

BACKGROUND

- ▶ Demand for genital gender-affirming reconstruction continues to rise, with significant mental health and quality-of-life improvements documented
- ▶ Penile Inversion Vaginoplasty (PIV) remains most common but requires adequate penile and scrotal skin
- ▶ RAPFV provides peritoneal lining for patients with limited genital tissue — particularly those affected by prior circumcision, pubertal suppression, or anatomic variation
- ▶ Hair-bearing grafts require extensive preoperative electrolysis and/or laser hair removal (LHR), imposing months-to-years of financial and logistical burden
- ▶ Acellular Dermal Matrix (ADM) has been used in revision RAPFV and complex pelvic reconstruction — its role in primary gender-affirming vaginoplasty has NOT been characterized

STUDY OBJECTIVES

- Evaluate early outcomes of primary RAPFV with adjunctive ADM
- Quantify ADM material costs and characterize insurance coverage
- Assess patient experiences & financial burden of preoperative hair removal

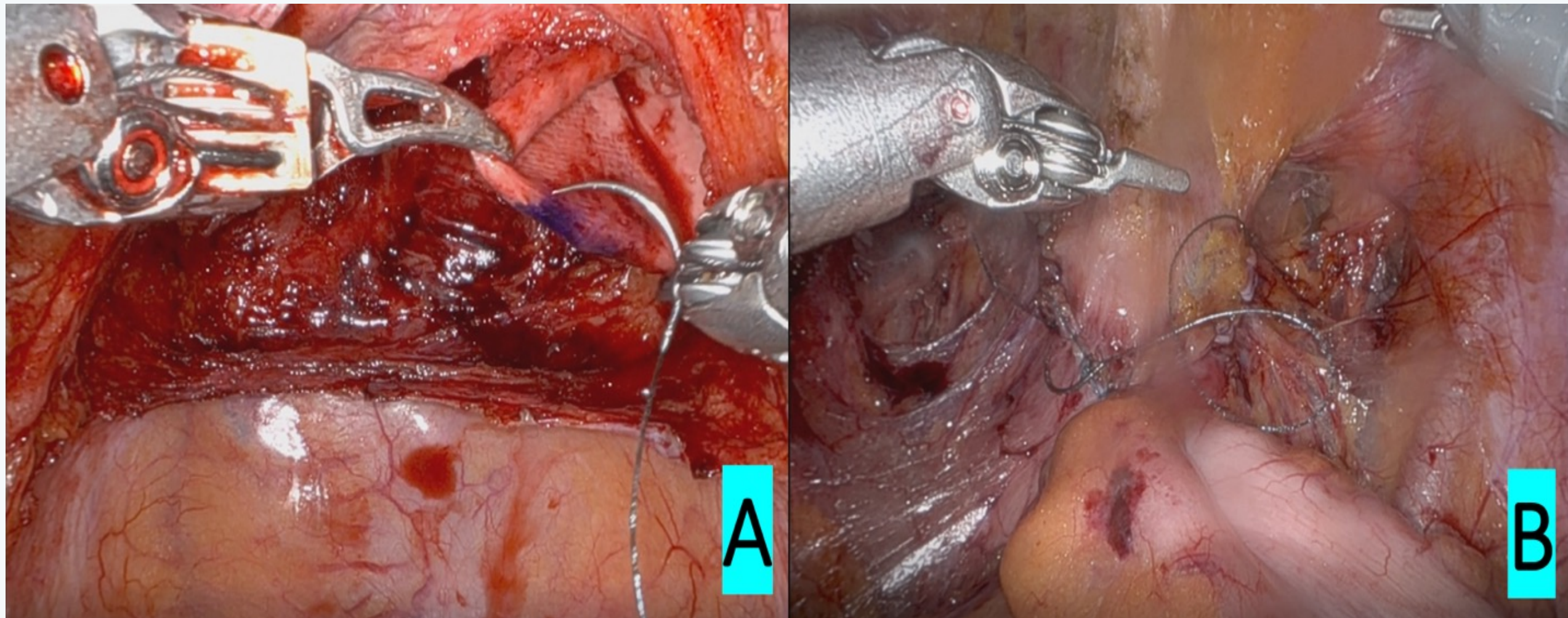
STUDY DESIGN & METHODS

- Retrospective Chart Review

 - Trans feminine & gender-diverse adults ≥19 yrs
 - CPT codes: 55790, 57291, 57292, 57335
 - Revision vaginoplasty excluded; primary only
 - Patient outcome data and complications tracked to 120 days
- ADM Cost Analysis

