

Medication Regimen Complexity Predicts Pharmacist Workload

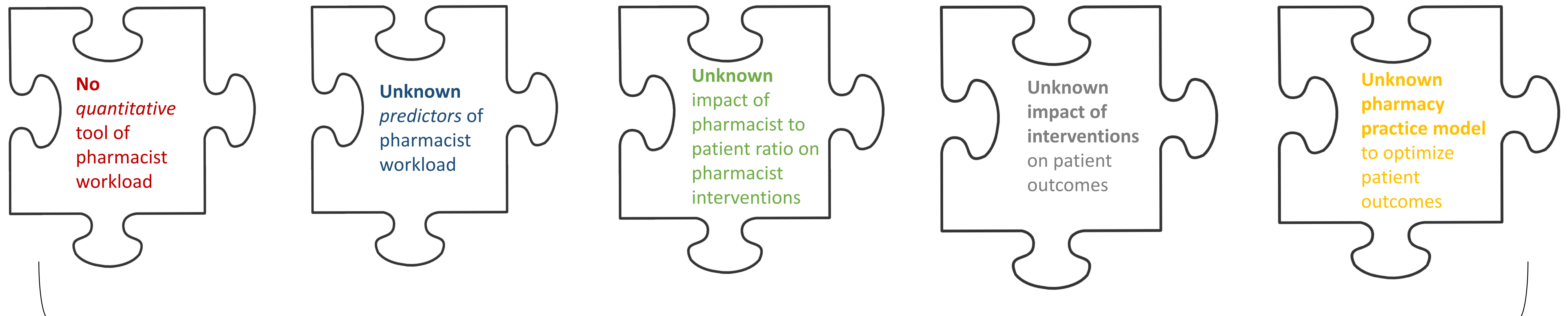
Andrea Sikora Newsome, PharmD, BCPS, BCCCP¹; Megan A. Rech, PharmD, MS, BCPS, BCCCP²; Drayton Hammond, PharmD, MBA, MSc, BCPS, BCCCP³;

Susan E. Smith, PharmD, BCPS, BCCCP; PHARM-CRIT Study Investigators

¹The University of Georgia College of Pharmacy, Athens, GA; ²Loyola University Medical Center;

³Rush University, Chicago, IL

We know that critical care pharmacists improve outcomes, now what?



Methods

- Multi-center observational cohort
- Pharmacists prospectively recorded interventions made during the usual course of care
- The MRC-ICU and patient outcomes including mortality, length of stay, and duration of mechanical ventilation were recorded retrospectively from electronic medical records
- Univariate analyses were performed to identify associations between the MRC-ICU score, pharmacist interventions, and outcomes
- Data are presented as mean ± SD or n (%) unless otherwise noted

Results

Table 2. MRC-ICU as predictor of mortality

Practice Area	Odds Ratio	95% Confidence Interval
All Data Combined	1.073	1.063 – 1.083
Burn ICU	0.910	0.770 – 1.075
Cardiac Care Unit	1.174	1.111 – 1.240
Cardiovascular ICU	1.035	0.996 – 1.076
Decentralized/Mixed	1.086	1.046 – 1.127
Medical ICU	1.077	1.064 – 1.091
Neurological ICU	1.043	1.003 – 1.084
Pediatric ICU	1.281	1.119 – 1.466
Surgical ICU	1.128	1.070 – 1.190
Trauma	1.077	1.000 – 1.161

- Preliminary analyses completed
- MRC-ICU demonstrated appropriate convergent & divergent validity
- MRC-ICU predicts pharmacist interventions in a wide range of settings

Table 1. Demographic Characteristics

n=7716	
MRC-ICU Score	10.9 ± 6.4
# of patients provided for on shift	23.7 ± 19.2
# of rounding services covered	1.7 ± 1.2
Type of Institution	
Academic	5638 (73.1%)
Community teaching	882 (11.4%)
Community non-teaching	111 (1.4%)
Government/VA	132 (1.7%)
Practice Area	MRC-ICU Mortality
Burn ICU	137 (1.8%) 10.3 ± 4.7 12 (8.8%)
Cardiac Care Unit	431 (5.6%) 6.9 ± 5.3 44 (10.2%)
Cardiovascular ICU	434 (5.6%) 15.7 ± 7.4 52 (12%)
Decentralized/Mixed	610 (7.9%) 9.2 ± 5.5 93 (15.2%)
Immunocompromised	14 (0.2%) 14.5 ± 2.1 4 (28.6%)
Medical ICU	3517 (45.6%) 11.4 ± 6.4 832 (23.7%)
Neurological ICU	732 (9.5%) 9.1 ± 5.1 107 (14.7%)
Pediatric ICU	88 (1.1%) 6.9 ± 5.5 14 (15.9%)
Surgical ICU	592 (7.7%) 13.1 ± 6.0 40 (6.8%)
Trauma	185 (2.4%) 13.9 ± 5.7 27 (14.6%)

