

Introduction

Throughout the healthcare field, there is an ever-growing need to reduce the inappropriate use of antimicrobials. Minimizing the use of antimicrobials leads to better patient outcomes, decreases costs, reduces antimicrobial resistance, and lessens the risk of medication side effects.

Persons with multiple sclerosis (MS) and other central nervous system (CNS) demyelinating diseases are at high risk for urinary tract infections (UTIs) as a result of neurogenic bladder and frequent use of urinary catheters. Because this population has an increased risk of developing a pseudoexacerbation secondary to a UTI, the healthcare provider faces pressure to treat asymptomatic bacteriuria in this population.

Aim

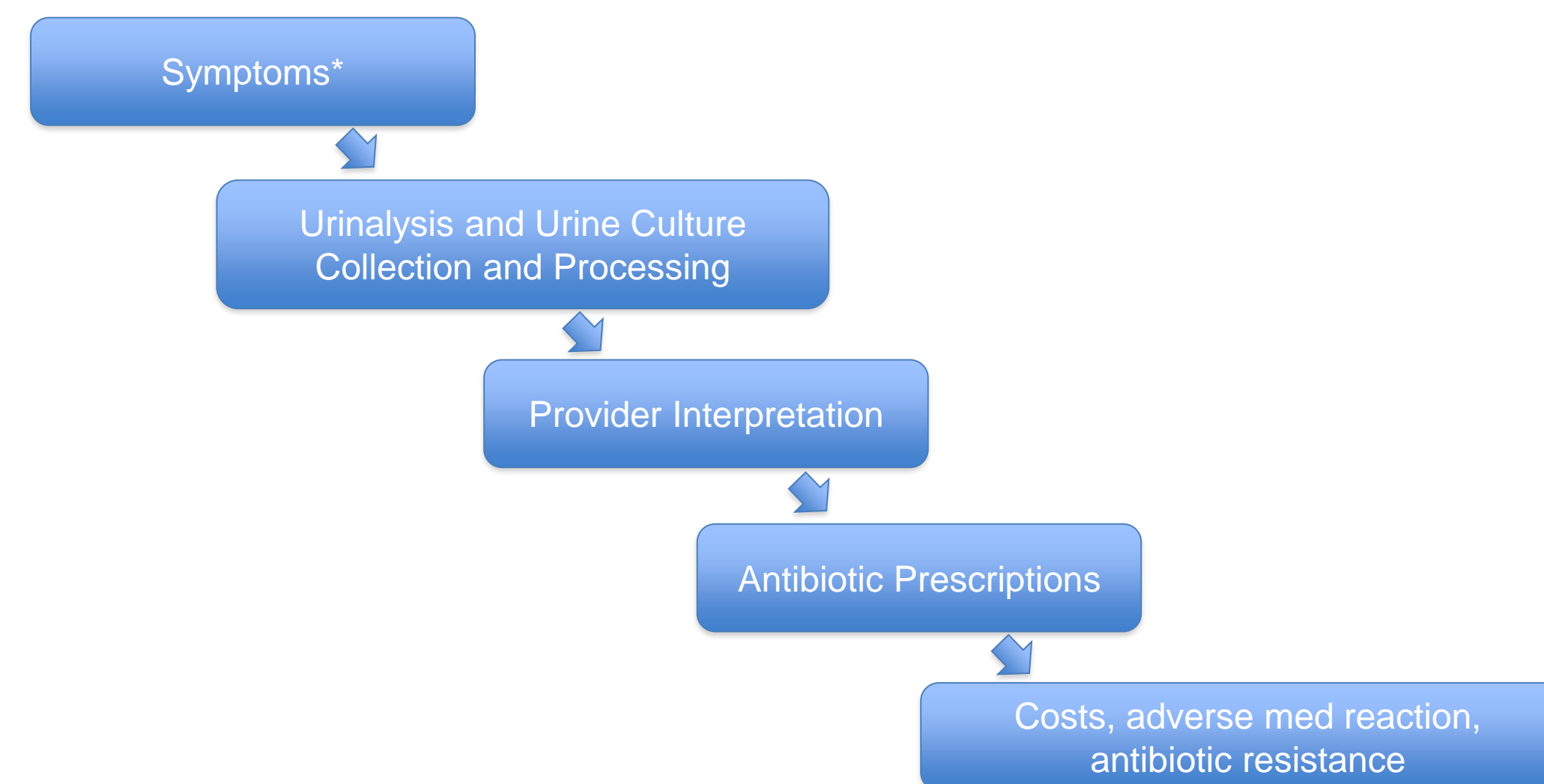
This quality improvement project aims to reduce the rate of inappropriate antibiotic prescriptions for asymptomatic bacteriuria in patients with MS and other CNS demyelinating diseases by limiting the number of unnecessary urine cultures, and by improving sample collection and handling.