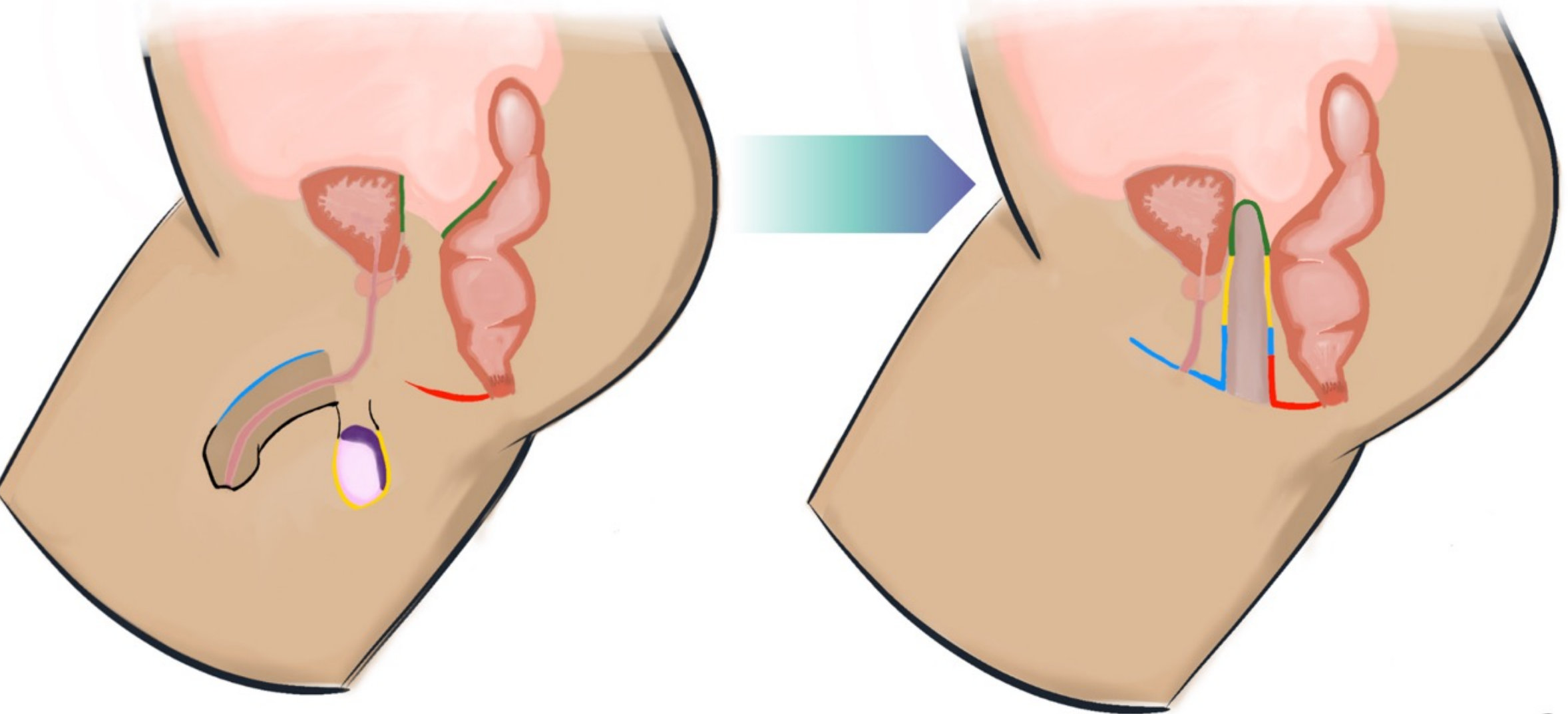
 - Pricing via Group Purchasing Organization rates vs. Direct Manufacturer Quotes
 - Per-case ADM cost and waste quantified
 - Insurance coverage and patient charges recorded
- Cross-Sectional Telephone Survey

 - 25-item structured survey instrument
 - Hair removal modality, duration, session count
 - Access barriers (provider availability, insurance, travel)
 - Satisfaction metrics and postoperative outcomes

