

BACKGROUND

SPECIFIC AIMS

- The number of board-certified pharmacists (BCPs) in the US has increased from ~3,600 in 2002 to ~50,000 in 2023¹
- Board-certification has served as an indicator of specialty clinical expertise to patients, fellow health care professionals, and the profession
- Little evidence has been generated regarding the:
 - Perceived value of board-certification by pharmacists,
 - Incentive practices utilized to promote board-certification, and
 - The effect board-certification has on improving quality of care and lowering cost of care
- Dorsch et al. assessed if AQCV to BCPS resulted in improved quality measures related to AMI and HF²
 - No differences in readmission or 30-day mortality
 - Improvements in process of care measures were found
- Evidence showing the effect of board-certification on quality of care and cost of care may be an avenue to promote the reimbursement of clinical services

- AIM 1:** Evaluate the current percentage, incentive practices implemented, and perceived value of BCPs in US hospital pharmacy departments
- AIM 2:** Examine the relationship between percentages of BCPs in pharmacy departments, utilization outcome measures, and clinical quality outcome measures reported by CMS-CCD
- AIM 3:** Evaluate whether pharmacy departments have improved operational and financial performance based on percentages of BCPs

METHODS

- Two-phase, multi-center, pilot study; Fall 2022
- Phase 1: AIM 1 & AIM 3**
 - Electronic Questionnaire sent to pharmacy administrators via ASHP® Connect
 - Data Collected
 - Respondent Demographics, Department Demographics, Administrator's Perceived Value of BCPs, Incentives Used, & Effectiveness of Board-Certification
 - Response Rate
 - N = 50; 20 removed due to incomplete responses (N = 18) & duplicates (N = 2)
- Phase 2: AIM 2**
 - Clinical Outcome Measures
 - CMS-CCD & HCAHPS Survey
 - Utilization Outcome Measures
 - Phase 1 Questionnaire
 - Comparison Groups
 - ≥33% vs. <33% of FTEs have Board-Certification
 - Sample Median = 33%
- Statistical Analysis**
 - Descriptive Statistics & Student's t-test
 - SPSS Version 28.0 (IBM, Armonk, NY)

RESULTS

TABLE 1: RESPONDENT DEMOGRAPHICS

Hospital Surveyed – Total	30
Academic Medical Center – Frequency (%)	10 (33.3%)
Community Hospital – Frequency (%)	19 (63.3%)
Rural Teaching Hospital – Frequency (%)	1 (3.3%)
Beds – Mean (SD)	541.27 (± 408.49)
LOS – Mean (SD)	5.07 (± 1.31)
Acute Care Medication Budget – Mean (SD)	\$25.9 M (± \$32.8 M)
Budget per Beds	\$45,629 (± \$29,744)
FTE – Mean (SD)	62.69 (± 60.15)
FTE/100 Beds	11.81 (± 5.28)
Location of Hospital – Frequency (%)	
Midwest	10 (33.3%)
Northeast	8 (26.7%)
South	6 (20%)
West	6 (20%)
Position of Respondent – Frequency (%)	
Clinical Coordinator/Clinical Manager	10 (33.3%)
Clinical Pharmacist	8 (26.7%)
VP of Pharmacy/System Level Director	6 (20%)
Director	4 (13.3%)
Research Pharmacist	1 (3.3%)
Assistant Director	1 (3.3%)

