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First Febrile Urinary Tract Infection
Risk Factors and Screening Recommendations
Evidence Based Outcome Center

PEDIATRIC EBOC EVIDENCE BASED OUTCOMES CENTER

GUIDELINE EXCLUSION CRITERIA

- Known genitourinary anatomical abnormality
- Known immunodeficiency and/or on immunosuppressants
- Known uncorrected, hemodynamically unstable complex heart disease
- Prior febrile UTI with pathogen other than E. coli
- Prior febrile UTI with E.coli pathogen known to be resistance to empiric antibiotics therapy
- Clinically unstable (Septic Shock)

GUIDELINE INCLUSION CRITERIA

- 2 months to 18 years of age with symptoms: fussiness, foul smelling urine, blood in urine, new incontinence, dysuria, or urethral discharge
- Febrile > 38° C with no apparent source

Inpatient Criteria

- Ill-appearing (SIRS/SEPSIS)
- Dehydration requiring IV or NG fluids
- Persistent vomiting or inability to tolerate PO ABX
- Social indicators that make treatment compliance and/or PCP follow-up difficult
- Failure of outpatient treatment with need for IV therapy

> 2 months – Not Toilet Trained

Probability of UTI > 1%:
2 or more risk factors

Female Risk Factors*
Non-black
T ≥ 39°C
Fever ≥ 2 days
No apparent source of fever
Age < 12 months

Probability of UTI > 1%:
Uncircumcised OR Circumcised with 3 or more Risk Factors

Male Risk Factors*
Non-black
T ≥ 39°C
Fever ≥ 2 days
No apparent source of fever
Age < 6 months

*Recommend screening if prior history of UTI, fever ≥ 2 days

Toilet Trained – 18 years

All Patients
- ❑ Symptoms referable to urinary tract
- ❑ Prior history of UTI, fever ≥ 2 days
- ❑ Prolonged fever (≥ 5 days)

Recommend screening for any of the above factors

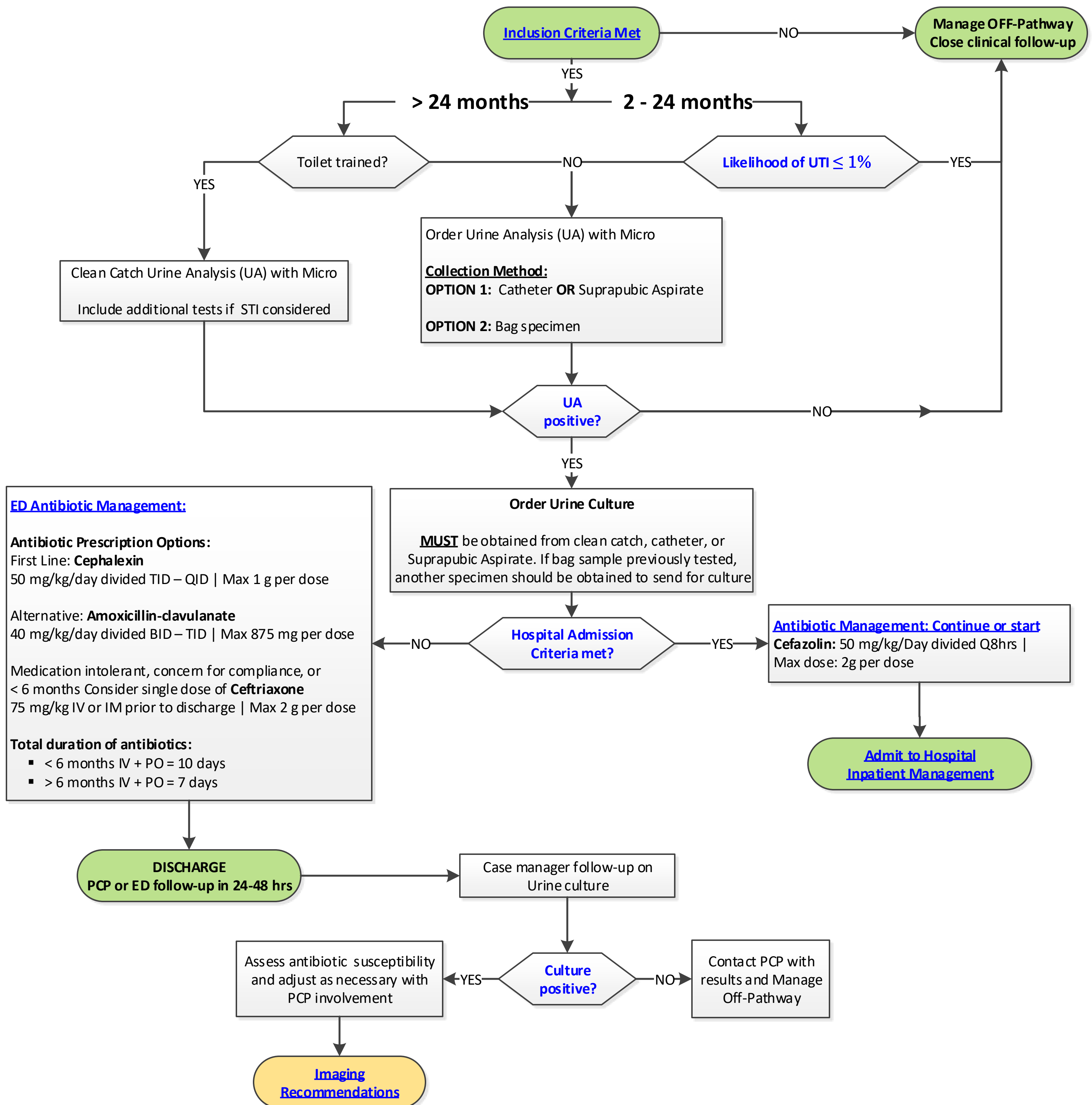
DCMC UTI Definition: The presence of pyuria and/or bacteruria on urinalysis AND a positive urine culture.