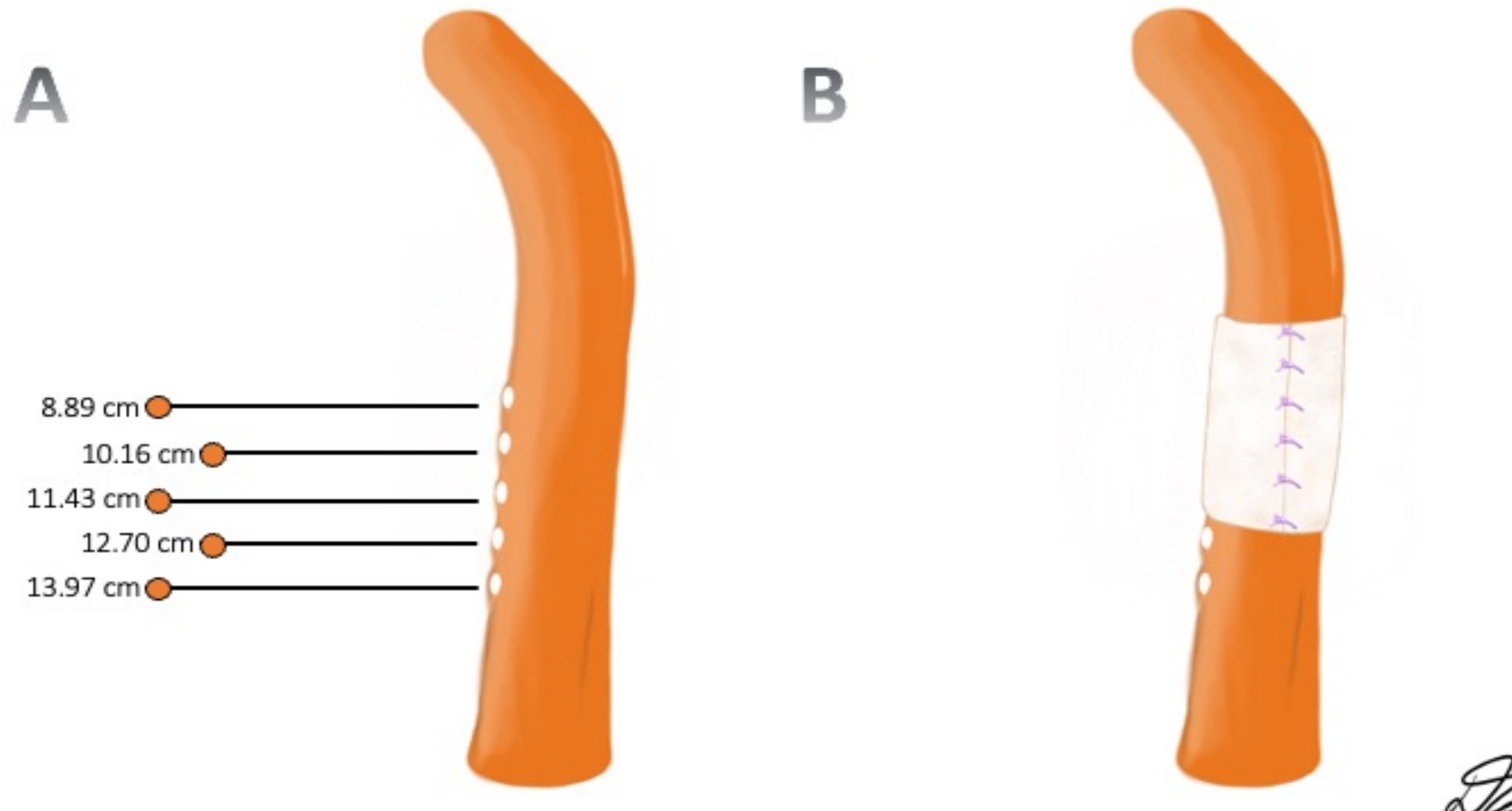


SURGICAL TECHNIQUE: RAPFV + ADM

- 1 Peritoneal flaps harvested from posterior bladder and anterior rectum to create neovaginal apex (DaVinci Xi robotic system)
- 2 When peritoneal flaps do not reach penile skin flap, ADM is used to bridge the gap — avoiding donor-site morbidity
- 3 Single thin ADM sheet (8×16 cm, 128 cm²; AlloDerm® Regenerative Tissue Matrix) trimmed to measured length and tubularized around 38 mm dilator with 3-0 Vicryl
- 4 Penile skin flap–ADM construct inverted into neovaginal canal; ADM sewn to peritoneal flaps robotically; canal packed with antibiotic-soaked Kerlix



