

Informing Healthcare Policy for Plastic Medical Waste Recycling in U.S. Healthcare Facilities



Barbara Belanger DNP, RN, CNOR,
Christopher Callahan DNP, RN; Patrice Osgood DNP, RN, NE-BC, CNOR



Background

Healthcare waste

- Contaminated, potentially infectious (EPA)
- 5.9 million tons/year disposed globally
- Increased volume of single-use-only items and blue wrap added to waste
- State based regulation of recycling

Impact on Health & Climate Change

- Phthalates, DEHP, PVC plastic add toxicity
- Incineration/landfill emissions on air pollution
- 4-12 million tons contaminate oceans/coast

Impact of China National Sword/COVID-19

- Decrease in global recycling market since 2018
- Increased waste disposal to landfill/incineration
- Limited infrastructure for recycling in U.S.

Clinical Inquiry

How can plastic medical waste (PMW) recycling be restructured and waste to landfill or incineration be decreased to promote environmental sustainability and public health from a healthcare perspective?

Purpose and Specific Aims

Purpose: Assess current state of PMW recycling from a healthcare facility perspective, to inform health care policy.

Specific Aims:

- Identify current efforts, restructuring plans, and state policies that guide PMW recycling in the U.S.
- Develop an executive report for stakeholders to catalyze discussions to improve efforts & inform healthcare policy for PMW recycling

Methodology

A Quality Improvement (QI) Project IRB Approval

Plan-Do-Study-Act (PDSA) Framework

Setting: Massachusetts General Hospital (MGH)

REDCap® Survey Tool: CVI scoring by experts from MGH and Greening the OR (GOR) Cohort

Survey Segments: Demographics. Current Efforts. Innovations for restructuring. State legislation. Open-ended question

Convenience Sample: 76 GOR members

Data Analysis: Descriptive Statistics using Frequency-Percentage, Thematic Analysis

Respondent Demographics:

Response rate: 21%

Roles: 18% nurses; 63% sustainability leaders

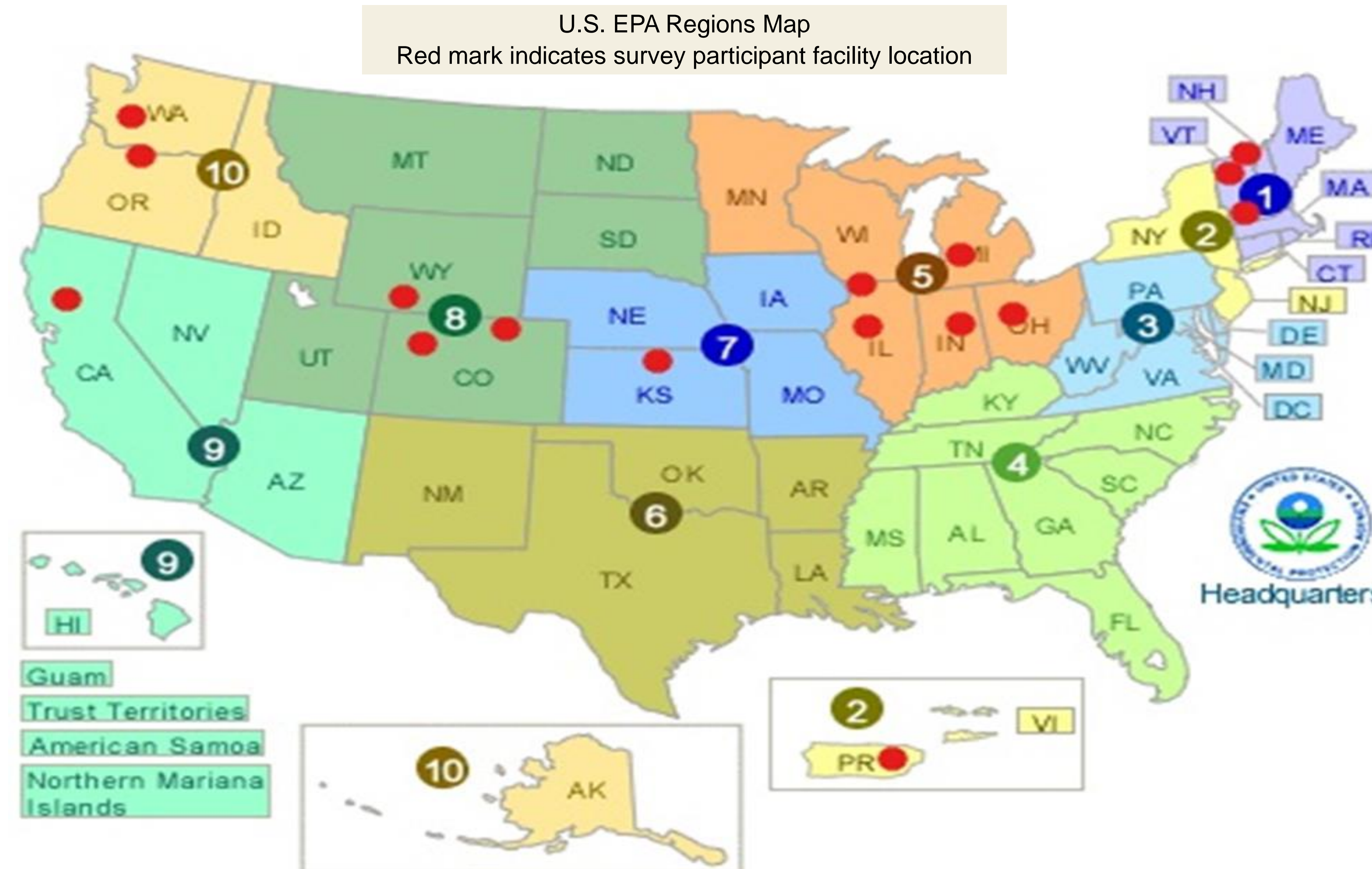
Facility Locations: 7 from 10 U.S. EPA Regions (see map above)