- Pyuria should be considered present if there are ≥5 WBCs/hpf in a centrifuged specimen and ≥10 WBCs/hpf in a counting chamber. DCMC uses centrifuged specimens.
- Urine culture is considered positive if there are ≥50,000 cfu/mL in a specimen obtained by catheterization or suprapubic aspiration. If the specimen was obtained by the clean-catch method, ≥100,000 cfu/mL is considered optimal for diagnosis but 50,000-100,000 can also be accepted with the understanding that the sensitivity and specificity are decreased in this setting.

Emergency Department Pathway

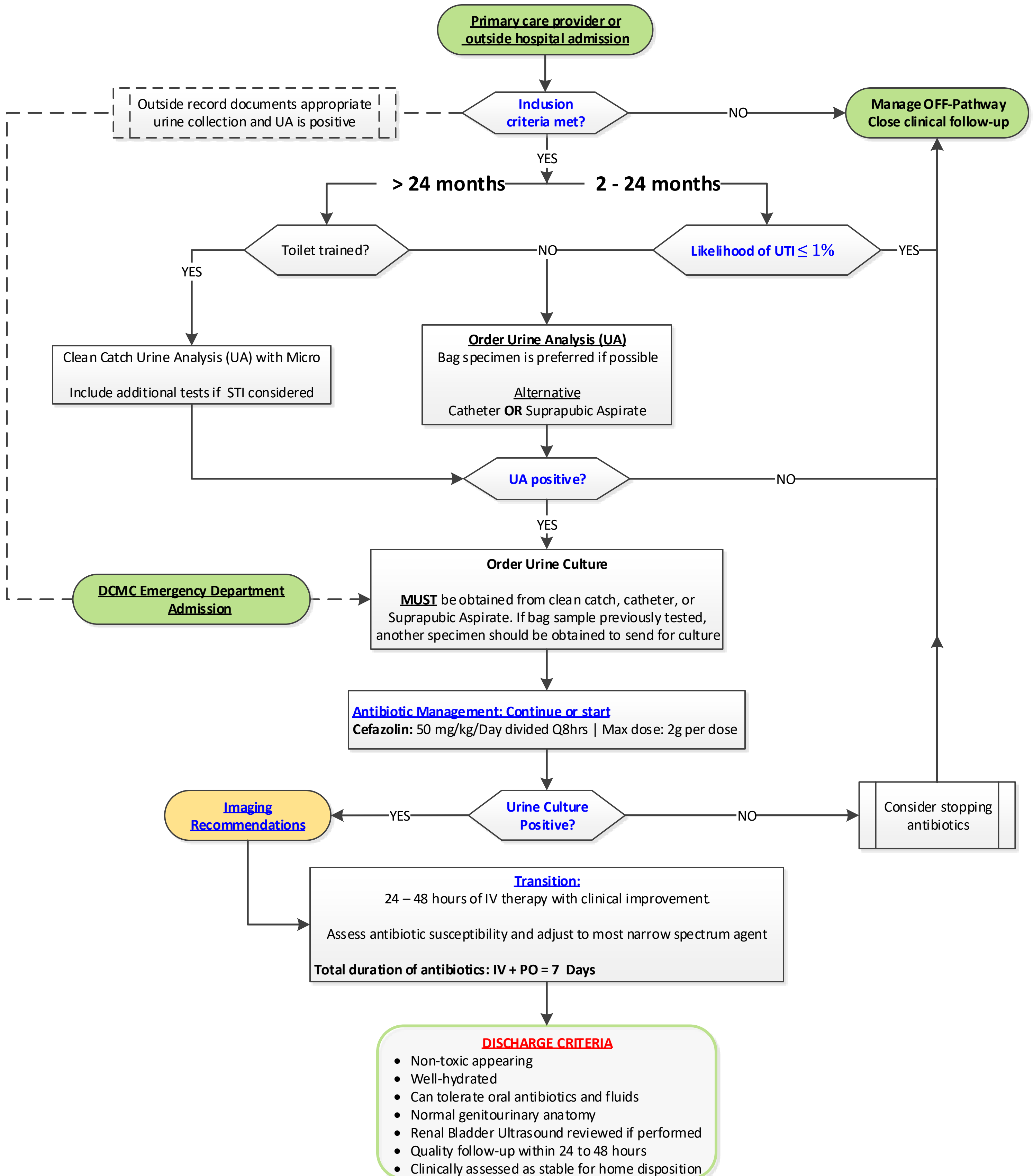
