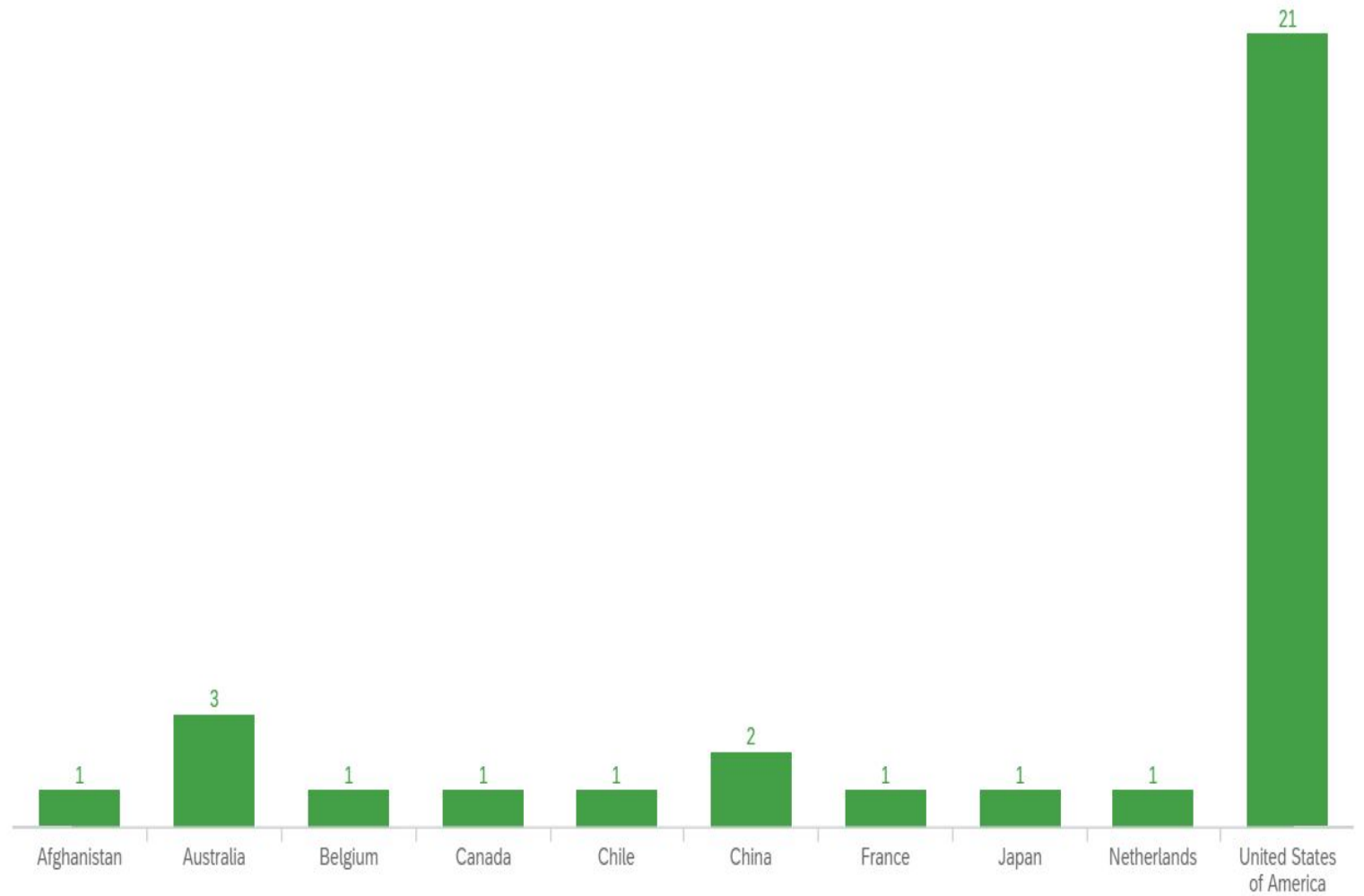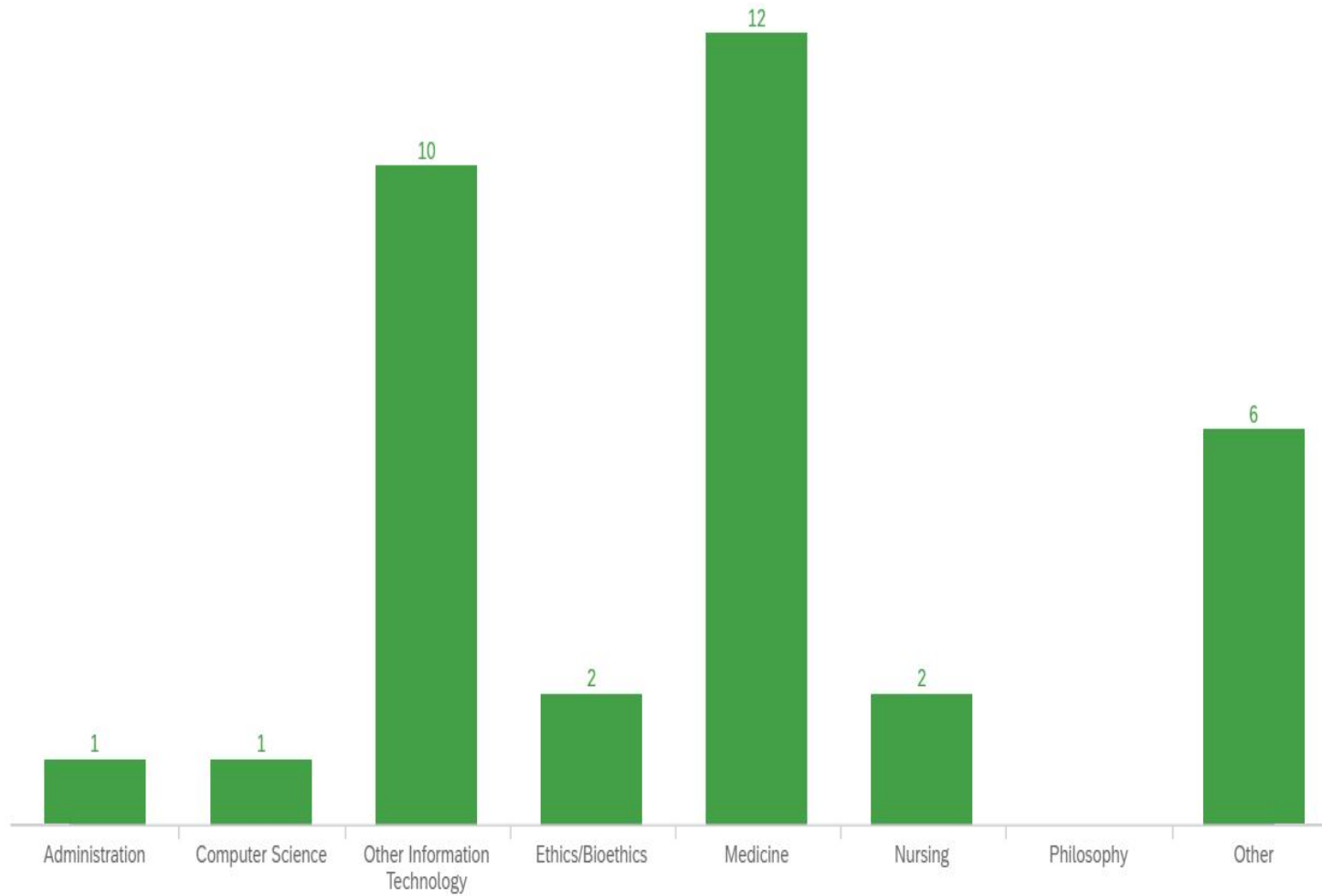# COVID-19: Ethics, Computing, and Resource Allocation.

