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## Thinking Like A Scientist ... And An Engineer: Training future leaders and innovators in health care systems and delivery

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# Capstone: Thinking Like A Scientist ... And An Engineer

## Training future leaders and innovators in health care systems and delivery

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### BACKGROUND

#### Current State of Physician Leadership Pathways

- Health care is increasingly becoming more complex with the advancement of accountable organizations, expansion of hospital systems, and major insurance and government reforms.
- To address the need for physician leaders with management skills, the number of MD/MBA programs has risen dramatically since the 1990s, with 65 joint programs in the US, out of 141 accredited medical schools as of 2013. (Goyal, 2013)
- More recently, residency programs and medical schools have also started to develop leadership pathways for its students.

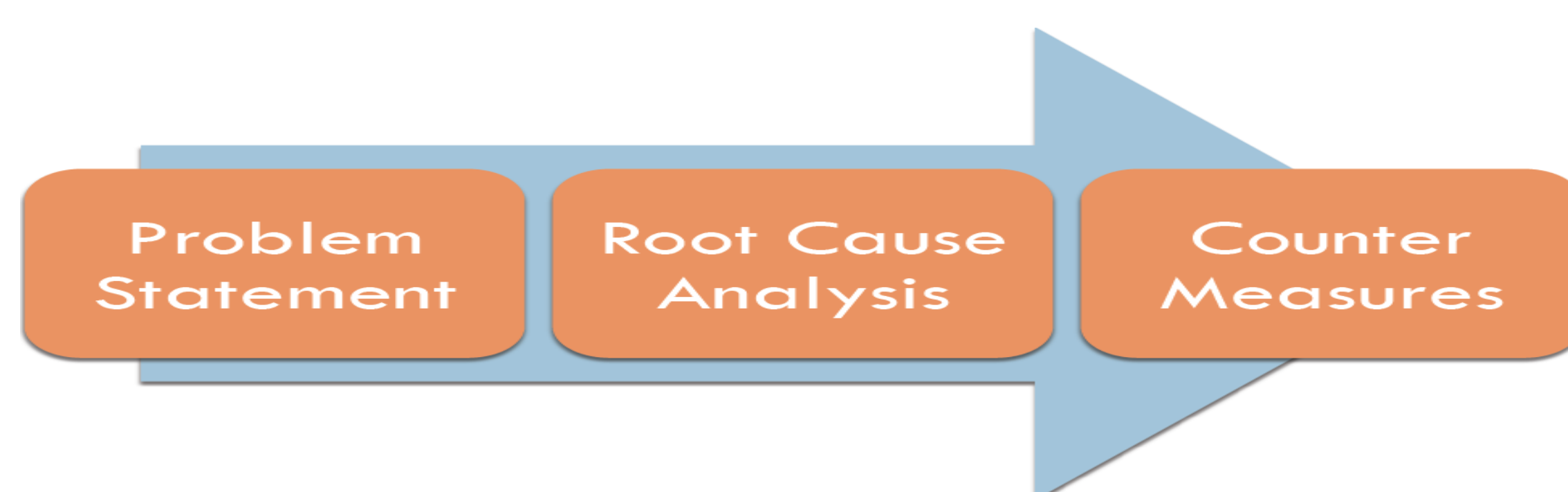
#### Thinking Like An Engineer

- To focus our analysis on the issue of leadership training at the UME level, we used the Lean management problem solving tool called "A3".
- The term A3 was initially coined by Toyota, which limited all process analysis and project reports to an A3 11 x 17 sheet of paper.
- In business, A3 is referred to as a template for process analysis and improvement. It captures the iterative steps problem solving by directing the planner through the Plan Do Study Act (PDSA) cycle.
- To analyze leadership and apply the PDSA cycle, we evaluated the achievements and challenges of the Quality Improvement Health Care Elective, a student led series of lectures on health care process, Lean management, and health care leadership.



### METHODS

#### PLAN: "A3" PDSA Cycle



**Problem Statement:** The QI elective for medical students ran for two years, from 2011 to 2013. The elective started strong with an average of 6-8 attendees, but were poorly attended in the last year with an average of 2-3 students per session.

**Root cause analysis:** We conducted individual interviews of faculty sponsors, lecturers, and student leaders involved in the QI elective, regarding reasons for poor attendance, and ideas for improvement.