30.7 ± 6.7 Mean Age (yrs) [range 20–39]				347 ± 134 Mean Follow-up (days from surgery)				300 ± 36 Mean Op Time (min) [range 246–348]		
Mean Canal Depth 12.8 ± 1.3 cm						Mean Canal Width 3.4 ± 0.4 cm				
RAPFV + ADM OUTCOMES (N=5, 2024–2025)										
Pt	Age	BMI	Penile (cm)	Circ.	ADM cm²	OR min	Depth cm	Width cm	Orgasm	Complication
A	20	34.3	4.0	Y	84	300	12.7	2.9	Clitoral	Fibrinous exudate (resolved)
B	33	21.6	6.5	Y	96	313	14.0	3.8	Clitoral+Vaginal	Hypergranular tissue (resolved)
C	39	28.7	8.5	Y	72	348	12.7	3.5	Clitoral	None
D	27	19.9	9.0	Y	48	286	14.0	3.5	Clitoral	None
E	27	23.9	7.5	Y	84	246	10.8	2.9	Clitoral	Canal adhesions (resolved)
Mean ±SD	30.7±6.7	27.3±5.7	7.2±1.6	5/5 Y	76.8±18.2	300±36	12.8±1.3	3.4±0.4	—	3 minor, 0 major

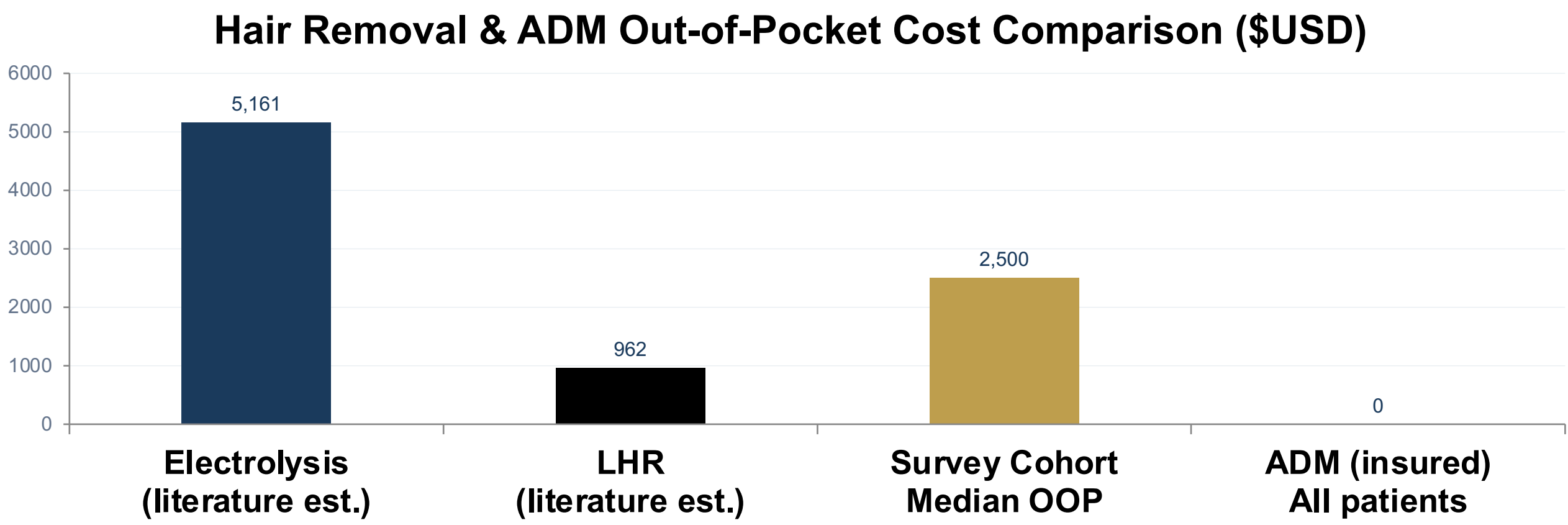


ADM COST ANALYSIS

Material Specifications & Utilization

- ▶ AlloDerm® Thin sheet: 8×16 cm = 128 cm² per case
- ▶ National median rate: \$33.16/cm² → ~\$4,244 per sheet
- ▶ Mean ADM used per case: 76.8 ± 18.2 cm² (range 48–96 cm²)
- ▶ Mean unused excess: 51.2 ± 18.2 cm² per case (~40% of sheet)
- ▶ Excess ≈ \$1,800 in avoidable waste per case
- ▶ Hospital billing ranged widely: \$967 – \$42,702