A Global Capacity-Building Project.

[Click here for overview.](#)

In what country do you live?

What is your profession?

If you answered "other", please specify your profession

University Faculty

Biomedical Informatician

Lawyer

Chief Legal Officer Health and Wellness

What is your specialty

- Informatics
- Information Technology
- Internal Medicine
- Machine learning
- Medical informatics & ELSI
- Neonatology
- Nephrology
- Neurolaw, Bio law, Tort Law
- Pediatrics
- Primary Care
- Public Health
- Use of clinical decision support in Medicine
- User-Centered Design

- Academic Primary Care
- Bioethics
- Biomedical Informatics
- Cardiology
- Clinical Informatics
- Clinical Research Informatics
- Critical care
- Data science, Econometrics, and Economic models
- Emergency
- General Practice
- Health informatics
- Health Information Technology
- Hospital medicine
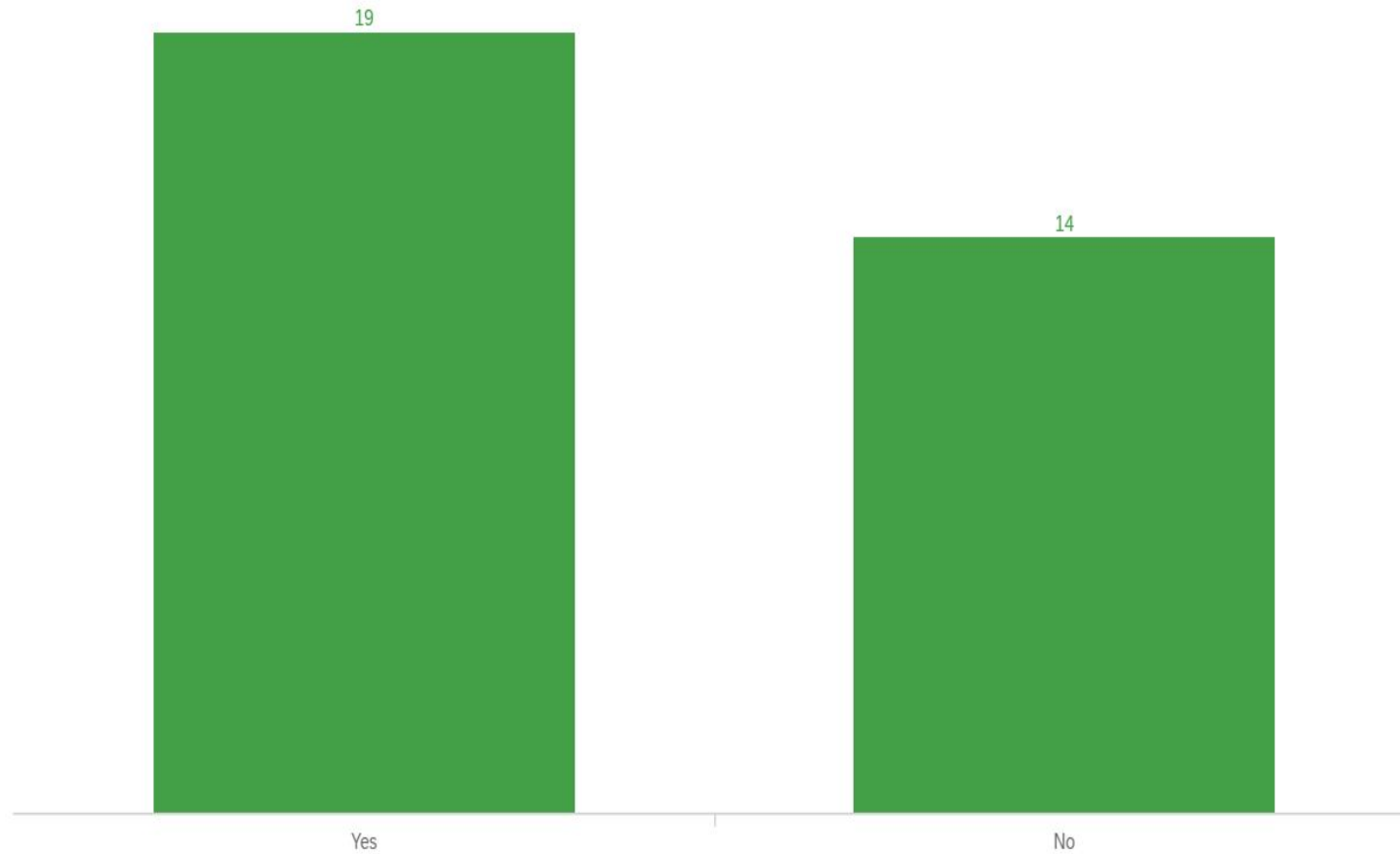
Specify with which prognostic scoring systems you are familiar