**Countermeasures:** Feedback from the root cause analysis led to the generation of counter measures, or solutions for improvement.

**DO:** A Student Survey was launched in January 2015 to all 4 class years to evaluate the feasibility and interest level of the countermeasures and gauge overall interest in leadership content.

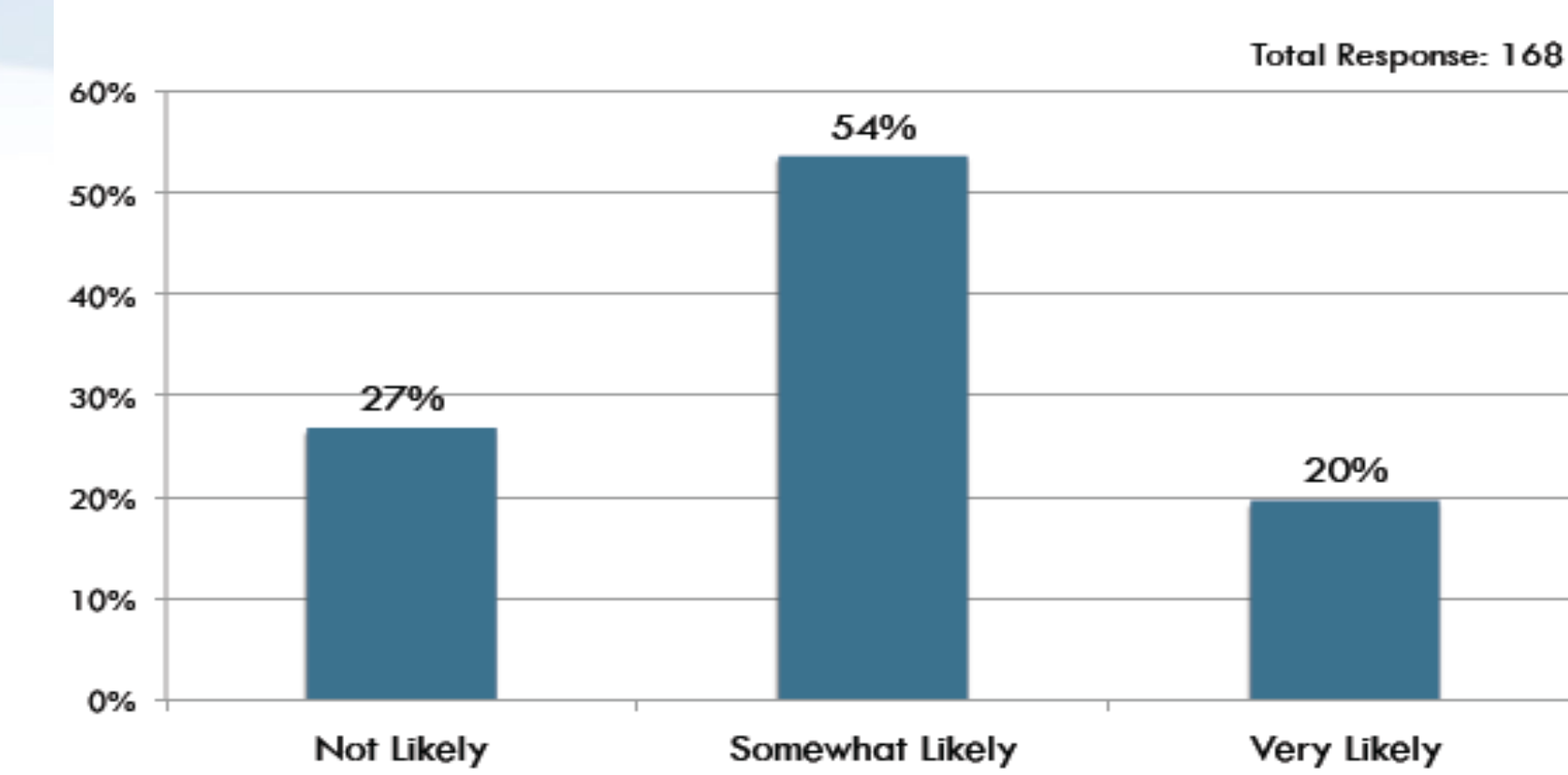
**STUDY:** Results of the survey were collected and analyzed.