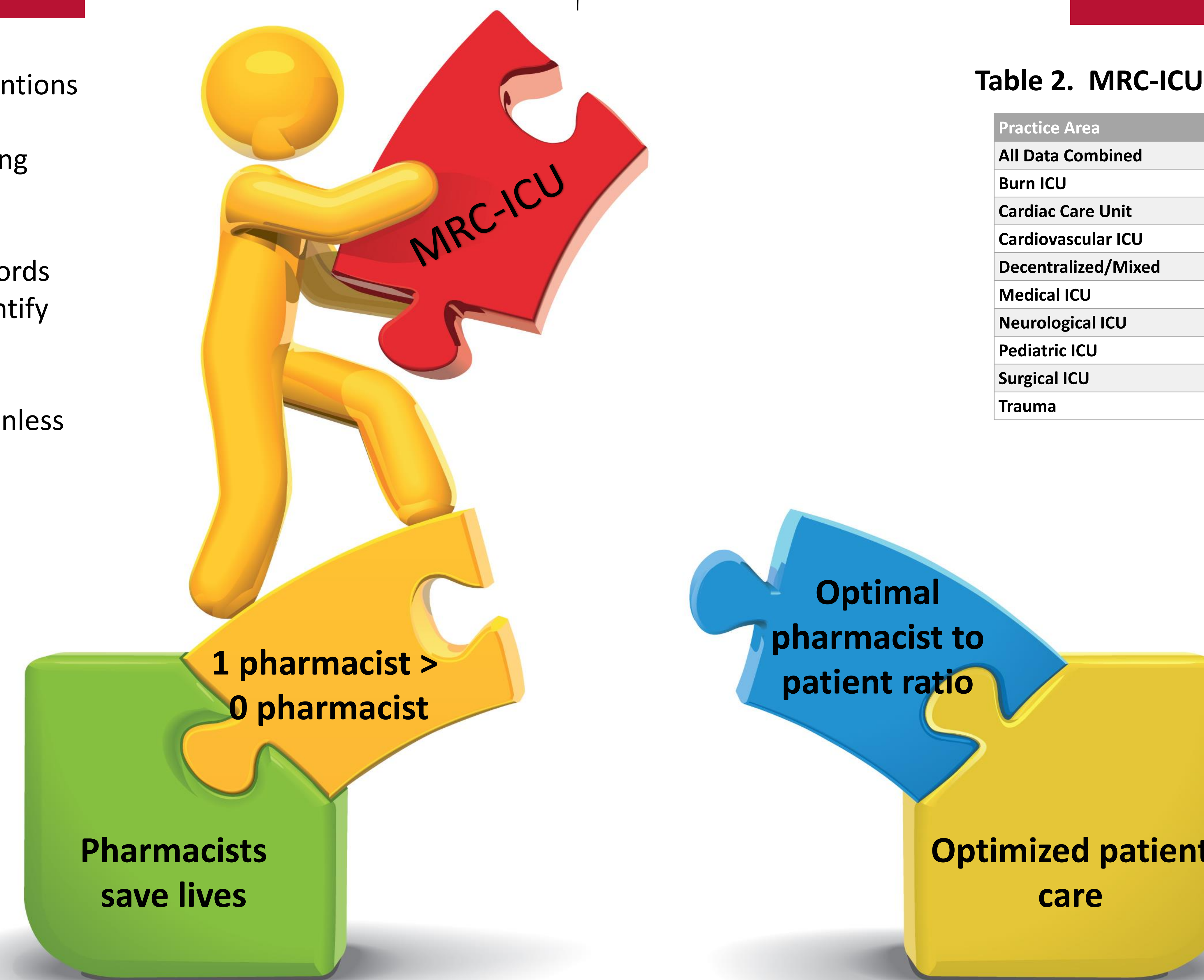


Table 3. MRC-ICU as predictor of pharmacist interventions

Practice Area	β coefficient	95% Confidence Interval
All Data Combined	1.636	1.573 – 1.699
Burn ICU	1.770	1.277 – 2.263
Cardiac Care Unit	1.491	1.324 – 1.658
Cardiovascular ICU	2.055	1.698 – 2.412
Decentralized/Mixed	1.424	1.247 – 1.601
Medical ICU	1.682	1.592 – 1.772
Neurological ICU	1.669	1.510 – 1.829
Pediatric ICU	1.423	0.957 – 1.888
Surgical ICU	2.159	01.860 – 2.459
Trauma	1.882	0.374 – 2.391