Methods

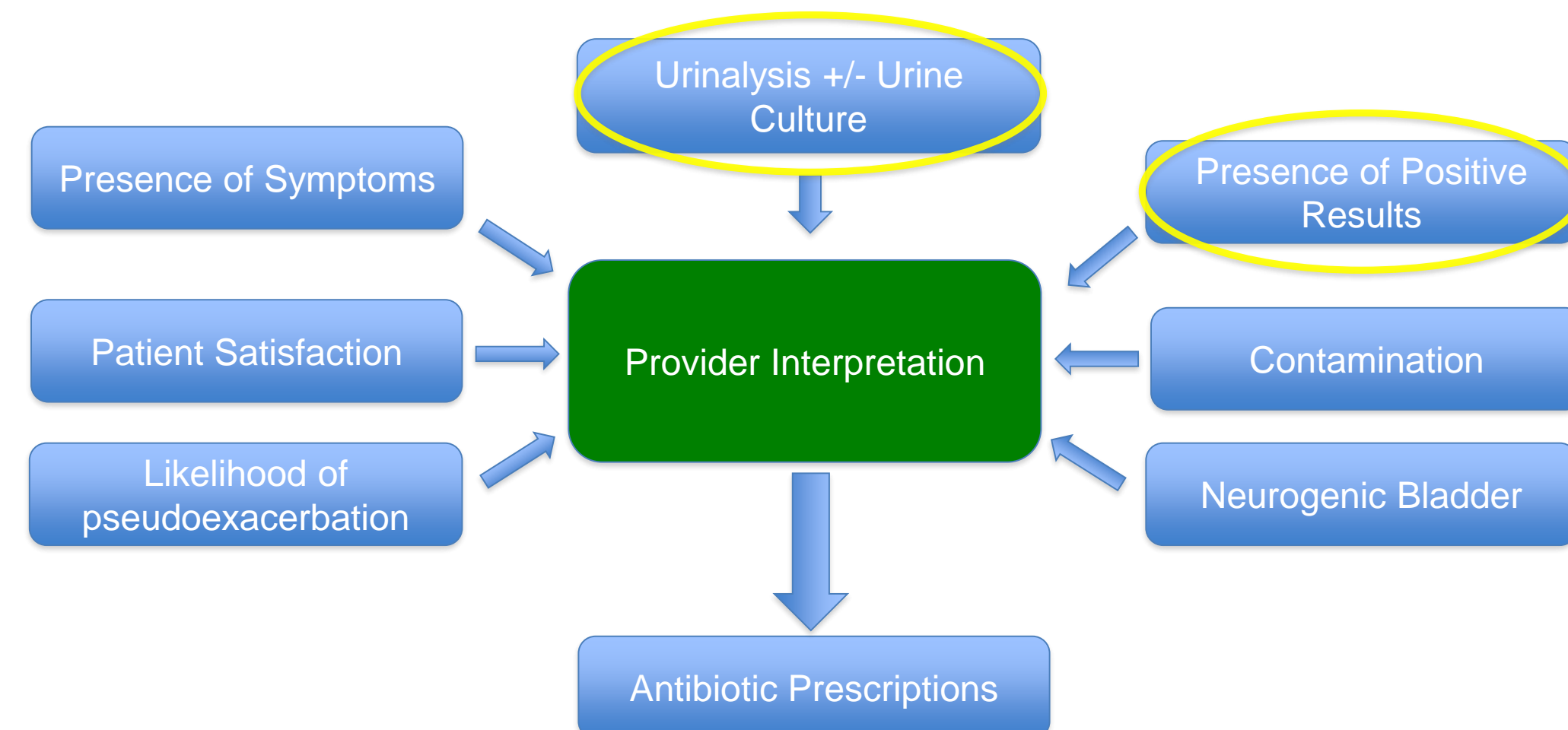
A single-center quality improvement study, consisting of three phases:

- Phase 1: Implements a urinalysis reflex (UAR) order that triggers a urine culture only when urinalysis (UA) reveals a white blood cell count >10 cells per high-power field to limit unnecessary urine cultures
- Phase 2: Provide patient education handouts, standardize urine collection supplies, and trial a preservative collection tube to limit sample contamination.
- Phase 3: Combines both interventions to reduce antibiotic prescriptions.

