified pain in the taxonomy of "organ + pain + syndrome" and applied it to pain of urogenital origin.<sup>5,(11)</sup> The emphasis on syndrome as a condition was intended to allow for consideration of the involvement of the central nervous system, supporting a multidisciplinary approach to CPPS. In 2008, the International Society for the Study of Bladder Pain Syndrome (ESSIC) published diagnostic criteria, classification, and nomenclature for bladder pain syndrome (BPS)(12). The East Asian/Society of Interstitial Cystitis of Japan (SICJ) guidelines introduced the concept of hypersensitive bladder(13). Gastro-intestinal disorders were classified by the Functional Gastro-Intestinal Disorder Society (FGIDS) in the Rome III Diagnostic Criteria(14).

Extensive discussions on nomenclature, especially regarding the terms Hypersensitive Bladder (HSB), Interstitial Cystitis (IC), IC/BPS, BPS/IC or BPS, took place in the WG. The group was unable to reach consensus. These discussions in part focused on the risk of inadequate patient care if diagnostic terminology is changed without looking at the practical impact of its application on the patient in terms of access to appropriate treatment, reimbursement and social benefits.

The following definitions were developed by the IASP and adapted by the ICS (4)

#### A. Taxonomy of pain

**i. Pain:** A subjective phenomenon described as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage(4).

- a. Nociceptive pain: pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors.
- b. Somatic pain: arises from bone, joints, muscles, skin or connective tissue and is normally aching or throbbing and well localized.
- c. Visceral pain: arises from visceral organs, involvement of the organ capsule with aching and is localized. Obstruction of hollow viscus, which causes intermittent cramping and is poorly localized(15).
  - i. Nociceptive: direct injury or lesion of an internal organ such as: bladder stone, surgical injury.
  - ii. Inflammatory: acute/chronic inflammation of an internal organ such as urinary tract infection, pelvic inflammatory disease, colitis, endometriosis.
  - iii. Neuropathic: primary lesion of visceral nerves such as neuritis following mesh placement.
- d. Centrally generated pain: deafferentation pain: Injury to either the peripheral or central nervous system, burning pain below the level of the lesion. It can be sympathetically maintained pain which results in chronic regional pain syndrome (CRPS). There is increased responsiveness of nociceptive neurons in the central nervous system to normal or sub-threshold afferent input.
- e. Hypersensitivity: increased nerve activity from a standardized stimulus with an expected tissue/clinical response. The underlying mechanism remains to be defined.
- f. Central sensitization:(16) nociceptor sensitization results in synaptic strengthening by incoming afferent volleys (sensitization) and is expressed as hyperalgesia (hypersensitivity- a form of non-associative learning characterized by an increase in responsiveness upon repeated exposure to a stimulus) (17).

B Chronic Pelvic Pain - Chronic pelvic pain is characterized by persistent pain lasting longer than six months or recurrent episodes of abdomino-perineo-pelvic pain, hypersensitivity or discomfort often associated with elimination changes, and sexual dysfunction often in the absence of organic etiology (18).

C Pain Experience - According to the most common views, pain constitutes the internal perception of bodily damage. It is unknown whether chronic pelvic pain syndrome (CPPS) is primarily an abnormal perception of a normal stimulus or a normal perception of an abnormal physiologic sensory stimulus. Diagnosis is often based on the presence of clinical symptoms. The diagnosis of CPP is confirmed by applying symptom-based criteria and pursuing further diagnostic evaluation to exclude organic disease. Validation of symptom-based criteria is a process; it is not carved in stone and is easy to change as new data emerge on its underlying pathophysiology(4).

D Psychology of Pain - Pain is modulated by cognitive factors and emotional experience, memory, attention, and context represented in descending modulation of pain, affecting pain experience moment to moment and longer term. Pain has an impact on many aspects of daily life, affecting mood, sleep, relationships and activities. Therefore, attention to the psychological aspects of pain is an important part of effective assessment and treatment (19).

E Neurobiology of Pain - Alterations in gut and bladder motility, visceral perception and central processing of pain and motor function due to abnormalities in the visceral and central nervous systems may account for the symptoms. The brain-visceral axis and biopsychosocial model have been used to explain how intrinsic and extrinsic stimuli modulate disease expression(4).

### **Symptoms and signs of CPPS**

- A. **Symptom:** The subjective indicator of a disease or change in condition/syndrome/phenotype as perceived by the patient, caregiver or partner which may lead him/her to seek help from healthcare professionals(7). The main symptom in CPPS is pain and will be described in relation to its domain and its perception  
Complaint: what the patient describes when prompted by the physician
- B. **Sign:** a sign is objective evidence of a disease/syndrome/condition discovered on examination of the patient. It may be anatomical, functional, sensory, or perceived. Signs are elicited during the physical examination of the patient in order to identify pain generators. To evaluate and discover all the signs, a full evaluation of the pelvis and body is necessary as multiple intra and extra-pelvic organ systems are commonly involved. It is necessary to attempt to identify all of the pain generators(11, 12).
- C. **Syndrome, Disease:** A syndrome is a complex of concurrent symptoms and signs that is collectively indicative of a disease, dysfunction or disorder. Example CPPS is CPP in the absence of obvious pathology.  
A disease is: a disordered or incorrectly functioning organ, part, structure, or system of the body resulting from the effect of genetic or developmental errors, infection, poisons, nutritional deficiency or imbalance, toxicity, or unfavorable environmental factors; illness; sickness; ailment(20).

Some Domains of CPPS may be a syndrome or disease, example Irritable Bowel Syndrome (IBS) versus Crohn's Disease

### **D. Characteristics**

- a. **Duration of Pain**  
6 months or more of persistent pain.
- b. **Location of pain**  
Pelvis, lower abdomen, low back, medial aspect of thigh, inguinal area.
- c. **Perception of pain**  
Patients may describe the pain as sharp, burning, aching, shooting, stabbing, pressure or discomfort, sexual pain (dyspareunia). Some patients describe pain as an ache, soreness or just discomfort and, in situations of cultural differences, this may influence perception of pain. For example, some

patients call it discomfort, an unpleasant sensation or pressure and do not consider this to be pain. Pain begins with a stimulus, but is influenced by physiological and psychological factors before it becomes part of our consciousness. Memories, emotions, thoughts, expectations and culture are now believed to influence how people perceive pain(21).

d. Modality of pain

Continuous and/or persistent,  
Cyclic and/or recurrent, episodic

E. **Phenotype:** Expression of specific symptoms, signs and diagnostic parameters:  
Example: Hypersensitive Bladder (HSB), Bladder Pain Syndrome (BPS) and Interstitial cystitis (IC) maybe different phenotypes of LUT pain related to the bladder (EAU reference)

Phenotyping is currently in its infancy with regard to evidence and will increase in importance in the future to aid in identifying specific patient pools for research and treatment(5, 22).

Table 1. Evaluation of chronic pelvic pain syndromes (23),

## **SECTION 1: SYMPTOMS**

The first and most important step is to obtain a thorough history of the patient's perception of her/his pain or discomfort. The common complaints are the most prevalent symptoms. Ask about duration (6 months), perception (identify inciting event and/or triggers) and modality (persistent/recurrent).

### **I. Lower Urinary Tract**

#### **A. Bladder**

Common complaints: urgency, frequency, nocturia, pain, pressure, discomfort, hesitancy, intermittency, incomplete emptying, incontinence, dysuria

Hypersensitivity related to the bladder provides an umbrella for hypersensitive bladder, interstitial cystitis/bladder pain syndrome, and interstitial cystitis.

As there are cultural differences in perception and experience of pain, the WG agreed to distinguish:

1. Hypersensitive Bladder (Asian guidelines)(13)
  - Hypersensitive bladder (HSB) symptoms (increased bladder sensation, usually associated with urinary frequency and nocturia, with or without bladder pain) without obvious pathology explaining the symptoms(24)
  
2. Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS)
  - Persistent or recurrent chronic pelvic pain, pressure or discomfort perceived to be related to the urinary bladder accompanied by at least one other urinary symptom like an urgent need to void or urinary frequency(12) .
  