Contact information: bbelanger@mg.harvard.edu



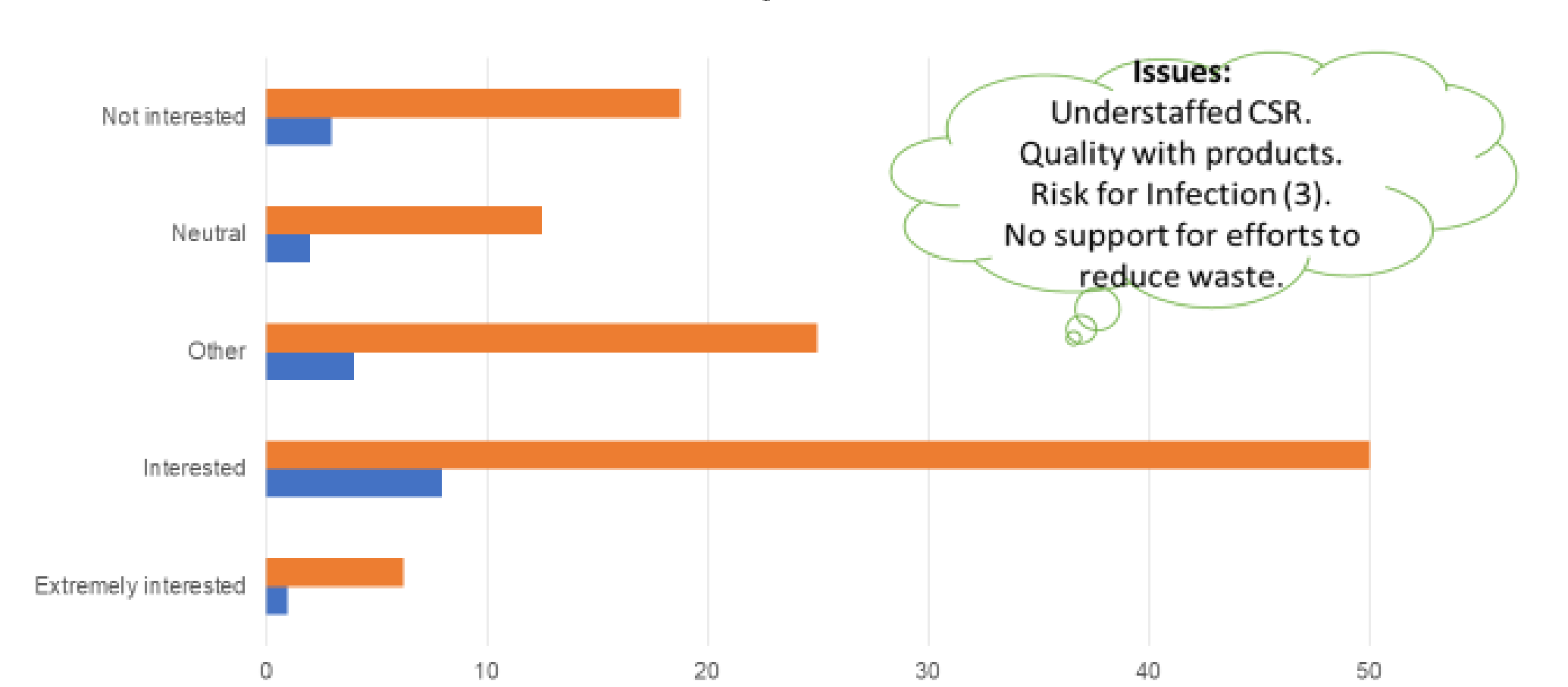
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Results

