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Establishing an Institutional Gonadal Tissue Cryopreservation Protocol for Patients with Differences of Sex Development

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BEST CHILDREN'S HOSPITALS U.S.News & WORLD REPORT RANKED IN 10 SPECIALTIES 2019-20

MAGNET RECOGNIZED AMERICAN NURSES CREDENTIALING CENTER

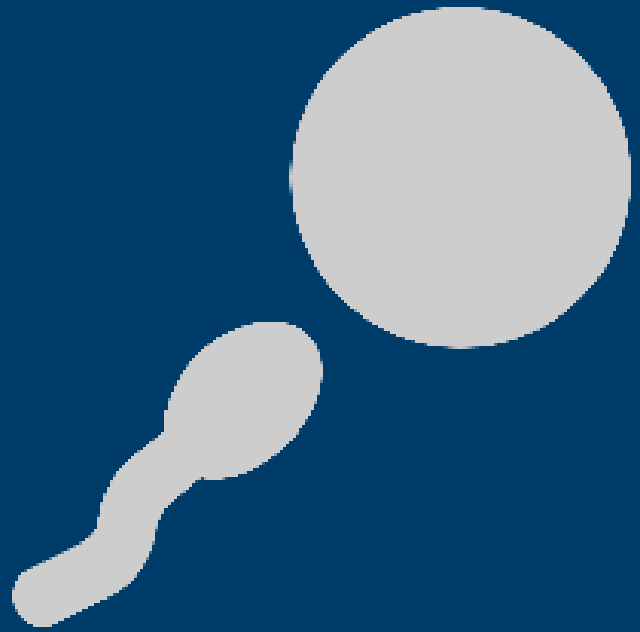
Disclosures

- All authors have nothing to disclose.

Background

- Advances in fertility preservation (FP) for oncology patients have paved the way for patients with other fertility-threatening diagnoses

- Patients with certain differences of sex development (DSD) diagnoses may have biological fertility
  - E.g, androgen insensitivity, 45X, 46XY



(Guercio et al, Endocrinol Metab Clin North Am 2015, Johnson et al. Transgender Health 2016, Van Batavia et al. J Pediatr Urol 2016, Finlayson et al. J Pediatr Urol 2017)

Background

- Patients with DSD desire experimental GTC
- Oncology protocols
  - Ovarian tissue: 5 patients
  - Testicular tissue: 2 patients

Experimental GTC: Oncology vs. DSD

	Oncology	DSD
Current Cancer?	Yes	Future risk of malignancy
Gonads	Normal	Abnormal
Time from Diagnosis to Treatment	Days	Months to Years
Outcome	Reported live births	No reported live births

Study Aim

Describe development of IRB-approved GTC protocol for patients with DSD

→disseminate the workflow beyond our institution

IRB Approval Process

- **Extensive collaboration**
- **Education**
- **Addressing main IRB concern**
  - Inclusion criteria: planned gonadectomies performed for malignancy risk
- **Half of gonad sent to pathology, half temporarily cryopreserved**

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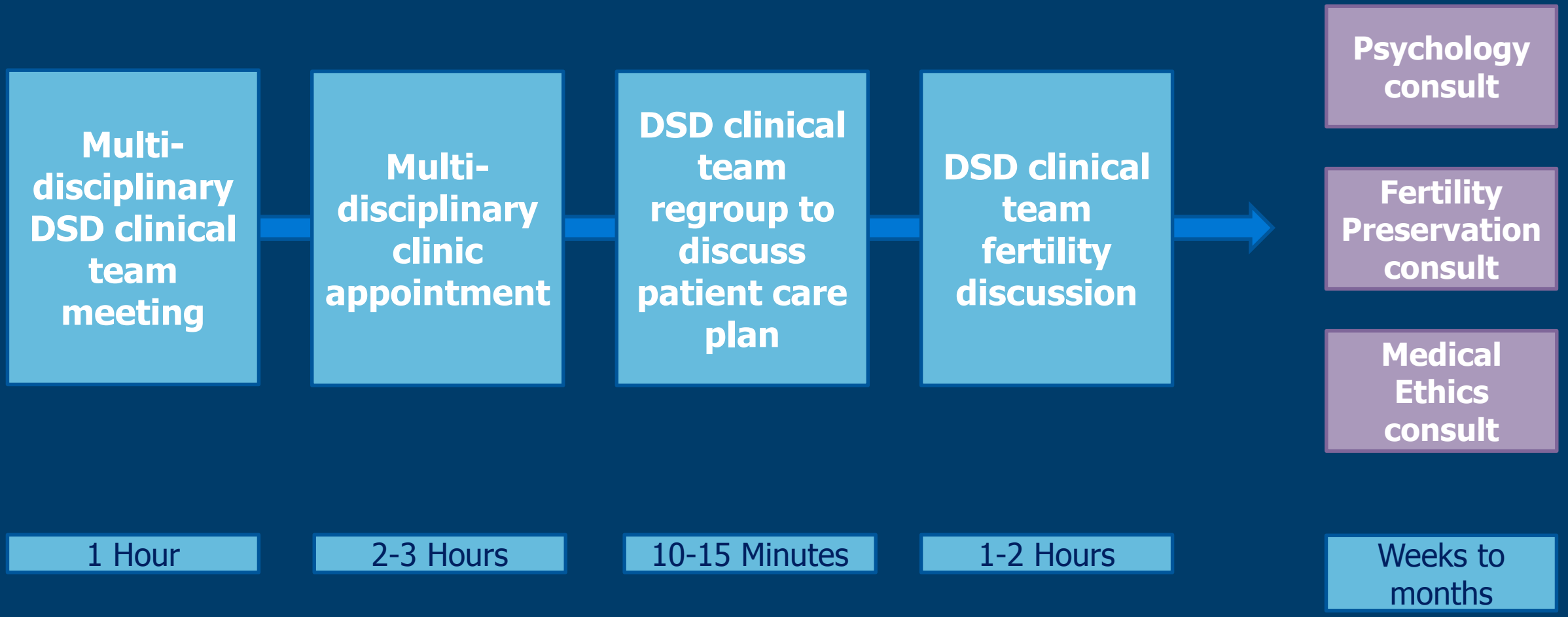
Preoperative Counseling