  - Symptoms vary considerably and are often insidious. Most patients complain of only one urinary symptom and then may develop the full picture over time.
  
  - a. Pain in IC/BPS: pain, pressure or discomfort
  
  - b. Possible locations of perceived discomfort and pain
    - i. Pelvis
    - ii. Lower Abdomen
    - iii. Low Back
    - iv. Medial Aspects of the Thigh

- v. Inguinal Area
  - vi. Frequently patients reported multiple pain sites(12)
- c. Perception of Pain(5)
- i. Sharp
  - ii. Burning
  - iii. Ache
  - iv. Shooting
  - v. Stabbing
  - vi. Pressure
  - vii. Discomfort
- d. Perception of Urgency
- viii. A compelling need to urinate driven by unpleasant sensation (pain, pressure, discomfort)(5, 7, 25) that can be persistent or episodic(12, 26)

3. Interstitial Cystitis (IC) symptoms are the same as IC/BPS. The WG did not achieve consensus regarding the diagnostic terminology of IC/BPS and IC as a potentially separate diagnostic entity.

B. **Urethra** Pain is experienced most often in the urethra, usually with voiding, with day and night time frequency. It may be in combination with a feeling of dull pressure, and sometimes radiating towards the groin, sacral and perineal area(8) (25)

**The terms chronic urethritis and urethral syndrome are no longer used (IASP)(5, 11)**

1. Persistent or recurrent episodic pain
2. No history of infection or other obvious pathology
3. May be subsequent to a previous urinary tract infection

## **II Female Genital**

Common complaints: painful menstruation, abnormal bleeding, pain with intercourse (dyspareunia), discharge, burning, itching, stabbing pain, abdomino-perineal-pelvic pain (unilateral or bilateral, continuous or cyclic).

Female genital pain is generally defined as pain perceived in the pelvis, pelvic organs, the vagina and/or the female external genitalia(5)

Differential diagnosis needs to be considered to rule out treatable diseases.

Generalized vulvar pain syndrome definition: vulvar pain syndrome in which pain and/or burning cannot be repeatedly localized by point-pressure 'mapping' via

probing with a cotton-tipped applicator or similar instrument(27). Pain is diffuse and may affect all locations of the vulva.

## **A. Vulvar, Vestibular and Clitoral Pain**

Pain in the vagina or the external genital organs (vulva, which includes the labia, clitoris and entrance to the vagina). Previously defined as vulvodynia, it is now considered as chronic vaginal/vulvar pain syndrome(5).

Pain is described as sharp, burning, aching and/or stabbing in nature.

### **1. Generalized Vulvar Pain Syndrome (28)**

- i.** Diffuse vulvar pain perceived to be in the vestibule or beyond
- ii.** Dyspareunia
- iii.** Provocation of Pain with touch, pressure or frictions.

*The terms “Dysesthetic Vulvodynia” and “Essential Vulvodynia” are no longer recommended.*

### **2. Localized Vulvar Pain Syndrome (28)**

Pain usually is provoked with touch, pressure, or friction); example tight clothing, bicycle riding, tampon use, sexual activity)

- i.** Vestibular Pain Syndrome - Pain localized to one or more portions of the vulvar vestibule book

*The terms Vulva/Vulvar Vestibulitis, Vestibulodynia and Focal Vulvitis are no longer recommended.*

- ii.** Clitoral Pain Syndrome - Pain localized to the clitoris or perceived in clitoris.

## **B. Intra-Abdominal Female Pain**

### **1. History of abdomino-pelvic pain that can be cyclic or persistent**

- i.** Dysmenorrhea, abnormal menstrual bleeding
- ii.** Voiding/defecatory dysfunction
- iii.** Dyspareunia

Differential diagnosis and treatable diseases: A history of infection (Pelvic Inflammatory Disease (PID)), sexually transmitted disease, endometriosis, adenomyosis or fibroids, and Mullerian Abnormalities.

2. Ovary-Unilateral cyst (disease), residual ovary syndrome (post-operative)

- i. Unilateral abdomino-pelvic pain
- ii. Cyclic
- iii. Persistent

3. Pelvic Congestion Syndrome

- i. Pressure, heaviness, dull aching pain in the pelvis and/or in the back
- ii. Dysmenorrhea

**C. Pelvic Floor Pain (5)**

History of Childbirth injuries, pelvic organ prolapse, pelvic organ malignancy, pelvic surgery

- i. Urinary/defecatory dysfunction
- ii. Dyspareunia (see also VIII Sexual aspects)
- iii. Pain with sitting
- iv. Bulge
- v. Vaginal discharge, bleeding
- vi. Organ and/or nerve injury related to surgery(10)

**III Male Genital**

Male genital pain syndromes/conditions are often associated with symptoms suggestive of lower urinary tract and sexual dysfunction.

Common complaints: genital pain, dysuria, sensation of residual urine, frequent voiding, weak stream and urgency, dyspareunia(5, 28).

**A. Prostate Pain**

Persistent or recurrent episodic prostate pain, associated with symptoms suggestive of urinary tract and/or sexual dysfunction. No proven infection or other obvious pathology is present to account for the symptoms. Using the National Institutes of Health classification system, prostate pain syndrome may be subdivided into type A (inflammatory) and type B (non-inflammatory)(29).

Based on a more general definition, the term prostate pain syndrome (PPS) is used by the European Association of Urology (EAU) instead of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) term *chronic prostatitis/chronic pelvic pain syndrome*.

*The terms "Chronic Prostatitis" and "Prostatodynia" should no longer be used.*

- i. Bladder, perineal, testicular, penile or groin pain
- ii. Perception of Pain: Variable
- iii. Persistent or recurrent
- iv. Dyspareunia or erectile dysfunction
- v. Voiding dysfunction (hesitancy, intermittency, dysuria)

## B. Scrotal Pain

Chronic scrotal pain (generic term used when site of pain is not clearly testicular or epididymal) occurring at any age, but the majority in the mid to late thirties (30) and it may be disabling and associated with anxiety about cancer.

- i. Persistent or recurrent episodic pain, unilateral or bilateral
- ii. Spontaneous, or reproduced by digital pressure and physical activities
- iii. Pain is not in the skin of the scrotum but perceived within its contents
- iv. Lower urinary tract symptoms or sexual dysfunction
- v. No history of epididymo-orchitis or other obvious pathology such as herniorrhaphy or vasectomy

## C. Epididymal Pain

Pain is more specific and localized to the epididymis and may be associated with a congestive epididymitis, after vasectomy. It can result from a mechanical pressure more often than an inflammatory condition.

- i. Persistent or recurrent episodic pain
- ii. Spontaneous, or reproduced by digital pressure and physical activities
- iii. Lower urinary tract symptoms or sexual dysfunction
- iv. No history of infectious epididymitis or other obvious pathology (7)

## D. Testicular Pain

Pain is localized to the testis and could be explained by neural plasticity when subsequent to a trauma or disease and this phenomenon can result from the amplification of the pain messages at all levels of nervous system (11).

*The previous terms "Chronic Orchitis", Orchalgia" or "Orchiodynia" should no longer be used.*

- i. Persistent or recurrent episodic pain
- ii. Spontaneous, or reproduced by digital pressure and physical activities
- iii. Lower urinary tract symptoms or sexual dysfunction
- iv. No history of orchitis or other obvious pathology

## E. Penile Pain

Pain within the penis that is not primarily in the urethra. The commonest site for referral to the penis is from the bladder outlet. A basic classification for pain perceived in the penis is based both on structure and function and may be:

- i. Persistent or recurrent
- ii. Spontaneous, or reproduced by digital pressure and physical activities
- iii. Lower urinary tract symptoms or sexual dysfunction

iv. No history of infection, trauma or other obvious pathology

#### F. Urethral Pain (See also I)

#### G. Sexual Pain (dyspareunia) and erectile dysfunction (see also Section VIII)

The penis is a somato-neurovascular organ whose primary function is reproduction through erection and ejaculation.