|					
Framingham Risk Score for Hard Coronary Heart Disease	Some risk predictions for kidney disease	Sequential Organ Failure Assessment (SOFA) Score	The New York Academy of Medicine HEART Score	The Ottawa Ankle Rules	Broadly familiar with commercial and research-oriented applications
Deaths, Prevalence, Network based	POLAR Diversion	Conducted research to create prognostic scores focused on aging frail older adults	Mortality prediction	Decision support for health screening	Genetic risk prediction
Acute Physiology and Chronic Health Evaluation (APACHE)	Sequential Organ Failure Assessment (SOFA)	qSOFA (Quick SOFA) Score for Sepsis	Modified Sequential Organ Failure Assessment (mSOFA) Score	Pediatric Risk of Mortality (PRISM)	Score for Neonatal Acute Physiology Perinatal Extension II (SNAP-PE II)
The CRIB (clinical risk index for babies) score	The Apache II Score	Pneumonia, several critical care (e.g., Apache), Covid, ventilator management, pulmonary embolus, liver failure		Johns Hopkins Covid	Predictive models
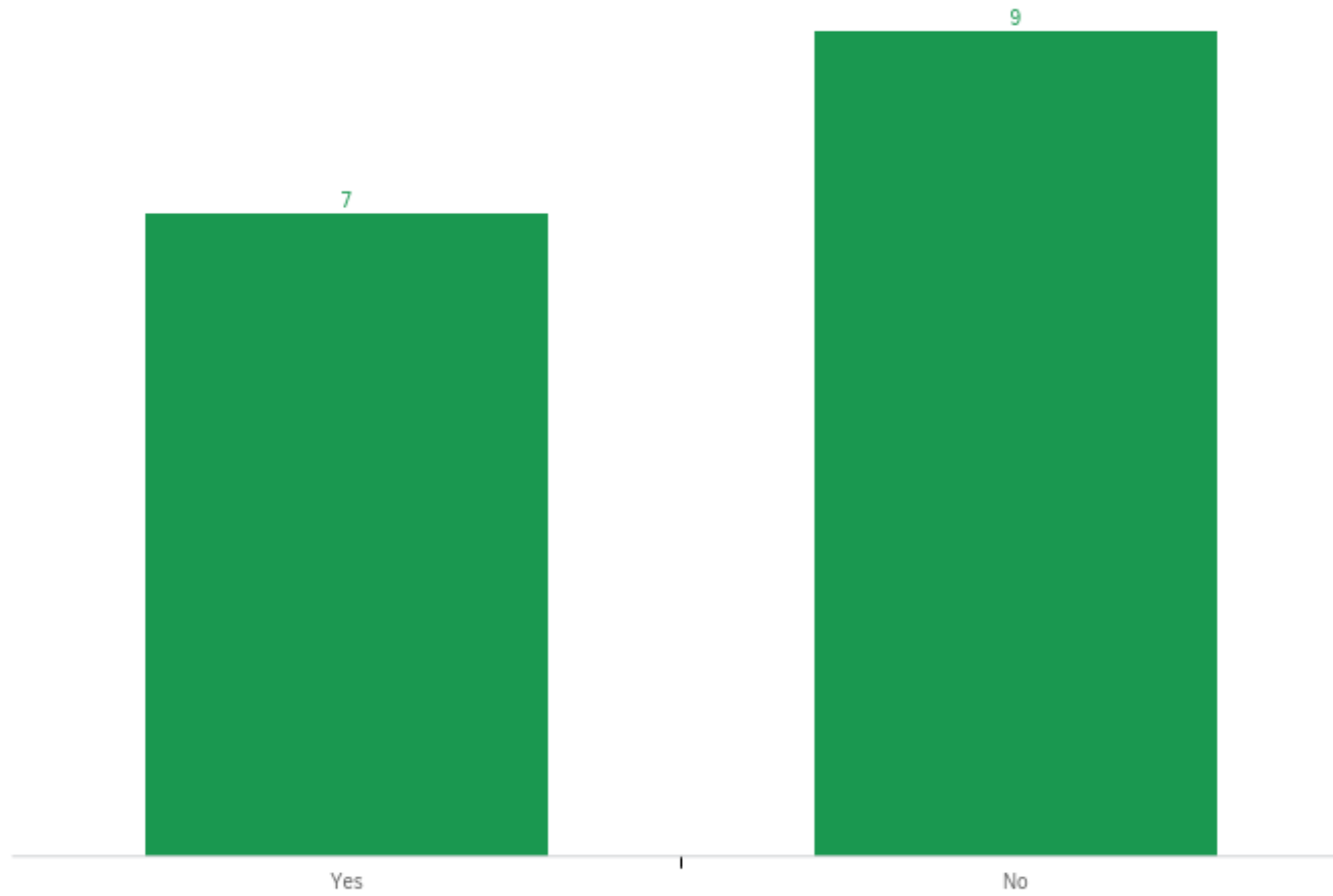
Have you ever used such a system?
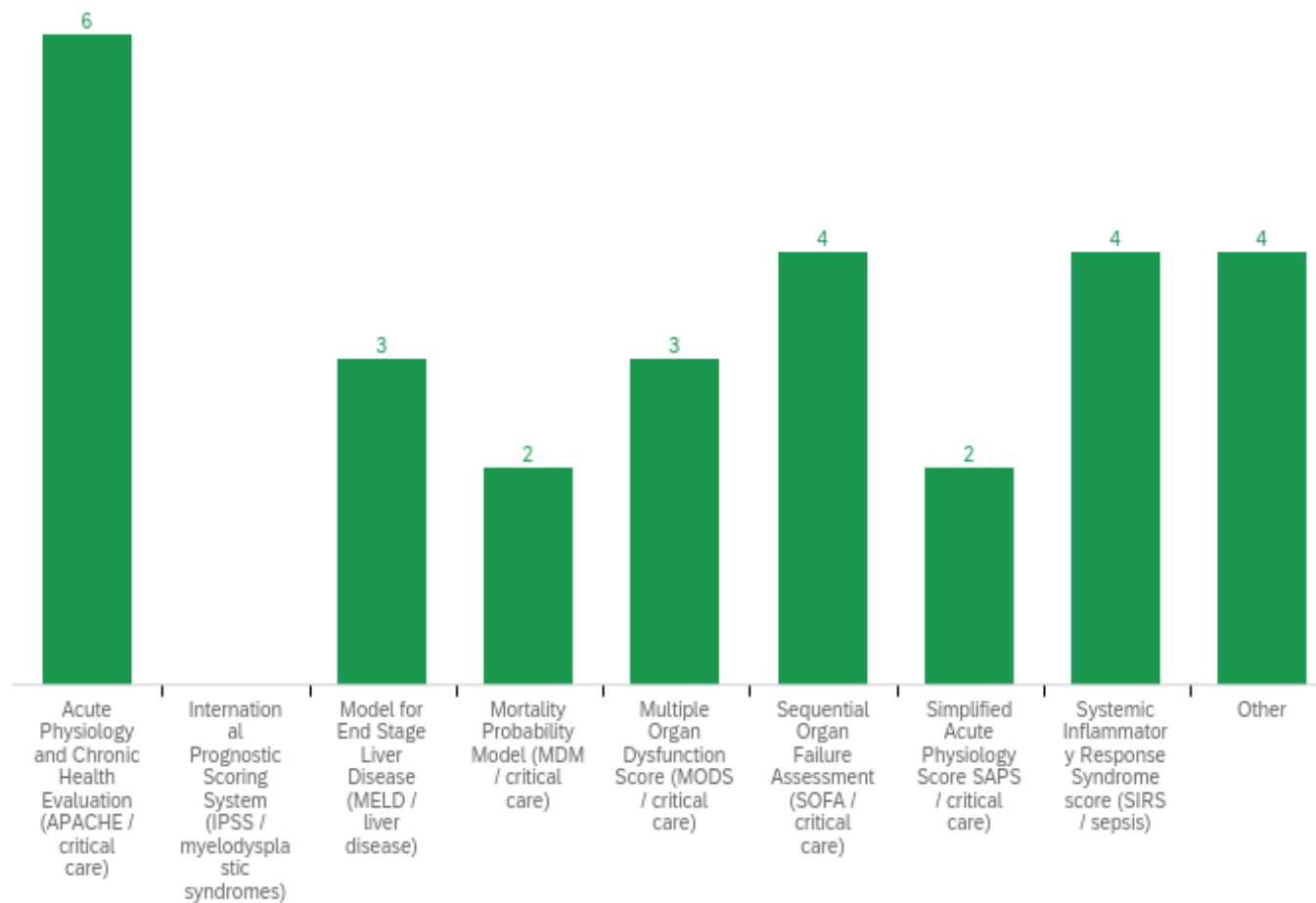
Which prognostic scoring systems have you used?