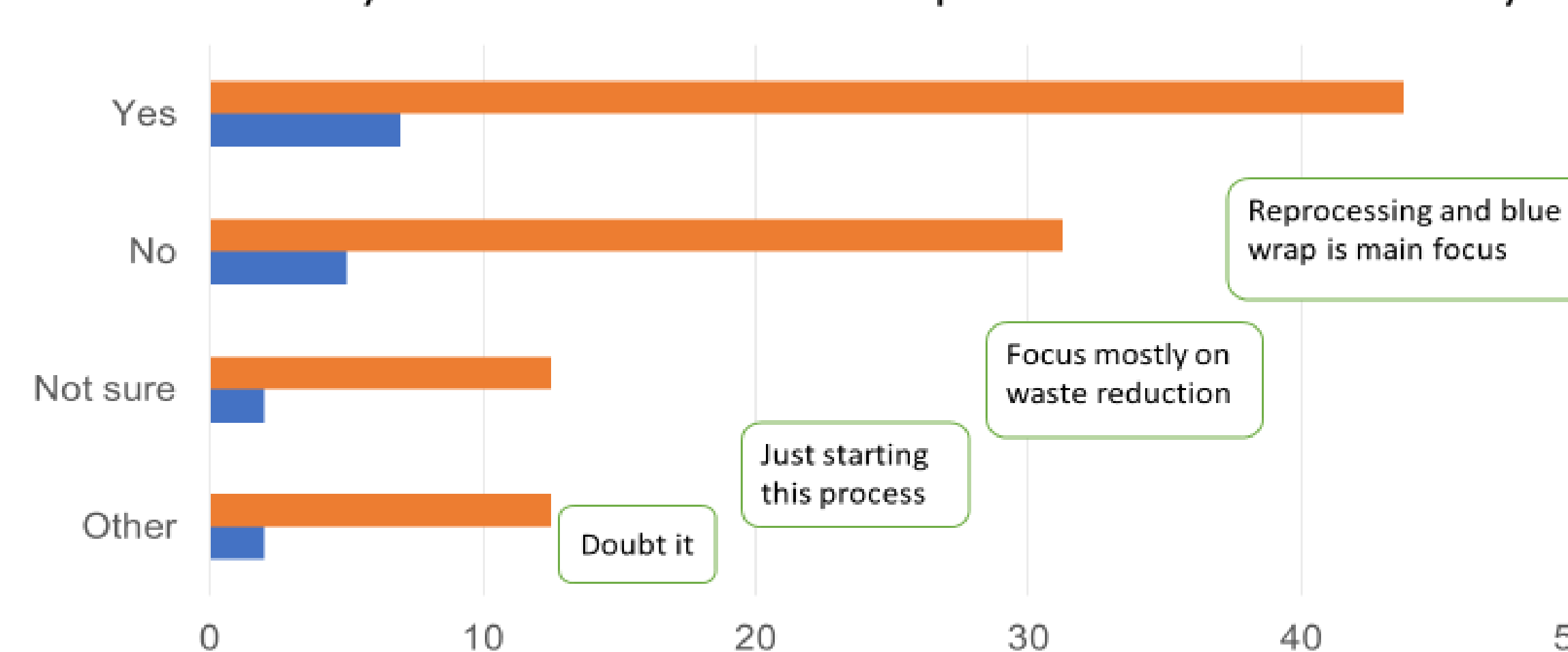


- Sum of Percentage
- Sum of Frequency

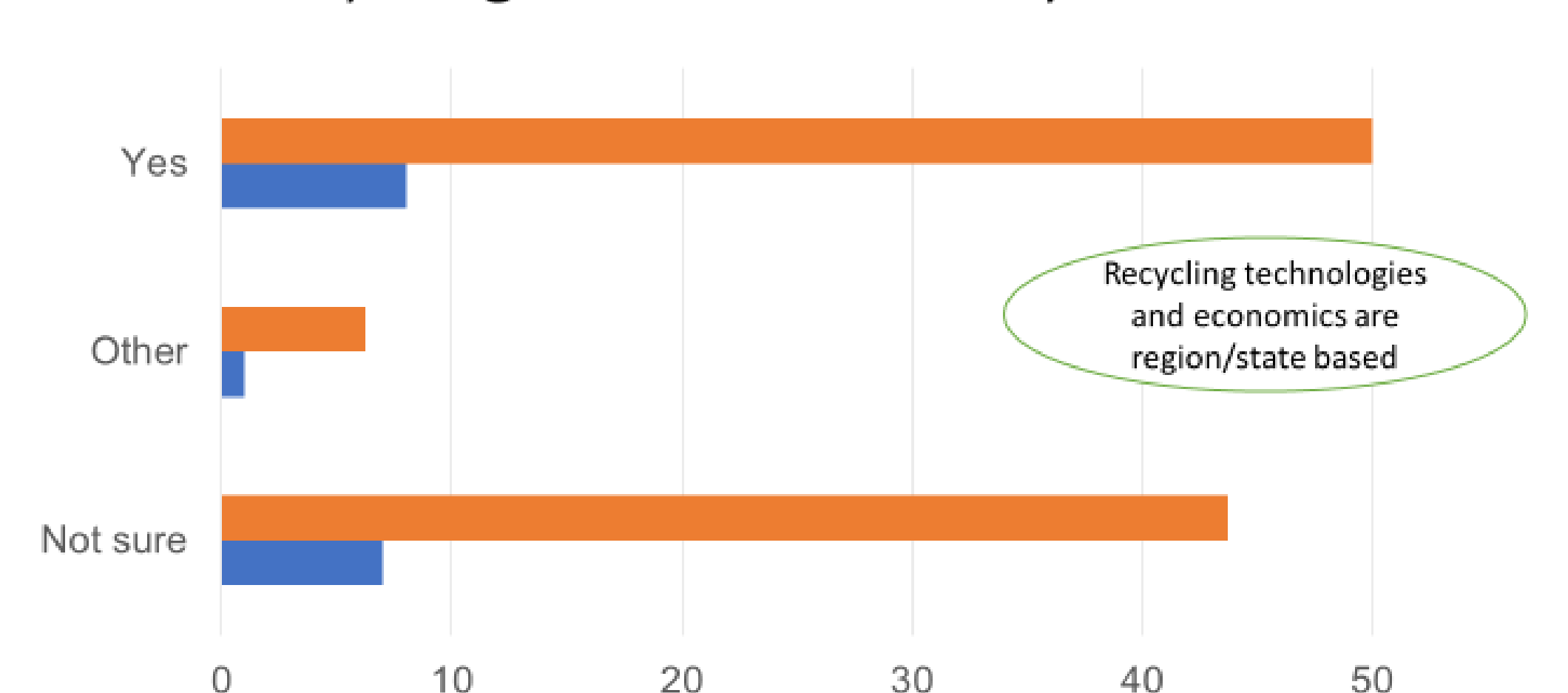
Your Healthcare Facility Interest to Promote Reusable/Reprocessed items



Your Healthcare Facility is Evaluating Circular Economy Framework to Improve Sustainability



Will Advocating for Federal Policy to Standardize Recycling Efforts Nationally be Effective



Results

Nursing Environmental Stewardship Role

Frontline nurses at your facility	Frequency	Percentage
Advocate for innovative options for recycling	10	63
Support/Participate in on-going efforts for recycling	11	69
Do not participate in plastic medical waste recycling	1	6
Talk with waste management vendors at meetings	0	0
Not sure (of frontline nurses' practice with recycling)	1	6

Current Efforts

Blue wrap: 94% use. 63% dispose to incineration. **PMW disposal:** 63% recycle. 81% to landfill. 19% to incineration: a 63% increase since 2018. **Single-use-only items purchase:** 50% unchanged vs. 38% increase vs. 12% decrease by hospitals

Organizational Interest to Restructure

Discuss restructuring PMW recycling: 44%
Reprocessing and reusing: 50%
Replace plastic items with plant-based items: 50%
Evaluate a Circular Economy Framework: 44%

Legislation

Fact sheet guiding state recycling processes available: 6% yes, 50% no, 44% not sure.

Significance

Variability across US in processes & legislation to promote PMW recycling impacts the potential for development of an effective circular economy
Recycling PMW is one strategy in perioperative nursing practice that promotes environmental health
Nurses must step up as partners in leading efforts for sustainability and health that will promote **“climate change, climate justice, and health”** (Nicholas & Breakey, 2017) through education and engagement

Recommendations

The six Rs of waste reduction in the OR