1. Intercourse Pain (Dyspareunia)
  - i. Penile
    1. Prior to penetration
    2. with penetration
    3. Post coital
  - ii. Perineal
    1. During intercourse
    2. After intercourse
  - iii. Orgasmic Pain
    1. Penile
    2. Anorectal
    3. Pelvic
    4. During ejaculation

#### IV Gastro-Intestinal

Common complaints: constipation, diarrhea and dyssynergic defecation pain with defecation, bleeding, discharge, cramping abdominal pain, recurrent rectal pain, rectal pressure, burning sensation or aching episodes.(30)

#### A. Anorectal (8) (28)

1. Chronic Proctalgia - rectal pain, more than 20 minutes of duration, for at least 3 months with symptom onset at least 6 months prior to diagnosis.
  - i. Persistent or recurrent rectal pain
  - ii. Rectal pressure or aching episodes
  - iii. Exclusion of other causes of rectal pain
2. Levator Ani Syndrome (see V)
  - i. Pain with sitting
  - ii. Pain with defecation(31)
3. Proctalgia Fugax
  - i. Recurrent severe episodic pain localized in the anus or lower rectum
  - ii. Duration seconds to minutes
  - iii. No pain between episodes(31)

Consider Differential Diagnosis and Treatable Diseases:

4. Anal Fissure (32)
  - i. Bright red bleeding with bowel movements
  - ii. Anal pain or spasms that can last hours after bowel movements (32)
  - iii. Pain with sitting
  
5. Abscess
  - i. pelvic rectal pain
  - ii. Tenesmus (33)
  - iii. Pain with sitting
  
6. Hemorrhoids(34) ((35, 36)
  - i. anal discomfort with engorgement
  - ii. Pain and itching
  - iii. Lump in perianal area
  - iv. Pain with defecation
  - v. Internal Hemorrhoids- painless bleeding, mucus discharge, incomplete evacuation
  - vi. External Hemorrhoids- Anal discomfort with engorgement, pain and itching.
  - vii. Thrombosed External Hemorrhoids- Exquisitely painful lump in the perianal area. The pain tends to be acute at onset. Typically following straining at the time of bowel movement or physical exertion.
  
7. Anorectal Crohn's Disease- May be asymptomatic, with possible anal pain during flare (37)

## **B. Colorectal (ROME III)**

1. Irritable Bowel Syndrome (IBS) Functional (non-inflammatory)
  - i. Recurrent episodes of abdominal pain
  - ii. Changes in frequency, form or consistency of the stool
  - iii. Sensation of incomplete evacuation, straining, urgency (38)
  - iv. Sensation of nausea, fatigue, fullness, vomiting
  - v. Recurrent abdominal pain or discomfort at least 3 days/ month in the last 3 months associated with two or more of the following:
    1. Improvement of pain with defecation
    2. Onset associated with change in frequency of stool
    3. Onset associated with a change in the form (appearance) of stool(31)
  
2. Inflammatory Bowel Disease (IBD)- Complaint of recurrent abdominal pain and discomfort of at least 3 days per month in the last three months. The majority of IBD patients experience periods of flares and remission
  - i. Abdominal and anal pain, diarrhea which may be associated with blood, suggestive of ulcerative colitis
  - ii. Abdominal pain, fatigue, prolonged diarrhea with crampy abdominal pain, weight loss, and fever, with or without gross bleeding. (Irregular bowel

habits, with possible blood in the stool, are suggestive of Crohn's disease(31)

## **V Musculoskeletal**

Musculoskeletal pain may originate from muscle, fascia, ligaments, joint or bones

Common Complaints: abdomino-pelvic pain, pain with sitting or with movement or with change of posture, with sexual activity, unilateral or bilateral pain. Possible pain with voiding or bowel evacuation.

### **A. Pelvic Muscle Pain (Simon and Travell reference) (See also IV)**

1. Pelvic Floor Muscle Pain (Pelvic Floor Myalgia)
  - i. pain in the muscles of the pelvic floor (perineal or levator ani)
2. Intra-pelvic Muscle Pain
  - i. pain in the pelvic side wall muscles (obturator internus, piriformis, coccygeus)
3. Anterior Pelvic/Lower Abdominal Muscle Pain
  - i. pain in the rectus abdominus, oblique or transverse abdominus muscles, described below the umbilicus
4. Posterior Pelvic/Buttock Muscle Pain
  - i. pain in the gluteal muscles

### **B. Coccyx Pain Syndrome**

- i. Complaint of chronic or recurrent pain in the coccyx or sacro-coccygeal joint

### **C. Pelvic Joint, Ligament, or Bony Pain**

1. Joint pain
  - i. Sacroiliac or pubic symphysis joint
2. Ligament pain
  - i. Sacro-spinous or Sacro-tuberous ligament
3. Bony pain
  - i. Pain described in or along the margins of the pubic ramus, ilium, ischial spine or ischial tuberosity

## **VI Neurological (39)**

Common complaints: Burning, throbbing, stabbing, electrical, tingling, stinging and paresthesia pain in the pelvis and/or perineal region. There may be a change in skin color and temperature.

**A. Somatic Neuropathic Pain** - Nerve injury (stretching, blunt trauma, compression, entrapment, suture ligature)

**1. Sacral Nerve Root**

- i. Pudendal neuralgia is a disabling form of pelvic pain. It is related to a ligamentous nerve compression mechanism. This pain is associated with the second stage of labor, sacrospinous vault suspension, vaginal laceration repairs, prostatectomy, straddle injuries, prolonged motorcycle riding, and laser treatment to the vulva, scrotum and/or perineum
  - 1. Unilateral or bilateral
  - 2. Lancinating burning pain in the clitoris, penis, urethra, labia, scrotum, perineum and/or anus
  - 3. Worse with sitting
  - 4. Relieved by standing

**2. Thoracolumbar Nerve**

Irritation of the thoracolumbar facet joints causes pain referred to the distribution of nerves T12, L1 and L2. This results in pain to the iliac crest and buttock. It can present as buttock pain alone (40)

- i. Ilioinguinal nerve
  - 1. Pulling or throbbing that limits physical activity (groin, labia scrotum inner thigh)
  - 2. Frequently after abdominal or pelvic incisions
- ii. Iliohypogastric nerve
  - 1. pulling or throbbing sensation that limits physical activity (suprapubic area and groin)
  - 2. Frequently after abdominal or pelvic incisions
- iii. Genitofemoral nerve (41)
  - 1. burning, paresthesia and pain (groin, labia or scrotum, medial thigh)
  - 2. Frequently after abdominal or pelvic incisions
- iv. Obturator nerve
  - 1. Medial thigh or groin pain
  - 2. Weakness with abduction

**B. Complex Regional Pain Syndrome(42)** (CRPS)- Sympathetically maintained, centrally generated pain.

1. CRPS1- Triggered by tissue injury with no underlying nerve injury
2. CRPS 2- Associated with nerve injury
  - i. Burning pain
  - ii. Increased skin sensitivity
  - iii. Changes in skin temperature, changes in skin color
  - iv. Changes in skin texture

Consider Differential Diagnosis and Treatable Diseases:

**C. Pain Following Mesh Surgery (43, 44)**

- i. Pain during physical activity
- ii. Dyspareunia
- iii. Vaginal discharge
- iv. Presence of mesh in vagina

**D. Post-herpetic Neuralgia (45) (46)**

- i. spontaneous pain over the dermatome of the infected nerve
- ii. Blistering rash corresponding to a nerve root
- iii. Burning, shooting, stabbing, or electric shock-like pain
- iv. Itching, numbness or pins and needles in the area of the rash

**VII Psychological Aspects (Biopsychosocial)**

Common complaints: worry, anxiety, low mood, frustration, sleep disturbance, helplessness, hopelessness, difficulty in concentrating, pain impairing enjoyment. These all have biopsychosocial aspects . (47).