If you chose "others" which ones have you used?

- **Ontario Based**
- **SNAP**
- **CRIB**
- **Cardiac risk indices,**
- **malignant hyperthermia,**
- **CHADS-VASC**
- **HAD-BLED**
- **TIMI for MI**
- **CKD 10 year risk score**
- **Wells' scores (DVT, PE)**
- **Geneva (PE)**
- **Many more**

Are you aware of the use of prognostic scoring systems (such as the Sequential Organ Failure Assessment [SOFA]) to predict mortality of critical care patients?
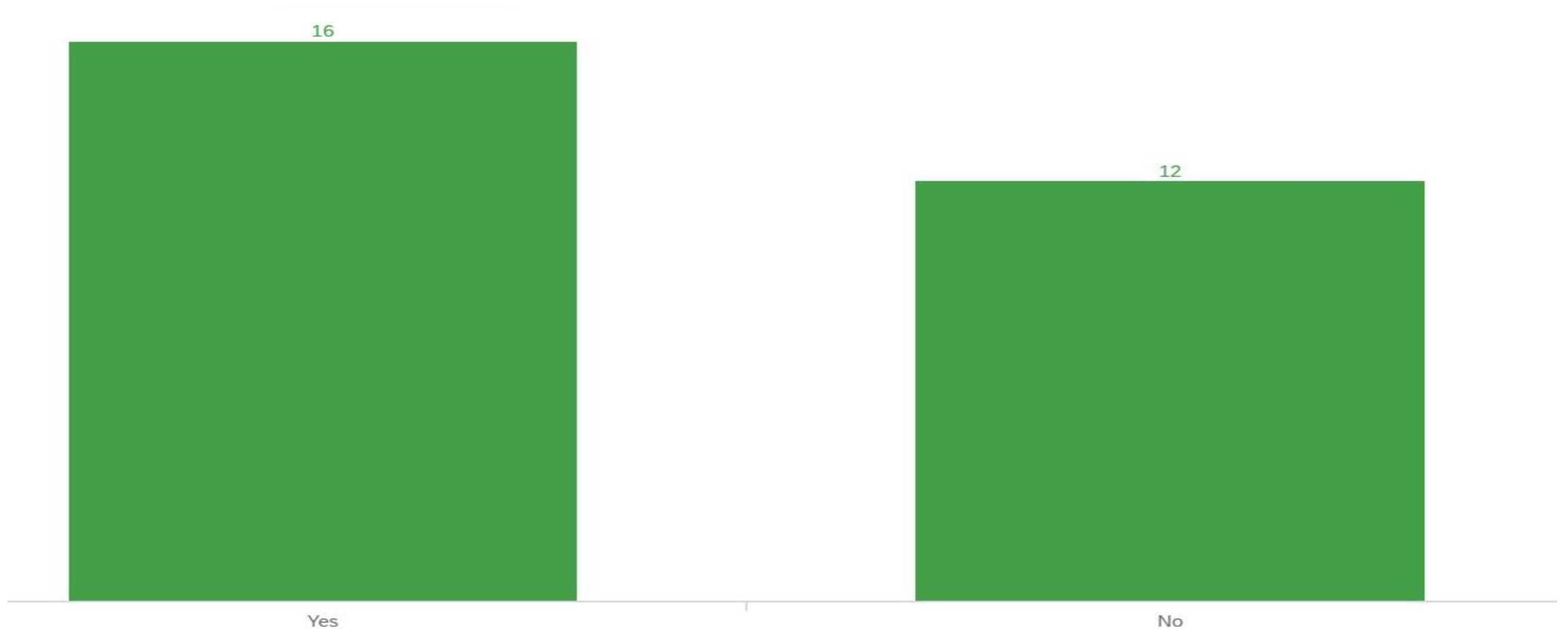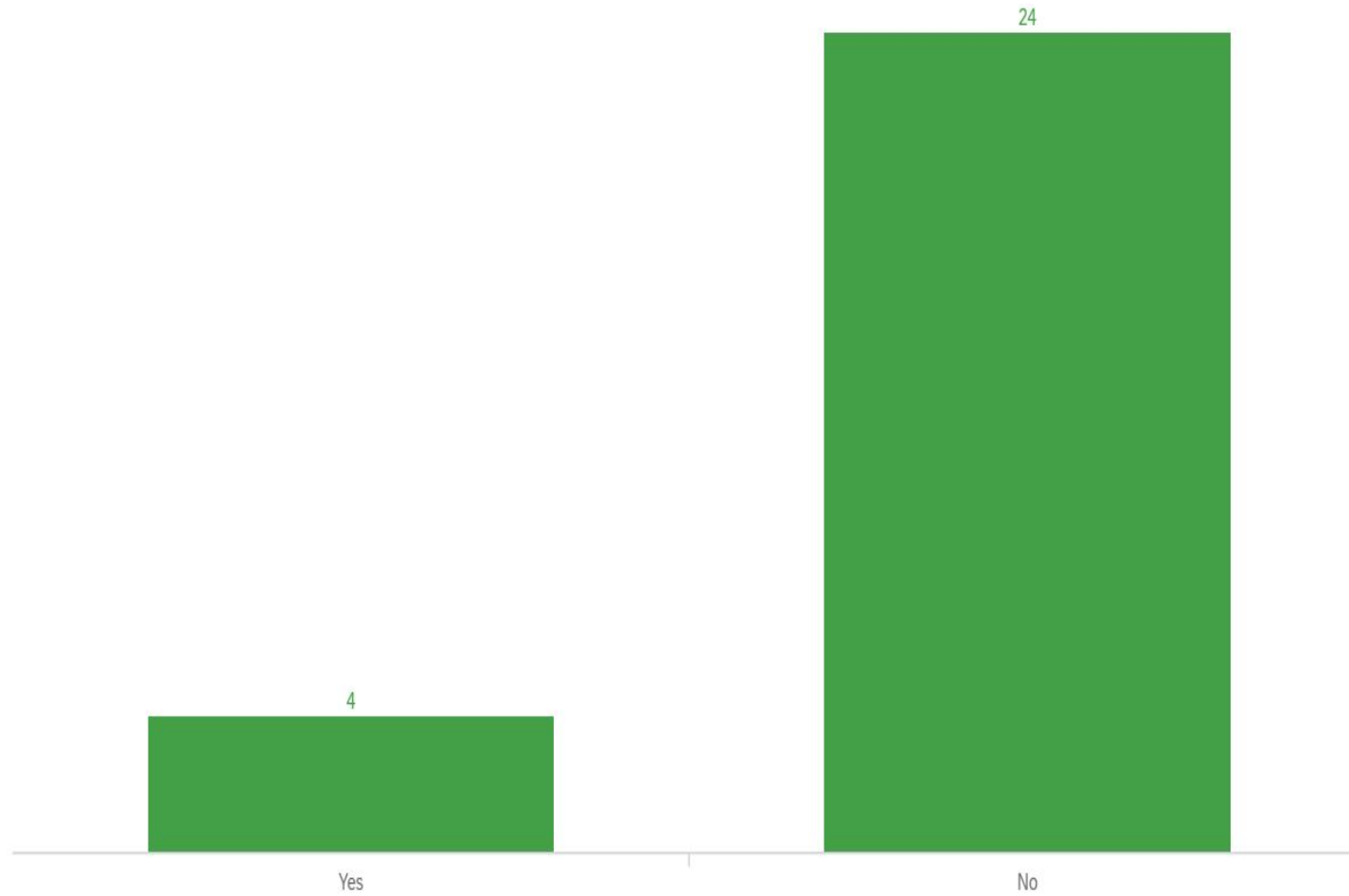
Have you ever used such a system for this purpose?

