**Sample Templates**

**Imaging Protocol**

**General Instructions:** Patient empties bladder prior to procedure. Patient on stretcher with water resistant pad placed beneath buttocks in dorsal lithotomy position. Patient preferentially in a partially upright position or sitting position to improve “straining” or Valsalva manoeuvres. Access to perineum may be improved by elevating patient hips or using gynecology stretcher.

Additional suggestions include:

* Rectal emptying by using one simple rectal enema up to 1 hour before the examination.
* An adult diaper with a opening for probe access can be worn to protect the patient from any leaked material during the US examination instead of water resistant pad.

**System Requirements for Pelvic Floor Ultrasound**

* 2D ultrasound system with cine loop function, typically a 3-6 MHz curved array transducer
* 3D/4D system
	+ Permit imaging axial plane (also called C-plane or rendered view plane)
		- Assess integrity of puborectalis muscle (3D), anterior mesh/slings
		- Assess urogenital hiatus (4D)
	+ Systems designed for prenatal diagnosis are typically well suited
	+ Typically want minimum 70-90 degree aperture with acquisition angle of at least 70 degrees to permit visualization of levator hiatus in real-time.

**Probe Selection: Translabial or Transperineal access**

Typically, convex probe with multifrequency range, generally in C5-1 range although higher frequency such as C4-8 may be useful. When available, a 3D probe is utilized with similar frequency ranges. On rare occasion a transvaginal probe may be required, follow usual preparation of probe.

Probe is covered with gel followed then covered with a barrier (commercial plastic barrier, condom sheath, non-latex glove) as per site infectious disease parameters. Utilize rectal type gel packets to minimize vaginal mucosal irritation. The probe is then placed transperineal (translabial) between llabia majora.

**Minimum Images Required:**

**A. At Rest**

Sagittal or longitudinal images: (2D or 3D transducer)

1. Midline image with landmarks of pubis, urethra, vagina and anorectum junction.

2. Cine-loop capture from right across midline to left, to include from obturator foramen on both sides.

* Select static images in 1-2 cm increments of this range.

 Coronal Images: (2D or 3D transducer) ( 90 degree orthogonal to sagittal midline position)

1. Anterior to posterior from pubic symphysis (anterior) to rectum (posterior)

* Select static images, minimum 5 equidistant.
* Cine-loop capture from anterior pubic symphysis to posterior of the rectum.

**B. Dynamic Images**

Sagittal or longitudinal cineloops (2D or 3D transducer)

1. Midline image with landmarks of pubis, urethra, vagina and anorectum junction aligned.
* Perform pelvic floor muscle contraction or Kegel manoeuvre while monitoring in plane of minimum dimension
	+ Requires several attempts to practice and encourage with feedback
	+ Attempt to sustain for 10 seconds
	+ Precede strain manoeuvre in order not to impede subsequent imaging
* Perform Valsalva manoeuvre +/- cough manoevre( see addendum on how to obtain optimal Valsalva manoeuvre) in plane of minimum dimension.
	+ Requires several attempts to practice and encourage with feedback.
		- Attempt to sustain, reassure patient that urine, gas or fecal incontinence is okay and part of the study.
	+ May require 2 acquisitions as follows:
		- Anterior compartment with probe titled off the symphysis to minimize compression of pelvic floor consequent minimizing of pelvic organ prolapse.
		- Posterior compartment with probe more posterior in perineum.
	+ Ensure probe is lightly co-apted to perineum with gel in order not to impede pelvic organ prolapse.

**C. Series of 3D Images: REST (recommended in setting anterior, suburethral mesh)**

1. Obtain midline image with landmarks of pubis, urethra, vagina and anorectum junction aligned. Acquire a 3D volume (settings include maximum angle and highest quality) at rest.
* Place render box in plane minimum dimension from pubic symphysis to anorectal junction
* Check alignment in A,B, C views then acquire multiplanar images with rendered view.
* Obtain C plane/axial MPR reformats in volume slice mode at 1cm increments/depth through area of interest.
* Landmarks to include are the pubic symphysis anterior and the levator ani sling lateral and posterior.

**Series of 4D Images: Valsalva (recommended)**

1. Obtain a midline image with landmarks of pubis, urethra, vagina and anorectum , place render box in plane of minimum dimension and acquire 4D while perform Valsalva manoeuvre.

2. Measure urogenital hiatus circumference before and after Valsalva manovre.

3. Sling implants assess rotation around fulcrum of pubic bone

**Additional Comments: In the setting of Mesh**

* Ensure all mesh is included in cineloops obtained in sagittal dimension.
* Ensure all mesh is identified as center in rendered images and multiplanar C-images.

**Appendix #2: Sample Sonographer Worksheet and/or reporting template**

**Sample Relevant Clinical Questions to be filled by patient, sonographer and/or physician**

**Recommended to be part of Sonographer Worksheet**

**Demographic & Risk Factors**:

Age \_\_\_\_\_

Parity \_\_ Vaginal Delivery (Number) \_\_\_\_ Prolonged Second Stage Labor Yes No

**Surgical History**

 Bladder Date\_\_\_\_ Details\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Mesh Date\_\_\_ Details\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Suspension Date \_\_\_ Details\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Hysterectomy Date\_\_\_ Details \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Symptoms**

 Urinary Stress Incontinence Urge incontinence Obstructed Urination Leakage Dysuria Dysparunia Pressure

 Prolapse Fecal incontinence Constipation Obstructed defecation

 Recurrent UTI

 Pain if Yes, comments \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Sample Pelvic Floor Ultrasound Report: Sonographic Findings**

**Routine:**

Post Void residual: Small Moderate Large

Destrusor Muscle Thickness (Obtained base Bladder) \_\_\_ mm

Debris within Bladder Yes No

Urethra Orientation Rest\_\_\_\_\_\_ Stress\_\_\_\_\_\_

Urethrovesical Angle Rest\_\_\_\_\_\_ Stress \_\_\_\_\_

Anorectal Angle(degrees) Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bladder neck position in relation to inferior margin pubic symphysis (cm)

Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 No cut off for descent, values ranging 15-30mm.

Bladder neck diameter(mm) Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Cystocele Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rectocele Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pelvic Organ Prolapse Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Anterior Compartment Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Middle compartment Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Posterior compartment Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Lateral herniation

Urogenital Hiatus Rest\_\_\_\_\_\_ Stress \_\_\_\_\_ Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enterocele No Yes Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sigmoidocele No Yes Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rectal Intussception No Yes Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rectal Gas/Fecal incontinence No Yes Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pelvic Floor Contraction(Kegel) Coordinated Non-co-ordinated Sustained \_\_ seconds

 Narrow UG hiatus Uplift Urogenital Hiatus

 Correct prolapse

Mesh Suburethral TVT TOT Residual

 Fragment Deshiscient Eroded into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Midurethral

 Comments\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Urethra Diverticulum No Yes Description\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other Description \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Optional**

Anal Sphincter Anatomic Assessment – Defects in internal +/- external sphincter

**Opinion: Include but not limited to**

 Incontinence – Type

 Prolapse – Type

 Mesh - type, complication

 Pelvic floor contraction – would benefit from biofeedback.