Psychological as a biospsychological aspect distress is most often a consequence of persistent pain, although existing distress is likely to exacerbate the experience of pain and difficulties dealing with it. Findings support growing evidence that the negative affective, cognitive and psychosocial state of chronic pain is universal, regardless of a neuropathic or nociceptive nature. Emotions, thoughts and behavior involve many different locations in the brain and multiple psychological processes are involved in neuromodulation of pain (47, 48).

1. Worry, Anxiety, Fear: Pain is interpreted as a message of something seriously wrong with the body at the point where the pain is felt, consistent with models of severe acute pain. Without an explanation of chronic pain, anxiety is likely to persist and results in attempts to avoid activities which exacerbate the pain or are expected to do so.
2. Depression and depressed mood: This is predominantly pain-related and concerns loss of valued activities and roles as a result of pain. Difficulty sleeping, difficulty concentrating, helplessness and hopelessness about finding a solution to the pain or a way of living a worthwhile life despite pain are common.

3. Catastrophizing: a tendency to overattend (magnification) to pain stimuli, with overestimation of the threat value and underestimation (hopelessness and helplessness) of the capacity to deal with the threat.

## **VIII Sexual Aspects**

Common Complaints: Low sex drive, inability to become aroused, pain with intercourse, difficulty reaching orgasm.

Sexual dysfunction is a disturbance in the sexual response cycle or pain associated with sexual intercourse, and can take a heavy psychological toll; it is associated with depression, anxiety, and debilitating feelings of inadequacy (49). It is appropriate to investigate for possible history of sexual/physical abuse.

Dyspareunia is a biopsychosocial phenomenon that can have physical and psychosocial implications for the individual as well for the relationship (50). Decrease in self-esteem, depression, anxiety, fatigue, and the need to use pain and other medications increase the likelihood of one or more of the disorders.

Superficial or entry dyspareunia is often associated with provoked vestibulodynia (vulvar vestibular pain syndrome). Deep or thrusting dyspareunia often occurs in association with lower urinary tract pain, musculoskeletal pain, gastrointestinal pain, as well as abdomino-perineo-pelvic pain(51) (52).

Female and male sexual function is adversely affected in most patients with chronic pelvic pain, resulting in more than one concomitant disorder. More than 50% of partners are significantly affected and develop sexual dysfunction.

### **A. Sexual Desire Disorder (DSM IV TR) (53) (54)**

1. Hypoactive Sexual Desire Disorder (HSDD)
  - i. Low sex drive,
  - ii. An absence of sexual fantasizing or erotic thoughts
  - iii. No longer feeling aroused or excited during sex
  - iv. A substantial decrease in sexual activity with partner, persisting for more than 6 months

### **B. Sexual Aversion Disorder**

- i. Persistent or recurring aversion to, or avoidance of sexual activity
- ii. When presented with a sexual opportunity, the individual may experience panic attacks or extreme anxiety

### **C. Sexual Arousal Disorder**

- i. Persistent or recurrent inability to become sexually aroused

- ii. Often characterized by inadequate vaginal lubrication for penetration (female)
- iii. Inability to achieve or maintain an adequate erection for penetration (male)
- iv. Symptoms present for more than 6 months
- v. Now combined with HSDD in females. (DSM-5)(53)

#### **D. Orgasmic Disorder**

- i. Difficulty or delay in reaching orgasm, after sufficient sexual stimulation (female)
- ii. Premature or delayed ejaculation (male)
- iii. Present for more than 6 months

#### **E. Sexual Pain Disorder**

##### 1. Dyspareunia

- i. Female sexual pain: Burning, ripping, tearing, or aching sensation associated with penetration. The pain can be at the vaginal opening, deep in the pelvis, or anywhere between. It may also be felt throughout the entire pelvic area and the sexual organs and may occur only with deep thrusting
- ii. Male Sexual Pain: Male sexual pain: Sexual activity may induce a central sensitization process characterized by hypersensitivity or hyperalgesia. The penis is a somato-neurovascular organ whose primary function is reproduction enabling erection and ejaculation.

History should include duration of symptoms, identification of disorder, impact on quality of life, and partner relationship. Partner interviews may be very helpful as erectile dysfunction, delayed or premature ejaculation in males with hypoactive sexual desire disorder result in a 4-30 times increased risk of female partner desire, arousal or orgasmic disorder.

There is currently a transition from DSM-IV-TR to DSM-5 but there is insufficient evidence to adopt the DSM-5 terminology at the moment.

### **IX Comorbidities Outside The Pelvis**

Patients with chronic pelvic pain, in particular with interstitial cystitis/bladder pain syndrome (IC/BPS), have a higher prevalence of several syndromes and diseases outside the pelvis than the general population. These include: allergies, non-cancer chronic pain, fatigue syndromes and systemic autoimmune diseases.

The risk of a comorbidity in patients affected by IC/BPS is usually between 2 and 10 times higher than in a healthy population. However, data from studies on comorbidities in chronic pelvic pain patients are difficult to interpret as the composition of study populations and methodology are highly variable. Information

on the prevalence of comorbidities is therefore often obtained from studies on IC/BPS (55) (56-58) (59)

## A. Allergies

Allergies are a heterogeneous group of diseases with involvement of the airways, skin and sometimes of other organs. Examples are asthma, rhinitis, urticaria, atopic dermatitis and anaphylaxis (an acute hypersensitivity reaction that involves two or more organ systems, with or without urticaria, or by hypotension with or without other system involvement). Symptoms are caused by an immunologic reaction to some kind of trigger (*e.g.* inhaled allergens such as dust mite allergen, pet dander, pollen, mold, food, drugs). Nonallergic reactions to drugs or food may cause symptoms similar to allergic reactions (60). Symptoms of allergies depend on the type and site of the allergy. Examples are:

1. Allergic Asthma: coughing, wheezing, shortness of breath, rapid breathing, chest tightness
2. Allergic rhinitis (hay fever): congestion, itchy runny nose and itchy, watery or swollen eyes (conjunctivitis)
3. Atopic dermatitis (eczema): itchy skin, red skin, flaking or peeling
4. Allergic drug reactions: hives, itchy skin, rash, facial swelling, bronchospasm, anaphylaxis
5. Allergic food reactions: a tingling mouth, swelling of the lips, tongue, face or throat; hives, anaphylaxis; atopic dermatitis(61)

## B. Chronic Pain and Fatigue Syndromes

Chronic pain and fatigue syndromes are characterized by pain, often widespread; fatigue; sleep disturbances; and disability. The symptoms are usually medically unexplained, have no known pathophysiology or organic basis and show no abnormal laboratory or imaging investigations. The literature suggests that many of these conditions share demographic characteristics, clinical course and psychosocial profiles (62). Examples are:

1. Fibromyalgia: symptoms are widespread musculoskeletal pain, fatigue, non-restorative sleep, psychological distress, and regions of localized tenderness
2. Temporomandibular Joint Disorders: symptoms consist of complaints of facial, jaw, neck, or shoulder pain. The pain is experienced in or around the ear with chewing, speaking, or opening the mouth, with or without migraine
3. Chronic Fatigue Syndrome: is defined as clinically evaluated, unexplained, persistent or relapsing fatigue plus four or more specifically defined associated symptoms (self-reported impairment in short term memory or concentration; sore throat; tender cervical or axillary nodes; muscle pain; pain in multiple joints

without redness or swelling; headaches of a new pattern or severity; unrefreshing sleep) (63)

### C. Systemic Autoimmune Syndromes/Diseases

Systemic or generalized autoimmune diseases are a heterogeneous group of diseases with multi-organ involvement and evidence indicating a role played by the immune system in the pathogenesis. Examples are systemic lupus erythematosus (SLE), Sjögren's syndrome, and rheumatoid arthritis (RA). Many patients can be diagnosed with more than one of these diseases, or also with fibromyalgia and irritable bowel syndrome.