TABLE 2: BOARD CERTIFICATIONS PER HOSPITAL SIZE

	Hospital Size		
	<200 (N=14)	200-500 (N=11)	>500 (N=5)
FTE – Mean (SD)	7.1 (± 3.88)	38.27 (± 14.35)	104.72 (± 67.21)
BCPs – Mean (SD)	2 (± 0.71)	11.46 (± 5.93)	55.86 (± 37.01)
BCPs/FTE – Mean (SD)	0.36 (± 0.19)	0.33 (± 0.19)	0.63 (± 0.35)
BPS Certifications – Mean (SD)			
BCPS	1	7.36 (± 5.26)	30.57 (± 23.44)
BCCCP	1	2 (± 0.87)	7.33 (± 4.44)
BCOP		1.67 (± 1.15)	5.17 (± 4.02)
BCACP	1	1.8 (± 1.1)	3.54 (± 3.13)
BCPPS		1	3.73 (± 1.9)
BCIDP	1	1	2.7 (± 1.49)
BCCP		1	3.29 (± 1.98)
BCSCP		1.03 (± 0.06)	2.33 (± 1.58)
BCGP	1	1	1.33 (± 0.5)
BCPP			2 (± 2.24)
BCEMP			3 (± 1.1)
BCTXP			2.25 (± 0.96)
BCNSP			1
BCNP			1

TABLE 3: QUALITY & UTILIZATION OUTCOME MEASURES

	≥ 33% BCPs		P-Value
	<33% BCPs		
CLINICAL OUTCOME MEASURES			
30-Day Mortality – Mean (SD)			
AMI	11.97 (± 0.88)	12.14 (± 1.1)	0.681
CABG	2.66 (± 0.5)	2.98 (± 0.91)	0.318
COPD	8.43 (± 1.45)	7.91 (± 1.15)	0.318
HF	11.45 (± 1.20)	11.02 (± 1.81)	0.459
PNA	16.68 (± 1.88)	16.21 (± 2.95)	0.613
STK	13.00 (± 1.80)	13.78 (± 2.47)	0.358
30-Day Readmission – Mean (SD)			
AMI	14.41 (± 1.63)	15.15 (± 1.06)	0.226
CABG	12.3 (± 0.72)	11.49 (± 0.7)	*0.018
COPD	19.71 (± 1.15)	20.03 (± 1.22)	0.502
HF	20.65 (± 1.79)	21.07 (± 0.79)	0.415
HOSPITAL WIDE	14.93 (± 1.1)	15.09 (± 0.82)	0.669
PNA	16.67 (± 1.71)	17.41 (± 0.91)	0.165
Communication – Mean (SD)			
Understood Care Before Discharge			
Agree	43.56 % (± 4.27%)	43.07 % (± 3.67%)	0.74
Disagree or Strongly Disagree	7.13 % (± 2.06%)	5.79 % (± 1.63%)	0.061
Strongly Agree	49.31 % (± 5.93%)	51.14 % (± 4.97%)	0.372
Understood Purpose of Medications Before Discharge			
Agree	37.8 % (± 4.23%)	37 % (± 3.64%)	0.591
Disagree or Strongly Disagree	6 % (± 1.56%)	5 % (± 1.17%)	0.111
Strongly Agree	56.2 % (± 5.43%)	58 % (± 4.59%)	0.345
UTILIZATION OUTCOME MEASURES			
LOS – Mean (SD)	5.16 (± 1.58)	4.92 (± 0.81)	0.62
Budget per Beds – Mean (SD)	\$45,221.40 (± \$18,151)	\$46,342.73 (± \$45,242)	0.95
FTE/100 Beds – Mean (SD)	11.12 (± 5.49)	12.66 (± 5.1)	0.44

FIGURE 1: EFFECTIVENESS OF INCENTIVE PRACTICES IMPLEMENTED

In general, how useful have your incentive practices been in promoting BPS certification?

Very Ineffective = 1 | Ineffective = 2 | Somewhat Ineffective = 3 | Somewhat Effective = 4 | Effective = 5 | Very Effective = 6