ALL 5 ADM PATIENTS: Full insurance coverage · \$0 out-of-pocket cost



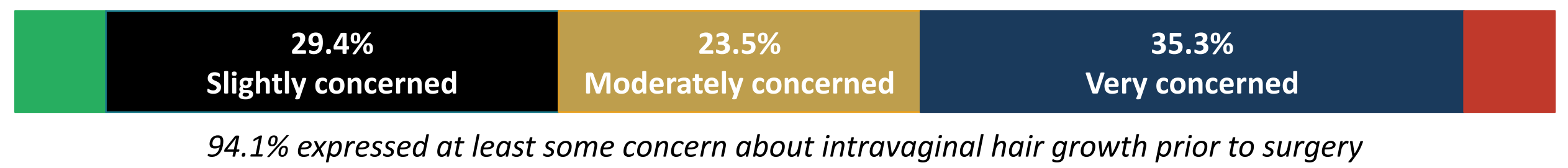
CROSS-SECTIONAL SURVEY: PARTICIPANTS (N=17)

72 invited	17 completed	24% response rate	40.9 yrs mean age (range 26–71)
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Survey Demographics & Income Distribution

Income Category	N (%)	Income Category	N (%)
<\$25,000	2 (11.8%)	\$75,000 – \$99,999	2 (11.8%)
\$25,000 – \$49,999	3 (17.6%)	\$100,000 – \$149,999	4 (23.5%)
\$50,000 – \$74,999	4 (23.5%)	≥\$150,000	1 (5.9%)
Did not answer	1 (5.9%)	Fitzpatrick type NR	10 (58.8%)

PREOPERATIVE CONCERN ABOUT HAIR GROWTH



FINANCIAL & ACCESS BARRIERS

- 58.8% Received NO insurance coverage for hair removal
- 64.7% Spent MORE than \$2,000 out-of-pocket on hair removal
- 64.7% Strongly disagreed that finding an insurance-accepting provider was easy
- 35.3% Had difficulty securing timely appointments
- 47.1% Reported they would have benefited from more support and/or resources
- 23.5% Experienced postoperative intravaginal hair growth despite completing treatment

PATIENT SATISFACTION & PROVIDER EXPERIENCE



PATIENT VOICES: SELECTED THEMES

- Multiple Barriers

“Long travel distance, insurance denial, out of pocket costs supplemented with organizational help, difficulty contacting the surgeon/lack of guidance. Payment difficulty forced me to try other private hair removal clinics.”
- Communication Gaps

“There was a lack of communication between the electrologist and the surgical team. The electrologists didn't completely understand the specific regions of hair to remove and what to retain.”
- Provider Instability

“Eventually dermatology became so unstable in their budgeting, hiring, low priority... my final sessions ended up happening at a stranger's home, in their basement per diem.”
- Education & Guidance

“Incomplete information from the surgical team regarding what completion would look like. Electrologist had a hard time communicating with the surgical team...”

“...there was a lack of communication between the electrologist and the surgical team. The electrologist and the surgical team. The electrologists didn't completely understand the specific regions of hair to remove and what to retain.”

DISCUSSION & IMPLICATIONS

- Non-inferior Outcomes:** Canal depth 12.8 cm and width 3.4 cm are comparable to the largest Xi-platform RAPFV series (13.6×3.7 cm, Dy et al. 2021). All minor complications resolved conservatively with no reoperations.
- Insurance Disparity:** ADM is consistently reimbursed as a surgical supply (\$0 OOP for all 5 patients), while medically necessary hair removal is classified as 'cosmetic' imposing \$2,000–\$3,000+ out-of-pocket burden on patients.
- Access Enhancement:** By eliminating hair-bearing grafts, ADM-supplemented RAPFV can shorten surgical timelines, reduce financial barriers, and expand access for patients with limited tissue or with significant access barriers.
- Unmet Education Needs:** 35.3% unsatisfied with pain management guidance; 41.2% felt questions were not fully answered; structured referral pathways and curated provider lists are unmet systemic needs.
- Limitations:** Small cohort (n=5 ADM, n=17 survey); short-term follow-up; 24% survey response rate (some declined due to data security concerns re: government access to trans patient records). Future: histologic studies of ADM incorporation; comparative cost-effectiveness analyses; larger prospective cohorts.

CONCLUSION

- First report of adjunctive ADM as neovaginal canal lining in primary gender-affirming vaginoplasty. RAPFV with ADM demonstrated comparable early functional outcomes, minimal complications, and consistent insurance coverage with zero patient out-of-pocket cost.
- Preoperative hair removal imposed substantial financial, logistical, and educational burdens — including 64.7% spending >\$2,000 OOP and 58.8% receiving no insurance coverage.
- ADM-supplemented vaginoplasty may reduce surgical delays and improve equitable access.