1. Systemic Lupus Erythematosus (SLE). Most frequent symptoms are debilitating fatigue, arthritis, red skin lesions after sun exposure such as a red butterfly lesion of the face, pericarditis and pleuritis, glomerulonephritis. The prevalence is 10x higher in females than in males and 2x more frequent in non-white people.
2. Sjögren's Syndrome is a systemic autoimmune disease characterized by a functional disorder of the tear and salivary glands, with or without signs of inflammation. The most common symptoms are irritation of the eyes, a dry mouth, muscle and joint pain, (debilitating) fatigue and Raynaud phenomenon.
3. Rheumatoid Arthritis (RA) is a disease characterized by chronic symmetric polyarthritis resulting in painful swelling of the joints. Other symptoms are morning stiffness, rheumatoid nodules and typical changes on hand and wrist radiographs.

- D. **Extraintestinal Manifestations of Inflammatory bowel disease (IBD)** include non-destructive arthritis of large joints or axial arthritis such as sacroiliitis, inflammation of the eyes (uveitis, scleritis), or inflammation of the skin (erythema nodosum, pyoderma gangrenosum)(64)

## SECTION 2: SIGNS

### **Signs / Generalized Physical Examination:**

A common physical examination should be performed, including palpation of the lower abdomen for bladder fullness and tenderness, and a complete pelvic exam to identify pain generators and referred pain patterns:

1. Observe posture, gait and protective behaviour (avoiding sitting on flat surface or standing to avoid sitting, neck folding posture)
2. Standing: kyphosis, scars, hernia
3. Supine: abduction/adduction of the hips, hyperaesthetic areas, scars, hernia
4. Comprehensive pelvic examination for female and male

5. Pain mapping (identification of pain generators/trigger points and referred pain)(27)

## **I Lower Urinary Tract**

### **A. Bladder/Urethra**

1. Suprapubic tenderness
2. Tenderness of the bladder
3. Tenderness of the urethra
4. Tenderness of the pelvic floor muscles and identification of trigger points(26).

## **II Female Genital (5)**

### **A. Vulvar, Vestibular and Clitoral Pain**

Generalized vulvar pain syndrome refers to a vulvar pain syndrome where the pain/burning cannot be consistently and precisely localized by point-pressure 'mapping' via probing with a cotton-tipped applicator or similar instrument. Pain is diffuse and may affect all locations of the vulva. The vulvar vestibule (part of the vulva which lies between the labia minora into which the urethral meatus and vaginal introitus open) may be involved, but the discomfort is not limited to the vestibule.

1. Localized and Generalized Vulvar Pain Syndrome
  - i. Tenderness, Q-Tip touch sensitivity test (27)
  - ii. Erythema (localized or generalized)
  - iii. Fissures
  - iv. Ulcers

### **B. Intra-abdominal female pain**

1. Uterine and Tubal Pain
  - i. Uterine tenderness
  - ii. Cervical discharge, cervical excoriation, tenderness, adnexal tenderness, erythema
  - iii. Extrauterine tenderness, decreased uterine mobility, adnexal mass
  - iv. Enlarged uterus, nonspecific tenderness
  - v. Abdominal or pelvic scars, neuroma
2. Ovarian; Adnexal mass, tenderness, abdomino-pelvic scar
3. Pelvic Congestion Syndrome: Labia varicosities, non-specific abdominal tenderness
4. Cervical Pain: Erosion, Nabothian follicles, discharge, bleeding

### **C. Pelvic Floor Pain**

1. Perineal scarring, neuroma, dermal cutaneous allodynia
2. Tenderness (local and referred)
3. Vaginal discharge, mesh extrusion (10)
4. Bulging,
5. Mass, radiation changes

## **III Male Genital**

A comprehensive physical examination should be performed in standing (example: exclusion of varicocele) and supine positions, including observation and palpation with pain mapping (identification of pain generators) of the external male genitals and rectal examination. Tenderness might be graded as mild, moderate or severe. Physical examination of the external male genitals and rectal examination of the prostate must be performed.

### **A. Prostate Pain**

1. Tenderness on rectal examination
2. Possible urethral discharge

### **B. Scrotal Pain**

1. Tenderness on physical examination
2. Change in color
3. Masses on palpation
4. Scars post-vasectomy
5. Allodynia (increased perception of pain)

### **C. Testicular Pain**

1. Tenderness
2. Masses, nodules

### **D. Penile Pain**

1. Tenderness
2. Curvature
3. Nodules/plaque

### **E. Urethral Pain**

1. Tenderness
2. Discharge curvature
3. Nodules/plaque

## **IV Gastro-Intestinal**

### **A. Anorectal**

1. Chronic Proctalgia- Identification of tenderness on rectal exam<sup>3</sup>
2. Levator Ani Syndrome- Identification of tenderness during posterior traction on the puborectalis
3. Proctalgia Fugax- Usually with no evident sign book
4. Anal Fissure- Identification of separation of the anoderm, sentinel tag at the external apex, exposed internal sphincter muscle, hypertrophy anal papilla at the internal apex (32).
5. Abscess- Identification of fluctuant collections in the perianal tissues, drainage (fistula) (33)
6. Hemorrhoids- Identification of skin tags, thrombosis, prolapse on straining (reducible and irreducible)
  - i. Internal: Located proximal to the dentate line and covered by columnar epithelium
  - ii. External: Located distal to the dentate line and covered by modified Squamous epithelium (anoderm)
  - iii. Thrombosed: Painful lump in the perianal area (35) (36)
7. Anorectal Crohn's Disease- Identification of skin tags, hemorrhoids, fissures, anal ulcers, strictures, abscess, fistula, severe proctitis (37).

## **B. Colorectal (IBS, IBD)**

1. Abdominal Tenderness
2. Watery or bloody diarrhea
3. Rectal bleeding
4. Weight loss
5. Fever

## **V Musculoskeletal**

The musculoskeletal structures are examined for signs of tenderness and altered tension or abnormal movement. The technique of examination may include digital palpation and should be well described.

Varying reliability has been found from pelvic floor muscle (PFM) studies assessing pain and tension using digital palpation scales (65) (66) (67) (68). Patients that present with alteration in the musculoskeletal structure need to be referred to a Physical Therapist well trained in the treatment of CPPS.

1. **Muscle tone:** In normally innervated skeletal muscle, tone is comprised of both 'active' (contractile) and 'passive' (viscoelastic) components. Muscle tone is evaluated clinically as the resistance provided by a muscle when a pressure / deformation or a stretch is applied to it(69-71) Muscle tone may be altered in the presence or absence of pain. There is no single accepted or standardised way to measure muscle tone, and there are no normative values.
  - a. hypertonicity: is a general increase in muscle tone that can be associated with either elevated contractile activity and / or passive stiffness in the muscle(69,