Inpatient Pathway

First Febrile Urinary Tract Infection
Emergency Department Management Pathway
Evidence Based Outcome Center



First Febrile Urinary Tract Infection
Inpatient Management Pathway
Evidence Based Outcome Center

PEDIATRIC EBOC EVIDENCE BASED OUTCOMES CENTER



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For questions concerning this pathway,
Click Here
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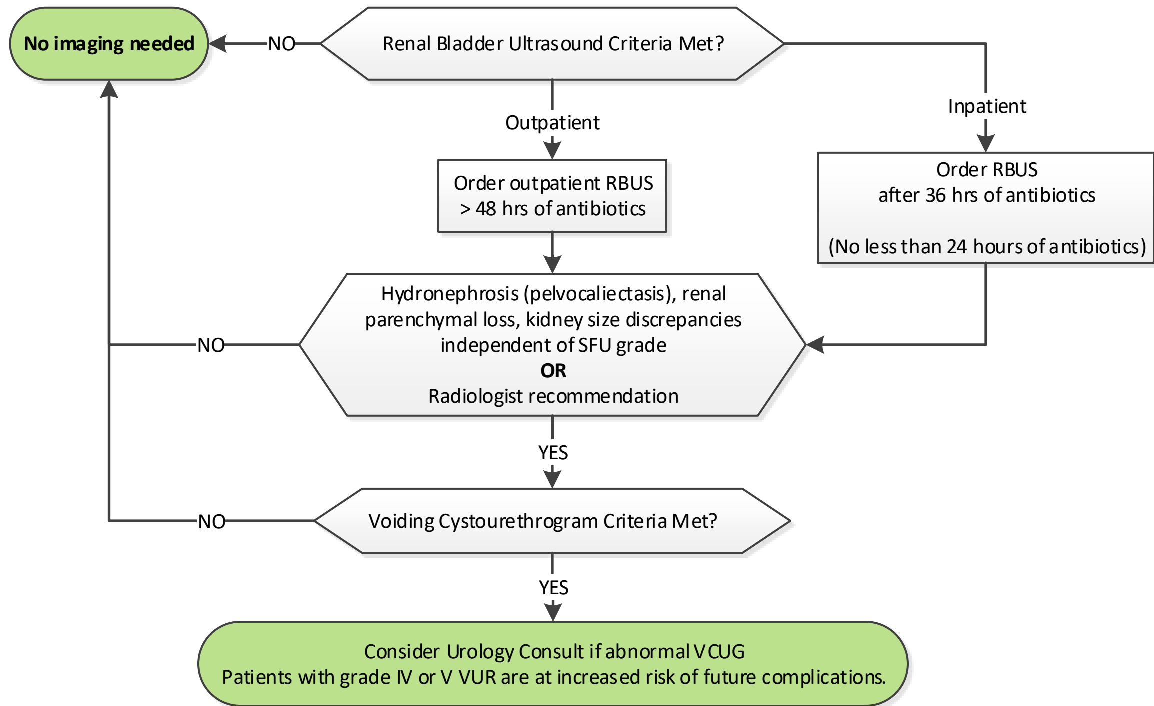
First Febrile Urinary Tract Infection
Imaging Recommendations
Evidence Based Outcome Center