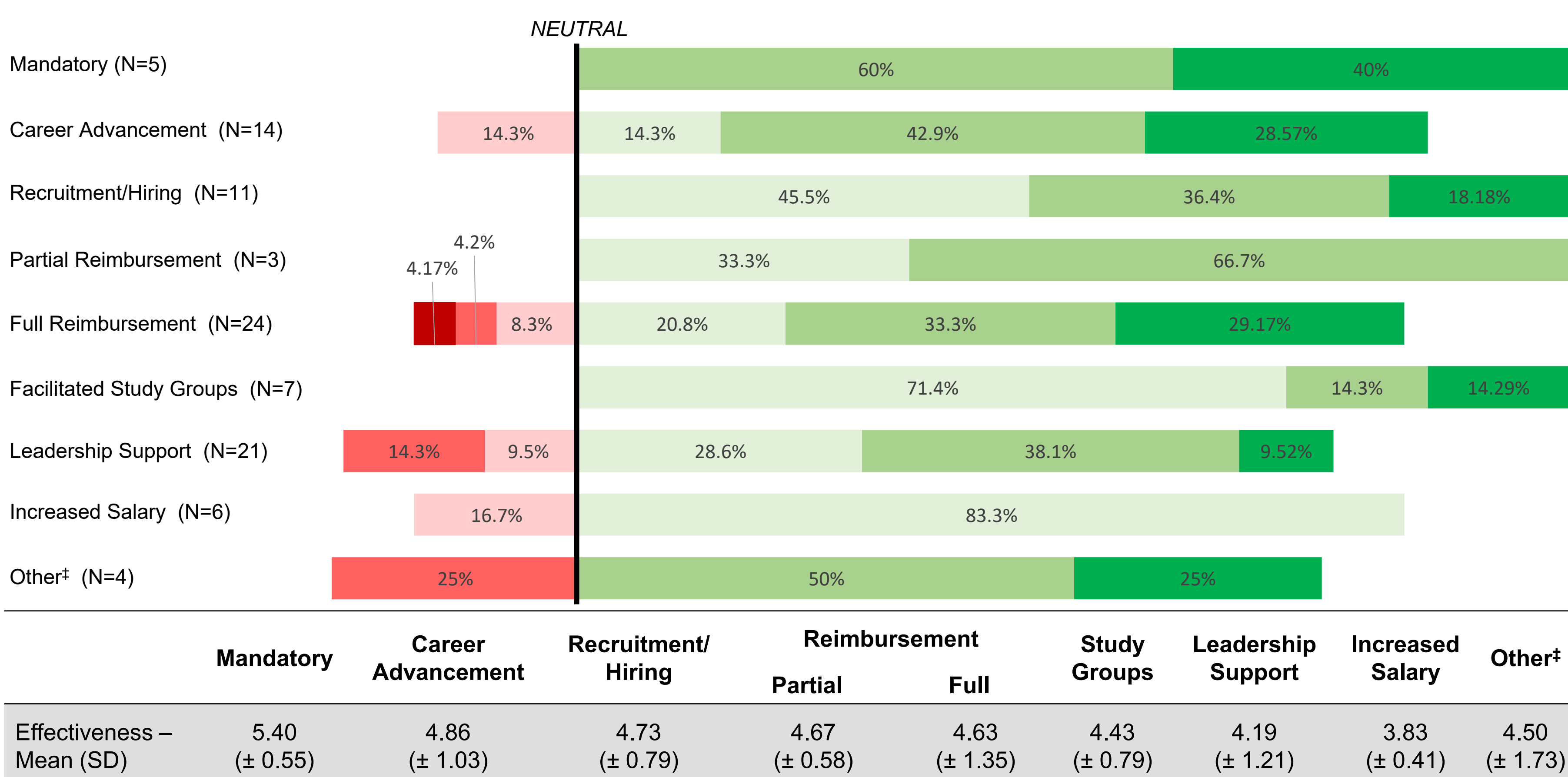
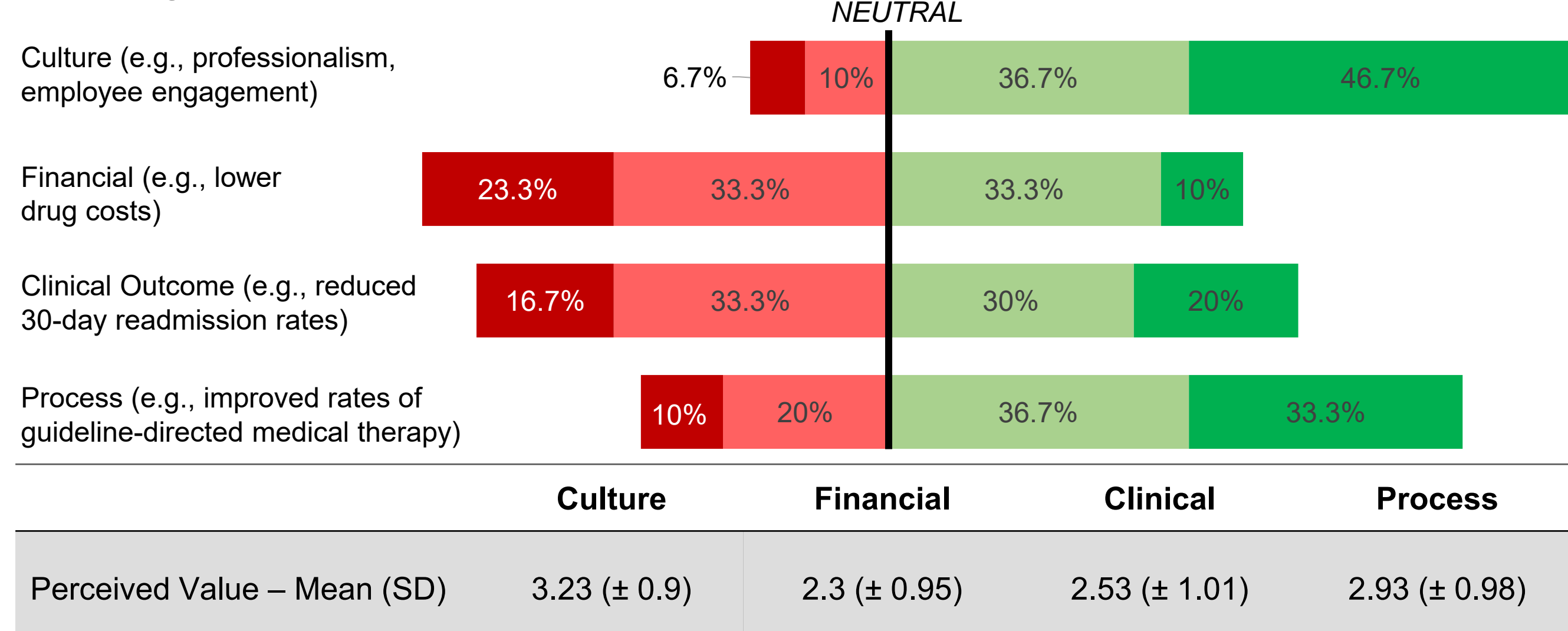