- 72). As 'hypertonicity' can also be used to describe increased muscle tone of neurogenic origin, the term 'increased tone' is preferred when the cause is non-neurogenic.
- b. **hypotonicity:** is a general decrease in muscle tone that can be associated with either reduced contractile activity and / or passive stiffness in the muscle. As 'hypotonicity' can also be used to describe decreased muscle tone of neurogenic origin, the term 'decreased tone' is preferred when the cause is non-neurogenic.
2. **Stiffness:** Stiffness is the resistance to deformation (73) Passive elastic stiffness is defined as the ratio of the change in the passive resistance or passive force ( $\Delta F$ ) to the change in the length displacement ( $\Delta L$ ) or  $\Delta F / \Delta L$ (74) .
  3. **Compliance:** Passive compliance is defined as the reciprocal of muscle stiffness (73, 74). It represents the compressibility of a muscle, clinically assessed by pressing a finger (palpation) into it to determine how easily it is indented and how 'springy' it is.
  4. **Tension:** may have a similar meaning to tone and stiffness. Muscle tension can be increased or decreased due to exogenous factors such as the amount of pressure applied and endogenous factors such as thickness/ cross sectional area of the muscle itself, fluid present within the muscle (swelling, inflammation), or increased neural activity.
  5. **Spasm:** persistent contraction of striated muscle that cannot be released voluntarily. Occurs at irregular intervals with variable frequency and extent (75). Spasm over days or weeks may lead to a contracture.
    - a. **Contracture:** is an involuntary tightening of a muscle. Clinically, a muscle cramp and contracture may appear similar, however contractures are electrically silent (76)
  6. **Cramp:** a muscle cramp is a painful involuntary muscle contraction that occurs suddenly and can be temporarily debilitating. Pain is intense and localised. It tends to occur when the muscle is in the shortened position and contracting, is generated by the motor unit, and displays a high firing rate (20 – 150 Hz) (Preston & Shapiro 1998, p181). Muscle cramp either during or immediately after exercise is commonly referred to as "exercise associated muscle cramping"(77), however cramps are not specific to exercise.
  7. **Fasciculation:** A fasciculation is a single, spontaneous, involuntary discharge of an individual motor unit. The source generator is the motor unit or its axon, prior to its terminal branches. Fasciculations display an irregular firing pattern of low frequency (0.1 – 10 Hz) (Preston & Shapiro 1998, p187). Clinically, fasciculations are recognised as individual brief twitches. They may occur at rest or after muscle contraction and may last several minutes.

8. **Trigger point (TrP):** a tender, taut band of muscle that can be painful spontaneously or when stimulated (78). The taut band is electrically silent. Local or referred pain may be reproduced. An active TrP is said to have a characteristic “twitch” response when stimulated, however the twitch response to palpation has been shown to be unreliable (79). The most reliable sign of a TrP is sensitivity to applied pressure.

## **VI Neurological ((28)**

1. Tenderness on palpation corresponding to the nerve distribution
2. Pain mapping (reproduce pain on palpation)
3. Identify referred pain by palpation
4. Possible skin changes (color, blistering, temperature)

## **VII Psychological (Biopsychosocial) Aspects**

Observation by the provider may reveal anxiety and/or depressed mood, avoidance or reduction of activities which exacerbate pain or are believed by the patient to carry a risk of increasing the pain or causing harm.

Expression of helplessness and hopelessness (feeling of despair and representing ‘the internal belief that one cannot manage one’s pain’)(47, 48).

## **VIII Sexual Aspects (53)**

A patient with sexual pain often has one or more other sexual dysfunctions including desire disorder, arousal disorder or orgasm disorder.

In most cases the physical examination will not identify the specific etiology of sexual dysfunction. However, a focused and comprehensive pelvic examination in females and males is mandated. In addition, assessment of the secondary sexual characteristics should be performed.

Blood pressure, heart rate, peripheral pulses, edema, lower extremity strength, and vibratory sensation is almost always helpful

### **A. Sexual Desire Disorders(See Male and Female Examination)**

1. HSDD-Observe for signs of depression and relationship issues (See VII)

### **B. Sexual Arousal Disorders (General Health Evaluation, see above)**

### **C. Orgasmic Disorder (See VI)**

### **D. Sexual Pain Disorder (See II and III)**

## **EVALUATION**

The level of Evidence for evaluation of the domains of CPPS is 4-C in the areas where it is different it will be stated .

### **Pain evaluation and measurement (8)**

#### *Pain evaluation*

Examination and investigations provide understanding of the pain syndrome and exclude other conditions. Pain rating(s) are essential in patient evaluation.

Pain evaluation includes:

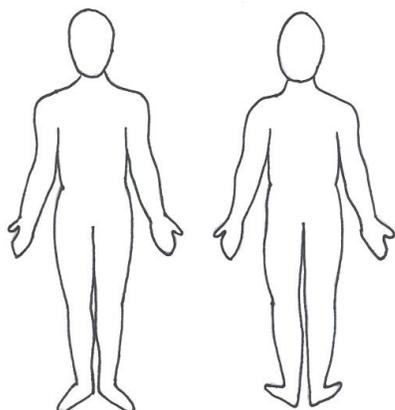
- Baseline and ongoing regular evaluation of severity, quality of life, questions about thoughts, emotions and behavior associated with the pain (questionnaires).
- Investigations to identify well-defined/confusable/non-pain syndromes.

#### *Pain measurement (reference)*

Pain can is a subjective and personal perception. One of the most common well-understood method is the widely used visual analogue scale (VAS)(80), which is a 10-cm line from "0" no pain to "10" extreme pain. Also a simple verbal rating scale can be used, e.g. 'none', 'mild', 'moderate', 'severe'.

0	1	2	3	4	5	6	7	8	9	10
No pain										Extreme pain
Not unpleasant										Extremely unpleasant

Pain Mapping utilizing a pain body chart(81)



As pain is multidimensional, it can be helpful to assess separately pain intensity, pain distress, and interference of pain with activities of daily life.

Pain evaluation involves additional pain mapping by identifying pain generators through diagnostic procedures. These include an evaluation by administering questionnaires, EMG, Q-tip touch sensitivity testing, trigger point injections, nerve blocks and imaging.(Kauffman)

**CPPS pain evaluation** identifies the presence of disease, syndrome subsequent to the history (symptoms) and physical examination (signs). Many of the questionnaires have not been studied and validated in patients with CPPS. The main assessment is still a thorough history and a full and accurate physical examination followed by pain mapping and other studies as indicated.

## **I Lower Urinary Tract**

### **A. Questionnaires**

1. Voiding diary with volume intake and output for 3 days at initial evaluation. Patient sensation at voiding might be recorded. At follow-up only the number of voids during day and night time is necessary. Morning volume might be recorded as a help to monitor highest functional capacity (82).(LOE:2-C)
2. The O'Leary–Sant Symptom Score(83) might be used as basic symptom score supplemented with the Quality of Life Score from the International Prostate Symptom Score(84) (LOE: 2-C)
3. Pain should be recorded using a Visual Analogue Scale (VAS)(80) or a Likert scale for pain during the last 24 hours and over the last month (to fit with the voiding diary). Separate scores for the average, mildest and worst pain might be obtained.

#### **B. Laboratory Testing**

1. Urine Dipstick (red blood cells, pH, leucocytes, nitrite)
2. Urine Culture in all. If sterile, pyuria culture for tuberculosis, in high risk patients
3. Urine Cytology high risk patients
4. Investigations for Ureaplasma and Chlamydia are optional

#### **C. Potassium Testing**

*Not recommended (9)*

#### **D. Anesthetic Challenge**

An Anesthetic Challenge may be useful in pain mapping to identify the bladder and or the urethra as a pain generator. A solution of lidocaine and sodium bicarbonate administered intravesically results in reduction of pain. Alkalinized lidocaine instillation has not been validated, but may be useful(85)

#### **E. Urodynamics**

The NIDDK criteria excluded patients with detrusor overactivity at filling cystometry in order not to confuse the picture in clinical trials(86) .

However, this does not mean that detrusor overactivity cannot coexist with interstitial cystitis/bladder pain syndrome. In the interstitial cystitis database, approximately 14% of IC/BPS patients had detrusor overactivity(87)

In males, bladder outlet obstruction might be a differential diagnosis (88) and it is recommended to perform flowmetry in all males and pressure-flow studies in men with a peak flow rate below 20 ml/seconds

In females, flowmetry, post void residual urine volume should be considered and the pressure-flow study is optional. It is recommended to perform filling cystometry if the flowmetry suggests voiding dysfunction. The demonstration of pain may identify the bladder and/or urethra as a pain generator.