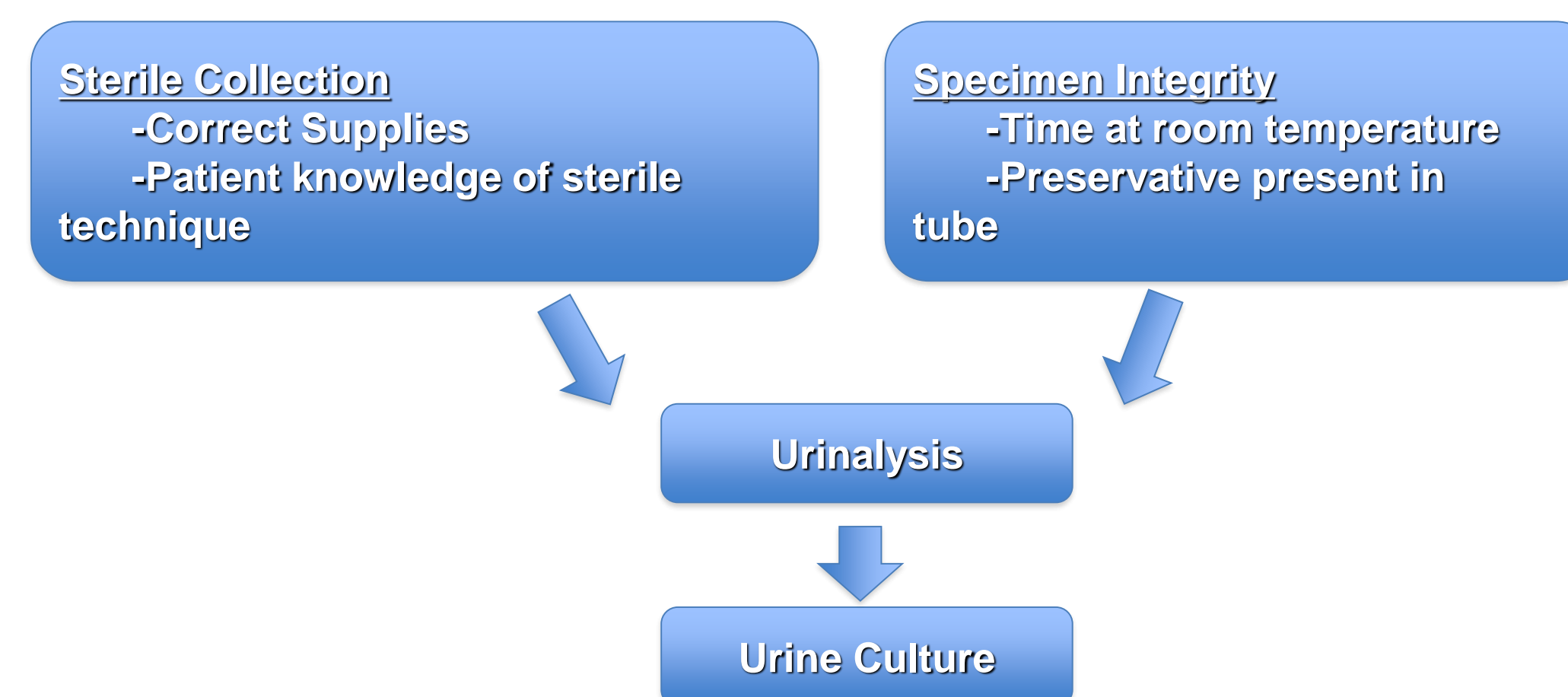
Overview of Clinical Processes



Phase 1 Intervention Targets



Phase 2 Intervention Targets



Results

Measurement	Prior to Intervention n = 46	Phase 1: UA Reflex Order n = 59	Change
UAs Resulting in a Urine Culture	40 (86.9%)	17 (29%)	-57.9% *
Urine Cultures Resulting Positive	24 (60%)	16 (94%)	+34%
UAs Receiving Antibiotics	15 (32.6%)	12 (20.3%)	-12.3%

* Statistically significant

Discussion and Conclusions

While phase 1 demonstrated a statistically significant 55% decrease in the number of urine cultures ordered, the UAR order alone did not demonstrate a statistically significant decrease in the number of antibiotic prescriptions ordered. Overall, the small sample size of phase 1 limits the ability to draw conclusions regarding changes in the rate of antibiotic prescriptions.

Phase 2 will focus on limiting sample contamination and preserving sample integrity. Initiation of phase 2 has been limited by difficulty in implementing a new regimen of sample collection at laboratory facilities.

Phase 3 will combine both interventions of phases 1 and 2 to limit unnecessary antimicrobial prescriptions and the subsequent reductions in healthcare costs, medication side effects and development of antimicrobial resistance.

Special Thanks

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