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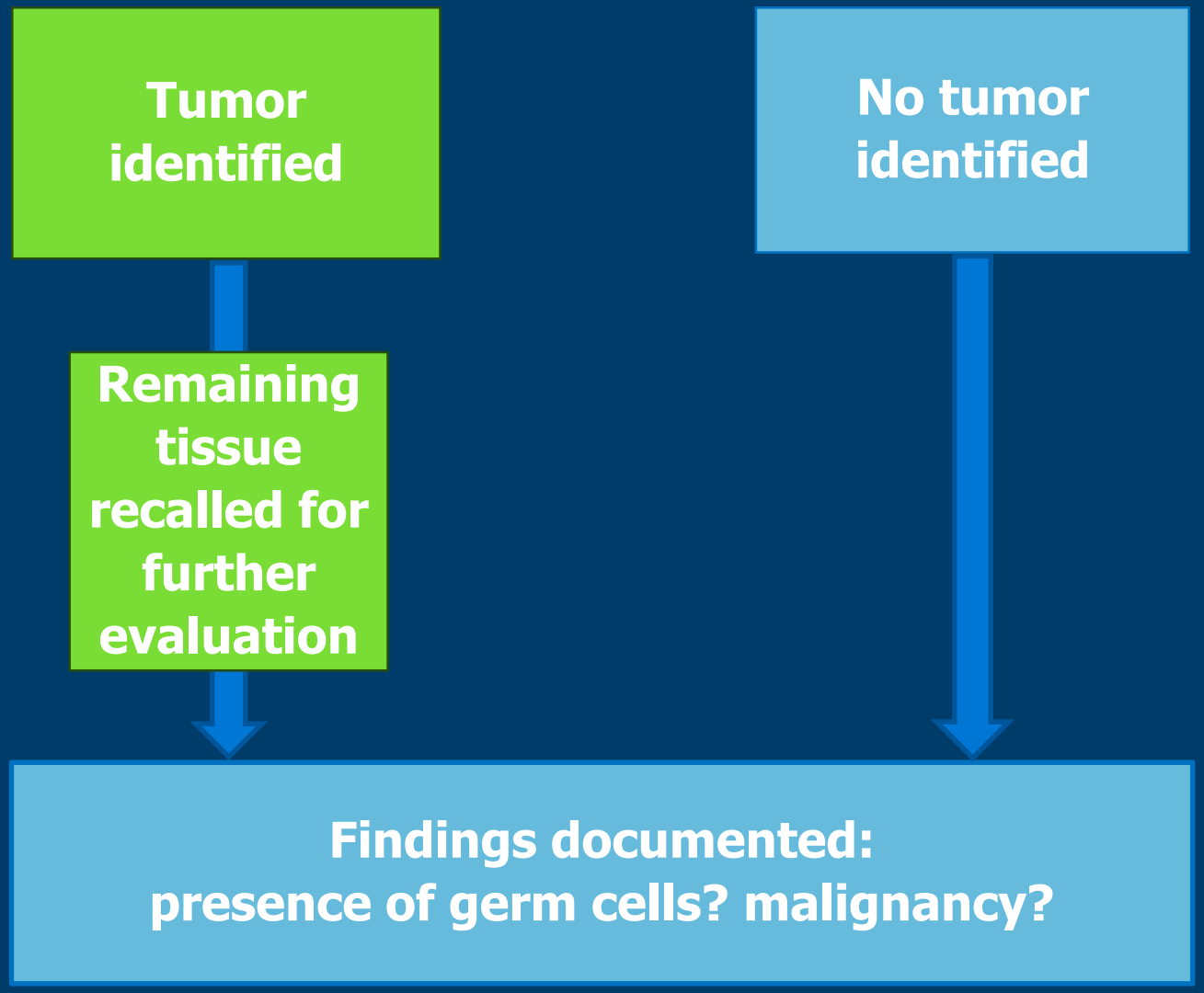
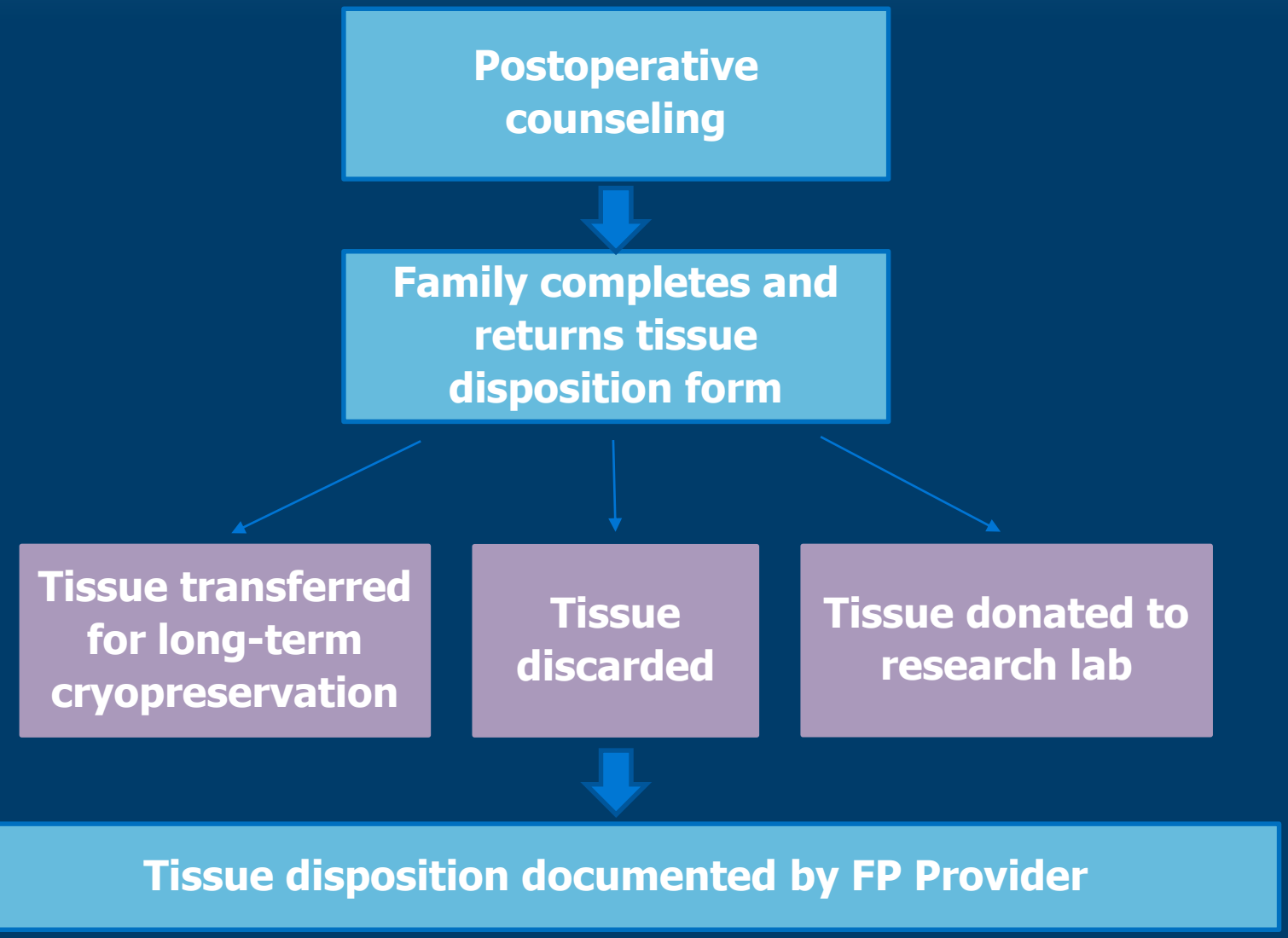
Postoperative Pathology Pathway



Postoperative Pathology Discussion



Patients Enrolled 2018-2019

Patient	Diagnosis	Germ Cells	Neoplasia	Storage
1	**Mixed Gonadal Dysgenesis**	**Yes**	**No**	**Yes**
2	**Ovotesticular DSD**	**Yes**	**No**	**Yes**
3	**Mixed Gonadal Dysgenesis**	**Yes**	**No**	**Yes**
4	Turner Mosaicism	No	No	No
5	Swyer Syndrome	No	No	No
6	**Complete Androgen Insensitivity**	**Yes**	**No**	**Yes**
7	Partial Gonadal Dysgenesis	No	No	No

Conclusions: GTC for DSD Protocol

- **GTC at gonadectomy is technically feasible**
  - No additional surgical morbidity
  - Adequate tissue for anatomic pathological analysis to rule out malignancy
- **Protocol – a template for other institutions**
  - Multidisciplinary team approach
  - Bisected gonad for pathological analysis
  - Documentation of tissue disposition before long-term storage
- **Future research topics**
  - Determination of patient candidacy
  - Quality of germ cells
  - Optimal timing of GTC

Luriechildrens.org/fertility

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