#### **F. Cystoscopy**

Needs to be done for patients with hematuria (89) and to identify Hunner lesions

1. ESSIC standardized the procedure for cystoscopy and hydrodistension(12)
  - i. A rigid cystoscope is preferred to facilitate taking adequate biopsies. Glycine or corresponding filling fluid should be used to allow for coagulation after biopsies. Infusion height should be approximately 80 cm above the Symphysis Pubis. A dripping chamber is used and the bladder is filled until fluid dribbling stops. If necessary, a digital block is applied around the urethra to prevent leakage. Pre-distension inspection includes observation for radiating vessels, coagulum or fibrin deposits, white spots, hyperaemia, edema, cracks, scars or any other mucosal changes. Continuous inspection while filling the bladder is advised. When maximum capacity is reached, the distension is maintained for 1-3 minutes. The bladder is emptied and the color of the fluid checked for the degree of bleeding. The total volume drained is the measured maximum bladder capacity. During a second filling, the bladder is filled to approximately 1/3rd to 2/3rd of the bladder capacity to achieve optimal vision for inspection and biopsies. The bladder should not be filled to maximum capacity or distended again to avoid further provocation of changes with doubtful reproducibility.

**Cystoscopic findings** by hydrodistension are

important in subclassification of IC/BPS, *see for example* the ESSIC classification(12).

The classic cystoscopic picture of IC as an “elusive” bladder lesion (Hunner lesion) with a corresponding cystoscopic appearance of patches of red mucosa exhibiting small vessels radiating to a central pale scar was described by Hunner in 1915(90). In 1978, A. Walsh described punctuate petechial hemorrhages as glomerulations, observed after hydrodistension (91). Despite the fact that Walsh questioned the specificity of glomerulations, from that moment on glomerulations nevertheless became the primary cystoscopic feature of IC (92). However, not all patients with symptoms of BPS have glomerulations (and far from all patients with glomerulations have symptoms of IC/BPS.) (93)

The finding of a Hunner lesion is clinically much more important because effective treatment is available (94) (95).

The presence of Hunner lesions may be the diagnostic finding of the proposed disease “Interstitial Cystitis”.

- ii. Glomerulation

Often during cystoscopy with hydrodistension, glomerulations, with or without waterfall lesions can be observed (which can be observed while emptying the bladder), the significance of this finding needs to be further evaluated (91). Global consensus regarding glomerulation remains to be determined.

### iii. Hunner Lesion



Fig 1 Hunner Lesion

A Hunner lesion is not an ulcer but an inflammatory infiltrate. The finding of a Hunner lesion has been somewhat subjective.

A Hunner lesion is a distinct cystoscopic finding and typically presents as a circumscribed, reddened mucosal area with small vessels radiating towards a central scar, with a fibrin deposit or coagulum attached to this area. This site ruptures with increasing bladder distension, with petechial oozing of blood from the lesion and the mucosal margins in a waterfall manner. A rather typical edema may develop post-distension with varying peripheral extension. Usually, lesions are multiple but occasionally they may be single. It is not unusual for more lesions to be detected at re-inspection than seen at the initial phase of distension(12).

### iv. Morphologic findings in Hunner Lesion

1. Inflammatory infiltrate with electro-resection or by cold cup biopsy

2. Lymphocyte-like cells dominate in the infiltrate, but neutrophilic and eosinophilic granulocytes as well as plasma cells and mast cells are also found
3. Perineural and perivascular arrangement of lymphocyte-like cell infiltrates
4. Granulation tissue (96) (97)  
To a large extent, the detection rate and the findings on distribution of mast cells have been dependent on laboratory routines and staining as well as fixation techniques. Tryptase staining methods provide a stable result that is not sensitive to laboratory variations (98) (99)

Consensus regarding the significance of glomerulation remains to be determined on the basis of further investigations.

#### G. **Differential Diagnosis** (Confusable, treatable diseases)

Criteria for diagnosis are needed as the target disease may be confused with other treatable diseases (confusable diseases) because of similar features(12).

#### H. **Ketamine Cystitis**

A number of studies have been published on the potentially devastating effects on the urinary tract of recreational ketamine abuse. Bladder symptoms include urinary frequency, dysuria, bladder pain and hematuria. The molecular mechanism for ketamine-induced cystitis is unknown. The affected bladder exhibits a denudation of the urothelium with inflammatory cell infiltration. The upper urinary tract is also damaged in patients who use a higher dose and with a longer duration. Attention by both medical organizations and social workers for this increasing social phenomenon is now urgently needed (100, 101).

## **II Female Genital**

### **A. Vulvar, Vestibular and Clitoral**

1. Questionnaires
  - i. Visual Analog Scale for pain(80)
  - ii. Female Sexual Function Index (FSFI) (54)
  - iii. Female Sexual Distress Scale (FSDS) (102)
2. Laboratory Testing
  - i. Culture
  - ii. Biopsy
3. Diagnostic Testing
  - i. Vulvoscopy, with or without biopsy
  - ii. Quantitative Sensory Testing (Q-tip touch sensitivity test) (27) (103)

### **B. Intraabdominal Female Pain**

1. Questionnaires
  - i. Visual Analog Scale(80) for pain
2. Laboratory Testing
  - i. Culture
  - ii. CBC
3. Laparoscopy (with or without biopsy)
4. Ultrasound
5. MRI
6. Venography (to r/o Pelvic Congestive Syndrome) (104)

### **C. Pelvic Floor Pain**

1. Questionnaires
  - i. Visual Analog Scale for pain (80)
  - ii. Pelvic Floor Distress Inventory (PFDI) (105)
  - iii. Prolapse and Incontinence Sexual Questionnaire (PISQ) (106)
2. Laboratory Testing
  - i. Wet Mount, Culture
  - ii. Possible biopsy
3. Imaging References
  - i. Ultrasound (4D if available for visualization of mesh)
  - ii. MRI (with or without defecography)
  - iii. Defecography

## **III Male Genital**

### **A. Prostate Pain (LOE 2-B)**

1. Questionnaires
  - i. Voiding Diary (107)
  - ii. CPSI (Chronic Prostatitis Symptom Index)(108)
  - iii. Visual Analog Scale for Pain (VAS)(80)
2. Laboratory Testing
  - i. Urinalysis (including Post-Massage)
  - ii. Urine Culture Post-Massage
  - iii. Semen Culture
3. Uroflowmetry, Post voiding residual volume, pressure flow (PF) study
4. Cystoscopy
5. Ultrasonography, with or without biopsy

### **B. Scrotal, Testicular, Epididymal, Penile Pain**

1. Questionnaires
  - i. Visual Analog Scale for Pain (VAS)(80)
2. Ultrasonography

### **C. Urethral Pain**

1. Questionnaires
  - i. Voiding Diary<sup>7</sup>

- ii. Visual Analog Scale for Pain (VAS)(80)
- 2. Laboratory Testing
  - i. Urinalysis (including Post-Massage, Ureaplasma/Chlamydia as appropriate)
- 3. Ultrasonography
- 4. Urethroscopy/Urethrography

#### **D. Sexual Pain (See Section VIII)**

- 1. Questionnaires
  - i. Visual Analog Scale for Pain (VAS)(80)
  - ii. International Index of Erectile Function (IIEF) (109)

#### **IV Gastro-Intestinal (34) :**

- 1. Questionnaires
  - iii. Rome III Questionnaire (110)
  - iv. Colorectal Rectal Stress Inventory (111)
- 2. Laboratory Testing
  - i. Culture
  - ii. Stool Evaluation for ova and parasites
  - iii. Antibody testing
  - iv. Biopsy
- 3. Diagnostic Testing
  - i. Anorectal Manometry (dyssynergia/paradoxical contraction of the pelvic floor muscles when instructed to strain during defecation)
  - ii. Rigid or flexible endoscopy (Anorectal sigmoidoscopy) with or without piopsy
  - iii. Anorectal/Pelvic US, 3D
  - iv. Barium Enema
  - v. CT Scan, Defecography, MRI defecography

#### **V Musculoskeletal (112)**

##### A.

- 1. Questionnaires:
  - i. McGill Pain Questionnaire (113)
  - ii. [Pelvic Floor Distress Inventory](#) (PFDI)(105)
  - iii. Female Sexual Dysfunction Index (FSFI)(54)
  - iv. Female Sexual Distress Scale (FSDS) (102)
- 2. Pain Location Drawing (Pain Mapping)
  - i. Pain Chart body map (81)
- 3. Evaluation of Muscle Tension
  - i. Pressure manometry is the measurement of resting pressure or pressure rise generated during contraction of the pelvic floor muscles

using a pressure device (a manometer) inserted into the urethra, vagina or anus. The tool has been used as an outcome measure in intervention studies of pelvic floor pain. (114) (115). However, the tool has not been tested for reliability in this population.