Assess the importance of the following challenges, criticisms, or issues related to the use of prognostic scoring systems for resource allocation.

Question	Very important	Important	Not sure	Not Very Important	Not Important
1. Software quality	19	7	0	0	0
2. User knowledge and education	18	8	0	0	0
3. Racial, ethnic, or other bias	22	2	1	0	0
4. Use of system for rationing, triage	13	6	4	1	1
5. System accuracy	21	4	1	0	0
6. Patient ignorance	6	9	8	2	0

What are your views regarding oversight of prognostic support systems in hospitals?

Question	Strongly agree	Somewhat agree	Not Sure	Somewhat disagree	Strongly disagree
1. No oversight needed	0	1	2	1	21
2.Oversight by industry	3	9	8	1	5
3.Oversight by institutions	13	7	2	4	0
4. Oversight by professional associations	17	6	2	1	0
5.Oversight by government	11	12	1	2	0

What are your views regarding evaluation of prognostic support systems in hospitals?

Question	Strongly Agree	Somewhat Agree	Not Sure	Somewhat disagree	Strongly disagree
1. Evaluate before use, implementation	25	1	0	0	0
2. Evaluate after a specified period	19	6	1	0	0
3. Continuous evaluation	22	2	2	0	0
4. Evaluate in the context of actual use	25	1	0	0	0
5. Evaluate in simulations	12	13	0	1	0

Liability and legal responsibility raise challenging questions.
Who should be legally responsible for the use of a decision support system for resource allocation?

Question	Strongly agree	Somewhat agree	Not Sure	Somewhat disagree	Strongly disagree
1.Hospital administrators	11	10	3	1	1
2.Clinical ethics committees	10	11	2	1	2
3.Individual clinicians	5	16	2	1	2
4.System designers	11	11	0	3	1
5.Software developers	8	10	3	3	2

Some have suggested that patients should agree to its use or be informed when a computer is used to provide decision support.

Remembering that alarms and alerts are a form of decision support, please respond to the following.

Question	Strongly agree	Somewhat agree	Not Sure	Somewhat disagree	Strongly disagree
1. Patients should always consent to computer use.	3	6	3	7	7
2. Patients should consent for decision support.	5	4	4	7	6
3. Patients should be informed about decision support, but consent is not necessary.	2	14	3	5	2
4. Hospitals should determine need for consent on a case-by-case basis.	1	11	5	5	4
5. No patient consent or disclosure needed.	0	3	2	10	10

Other issues

Question	Strongly agree	Somewhat agree	Not Sure	Somewhat disagree	Strongly disagree
1.Similar rules should apply to diagnostic and prognostic systems.	9	9	2	3	2
2. Traditional decision support raises the same key issues as AI systems.	8	9	0	5	4
3. Most clinicians are well informed about medical computing tools.	0	2	1	14	8
4. Most patients are well informed about medical computing tools.	1	0	0	7	18
5. Prognostic support tools should be included in electronic health records.	4	14	7	0	1