Consider Urology Consult if abnormal VCUG
Patients with grade IV or V VUR are at increased risk of future complications.

Renal Bladder Ultrasound Criteria	
Age 2 to 24 months	First febrile UTI or no prior RBUS
Children older than 24 months with any of the following	Pathogen other than E. coli Family history of renal or urologic disease Hypertension Poor growth (PCP input recommended) No clinical improvement with empiric antimicrobial therapy after 48 hours

Voiding Cystourethrogram (VCUG) Criteria	
Criteria for obtaining a VCUG	Abnormal findings: Hydronephrosis Scarring Dilated pelvis Dilated ureter Recommended by reviewing Pediatric Radiologist Chronic hypertension +/- poor growth Urinary pathogen other than E. coli Extended spectrum beta-lactamase producing E. coli

Emergency Department Pathway

Inpatient Pathway

DCMC Positive Urinalysis (UA) Definition: The presence of Leukocyte Esterase OR Nitrites OR microscopic analysis results positive for leukocytes *or* bacteria is suggestive of an active UTI. When more than one of these findings is present at the same time, the sensitivity and specificity increase significantly.

- Urine dipstick alone is unable to report WBC count and presence of bacteria and should be used with caution for detecting a UTI.
- Within the guideline, there exists the option to perform a bag specimen if the clinician feels it to be more convenient. If the results of the UA are positive, it is strongly advised to obtain a catheterized specimen for the urine culture to avoid contamination.

DCMC UTI Definition: The presence of pyuria and/or bacteruria on urinalysis AND a positive urine culture.

- Pyuria should be considered present if there are ≥5 WBCs/hpf in a centrifuged specimen and ≥10 WBCs/hpf in a counting chamber. DCMC uses centrifuged specimens.
- Urine culture is considered positive if there are ≥50,000 cfu/mL in a specimen obtained by catheterization or suprapubic aspiration. If the specimen was obtained by the clean-catch method, ≥100,000 cfu/mL is considered optimal for diagnosis but 50,000-100,000 can also be accepted with the understanding that the sensitivity and specificity are decreased in this setting.

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EMERGENCY DEPARTMENT/OUTPATIENT		
Medication	**Dose**	**Comments**
Empiric First Line		
Cephalexin	50-100 mg/kg/day divided TID-QID	Maximum 1000 mg/dose
Empiric Alternative		
Amoxicillin/clavulanate	20-40 mg/kg/day divided BID	Maximum 875 mg/dose
If IgE-mediated allergy to penicillins AND cephalosporins		
Ciprofloxacin	20 mg/kg/day divided BID	Maximum 750 mg/dose (oral)
Trimethoprim/sulfamethoxazole should be used with caution as empiric therapy due to decreased susceptibility among *E. coli* isolates, only 71% susceptible.		
INPATIENT		
Empiric First Line		
Cefazolin	50 mg/kg/day divided q8H	Maximum 2000 mg/dose
If IgE-mediated allergy to penicillins AND cephalosporins		
Aztreonam	90 mg/kg/day divided q8H	Maximum 2000 mg/dose
Gentamicin	5-7 mg/kg/day q24H	No maximum dose
If concern for CNS involvement (first line)		
Ceftriaxone	100 mg/kg/day divided q12H	Maximum dose 2000 mg/dose
If concern for CNS involvement and IgE-mediated allergy		
Aztreonam	90 mg/kg/day divided q8H	Maximum 2000 mg/dose

Emergency Department Pathway
Inpatient Pathway

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Approved by the Evidence-Based Outcomes Center

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