- ii. Surface electromyography (sEMG) refers to the bioelectrical activity generated by muscle fibres. Pelvic floor muscle surface electrodes use either flat interface perineal electrodes, or intra-vaginal / intra-anal probes to record sEMG either at rest or during a PFM contraction. Surface EMG is considered to be non-specific to the PFM. Because of the large surface area covered by the electrode, cross-talk from adjacent muscles often occurs (116) (117). It is therefore not considered reliable as a measure.
- iii. Dynamometry is the measurement of pelvic floor muscle resting and contractile forces using strain gauges mounted on a speculum (a dynamometer), which is inserted into the vagina(118).
- iv. Real-time ultrasound measures pelvic floor muscle morphology and function via a non-invasive (trans-abdominal or trans-perineal) probe. Trans-perineal measures of ano-rectal angle and levator plate angle have been tested for reliability in a male pelvic pain population (119) Therefore, this tool shows promise as an instrumented method to evaluate pelvic floor muscle changes in pelvic pain.
- v. Elastometry measures the elasticity of a tissue. It has recently been applied to measure the passive stiffness of puborectalis in asymptomatic women and shown to be reliable in this pilot study (120). However, it requires testing to establish application in a pelvic pain cohort.

4. Trigger point injection or needling has been used as a diagnostic test to identify pain generators.

The taut band(s) of sarcomeres within the TrP can be identified by ultrasonography(121) and magnetic resonance elastography (122) A tissue compliance meter which measures stiffness in the taut band has been shown to confirm the hardness of the discrete band of muscle that harbors the tender region in peripheral skeletal muscle(123).

5. Imaging:
  - i. X-Ray
  - ii. Ultrasound

## **VI Neurological**

### **A. Neuropathic Pain Questionnaire**

1. VAS Pain Questionnaires (80)
2. PainDETECT (Validated for CPPS evaluation)(124)

3. Leeds Assessment for neuropathic symptoms and signs (not validated for chronic pelvic pain)(125)
4. Douleur Neuropathique 4 Questionnaire (126)

#### **B. Quantitative Sensory Testing**

1. Q-tip touch sensitivity
2. Sensory pain mapping (27)
3. Reflex evaluation
4. Electromyography

#### **C. Nerve Blocks**

1. Under Computed Tomography or Ultra sound or EMG guidance may be done (127, 128)

#### **D. Imaging**

1. Ultrasound (41)
2. Magnetic resonance Imaging (MRI)

### **VII Psychological (Biopsychosocial )Aspects (47) (48)**

The chief purpose of psychological assessment is to get a complete picture of the pain syndrome with all affected dimensions: somatic, affective, cognitive, and behavioral and the individual consequences for the patient. Direct questioning about the patient's view of what is wrong or what worries her/him is more helpful than questionnaires.

Early referral to a psychological healthcare provider should be considered. Patients with sexual dysfunction may need sexual counseling.

1. Questionnaires
  - i. SF-12 or SF-36 (129)
  - ii. Brief Pain Inventory (130)
  - iii. Catastrophizing Questionnaire can be a consideration in certain cases (131)

### **VIII Sexual Aspects**

1. Questionnaires (LOE 3-B)
    - i. Female Sexual Function Index (FSFI) (54)
    - ii. Female Sexual Distress Scale (FSDS)(102)
    - iii. International Index of Erectile Function (IIEF) (132)
  2. Laboratory Testing
- B. Hormone Panel**
- i. Complete Metabolic Panel
  - ii. Culture
  - iii. Imaging

## 2. Doppler US to assess blood flow

It is also exceedingly important to work up the partner's potential sexual dysfunction. Early referral to a sexual counsellor is optimal.

### **IX Evaluation of Comorbidities outside the pelvis**

If patients have signs of comorbidities, it is appropriate to refer to the relevant specialist.

### **SUMMARY**

This is a Standard for Terminology in Chronic Pelvic Pain Syndromes prepared by the working group of the SSC of the ICS.

This ICS document should help to improve diagnosis of patients, facilitate development of treatment protocols and research to enhance drug development, identify phenotypes and develop animal models.

Each of the nine domains contributing to CPPS has been discussed separately with the aim of keeping the document organized. It is important to understand that each person should be evaluated with consideration of both the end organ and the central nervous system, since referred pain, crosstalk, neuroplasticity and perception of pain are believed to play a major role in the development of CPPS. It is imperative to consider not only the medical but also the biopsychosocial aspects of CPPS. The impact on the patient affected by CPPS can result in unemployment and disability and is an enormous biopsychosocial and financial burden for the patient, the family and for society.

During the preparation of this document, global consensus was not achieved in the domain of lower urinary tract pain. Perception of pain and discomfort varies. In Asia, urologic pelvic discomfort is currently described as hypersensitive bladder, while in the western world it is usually described as pain related to the bladder or bladder region. This document proposes to reserve the term interstitial cystitis (IC) for patients who have Hunner lesions at cystoscopy. Hypersensitive bladder syndrome (HSB) and Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) if there is no Hunner lesion at cystoscopy. Multicenter longitudinal studies are needed to understand how and if HSB or IC/BPS evolve into IC or are phenotypes thereof. While there may be a change in nomenclature in the future, many of the authors felt that it was still too early to take this step.

Global agreement on nomenclature of female and male genital pain was achieved and the "old" terminology (orchalgia, vulvodynia etc.) is no longer recommended. As the pelvic organs are controlled by the central nervous system, there is often involvement of the urogenital, gastrointestinal and musculoskeletal systems concomitantly. Therefore, it is essential to perform a complete evaluation of the entire pelvis. Since chronic pelvic pain can be neuropathic, it is essential to perform a neurological evaluation. Pain is a perception of a sensation and is personal and influenced by many internal and external factors. Pain is not a

psychological disease, but the psychological aspects need to be taken into consideration. Sexual dysfunction is common in patients with CPPS and should be addressed as part of the evaluation along with the partner's concerns.

The risk of a comorbidity in patients with CPPS is usually between 2 and 10 times higher than in the healthy population. Comorbidities include allergies, fatigue syndromes, systemic autoimmune diseases and other pain Syndromes.

This Standard for Terminology for CPPS will continue to evolve as research continues such as the Multidisciplinary Approach for the Study of Chronic Pelvic Pain (MAPP) (133-135) and level of evidence will be more regularly achieved.

Clearly, extensive phenotyping beyond patient-reported symptom clusters, such as responses to evocative stimuli, comorbid conditions, biomarkers and genome wide associations are required to identify subpopulations of patients in order to facilitate more etiology-driven therapeutics directed at treating the syndrome/disease and the whole person rather than only treating the symptoms. Extensive phenotyping of patients will also facilitate the development of pertinent animal models, by increasing our understanding of the underlying disease processes so that they may be reproduced in animal models. This will facilitate the preclinical development of therapeutic strategies to treat chronic pelvic pain.

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