FIGURE 2: PERCEIVED VALUE LIKERT RESPONSES

What is the perceived value that BPS certification brings to your hospital for the following parameters? No Value = 1 | Slight Value = 2 | Moderate Value = 3 | High Value = 4



DISCLOSURES, REFERENCES, & ABBREVIATIONS

CONCLUSION

Grant funding was provided by the Board of Pharmacy Specialties® (A22-0709-0101)

References:

- Certification stats by location. Board of Pharmacy Specialties website. Accessed May 2023
- Dorsch MP, et al. *Pharmacotherapy* 1999;19:1354-62

Select Abbreviations:

BCPs = Board-Certified Pharmacists; CMS-CCD = Centers for Medicare and Medicaid Care Compare Database; FTE = Full Time Equivalent; LOS = Length of Stay; AQCV = Added Qualification in Cardiology; HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems; AMI = Acute Myocardial Infarction; CABG = Coronary Artery Bypass Graft; COPD = Chronic Obstructive Pulmonary Disease; HF = Heart Failure; PNA = Pneumonia; STK = Stroke

- Inconclusive findings regarding the effect of BCPs on clinical or utilization outcome measures
 - A larger study needed to further explore the relationship between BCPs and the effect they have on these measures
 - Evidence showing the effect of board-certification on quality and cost of care may be an avenue to promote for the reimbursement of services
- Provides department leaders insight on how to promote board-certification and the perceived value of board-certification amongst other pharmacy administrators

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