**ACT:** A new education platform can be developed and implemented based on findings in the root cause analysis, counter measures, and student survey.

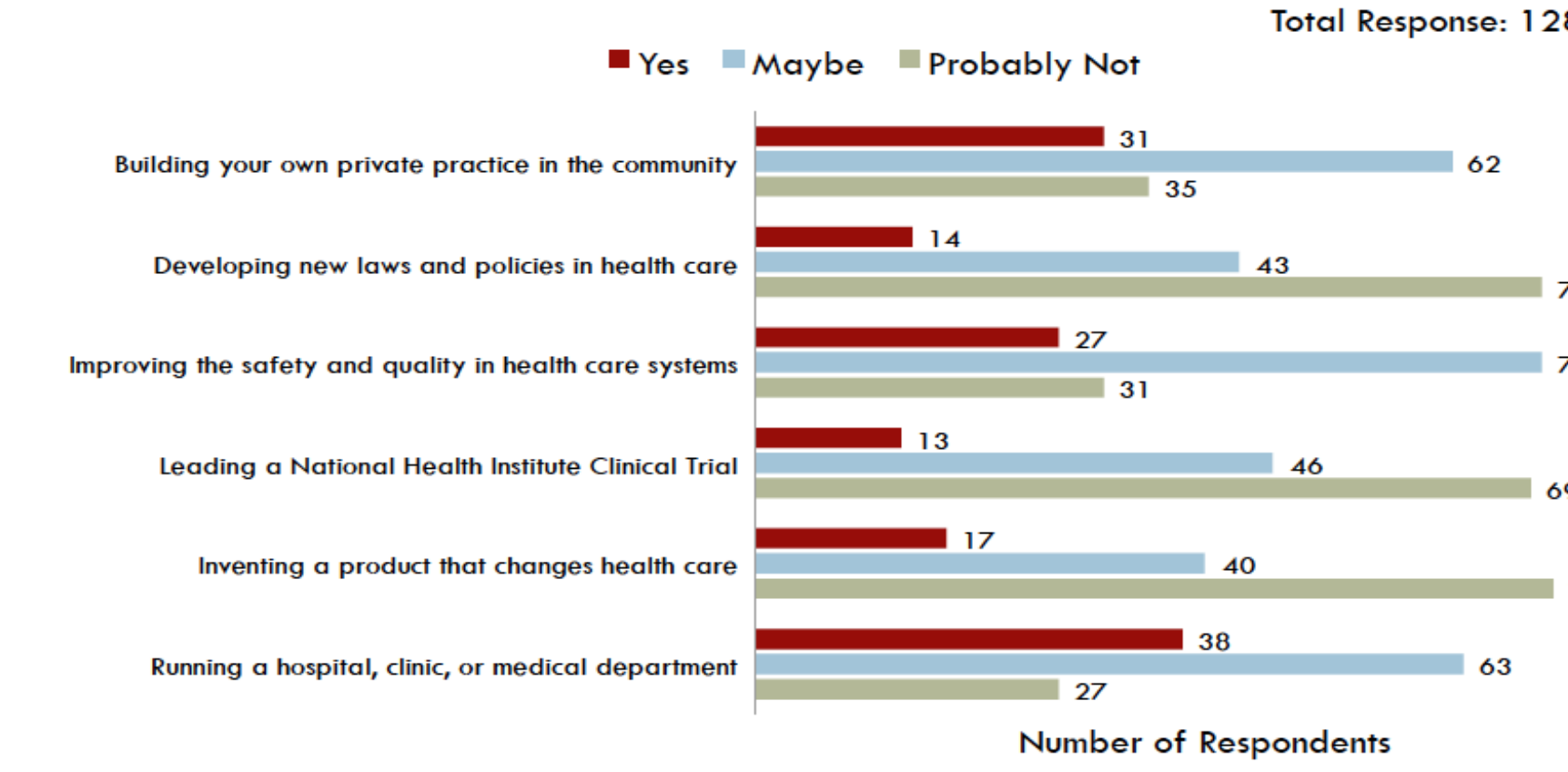
### RESULTS

#### UMMS Student Survey on Health Care Leadership

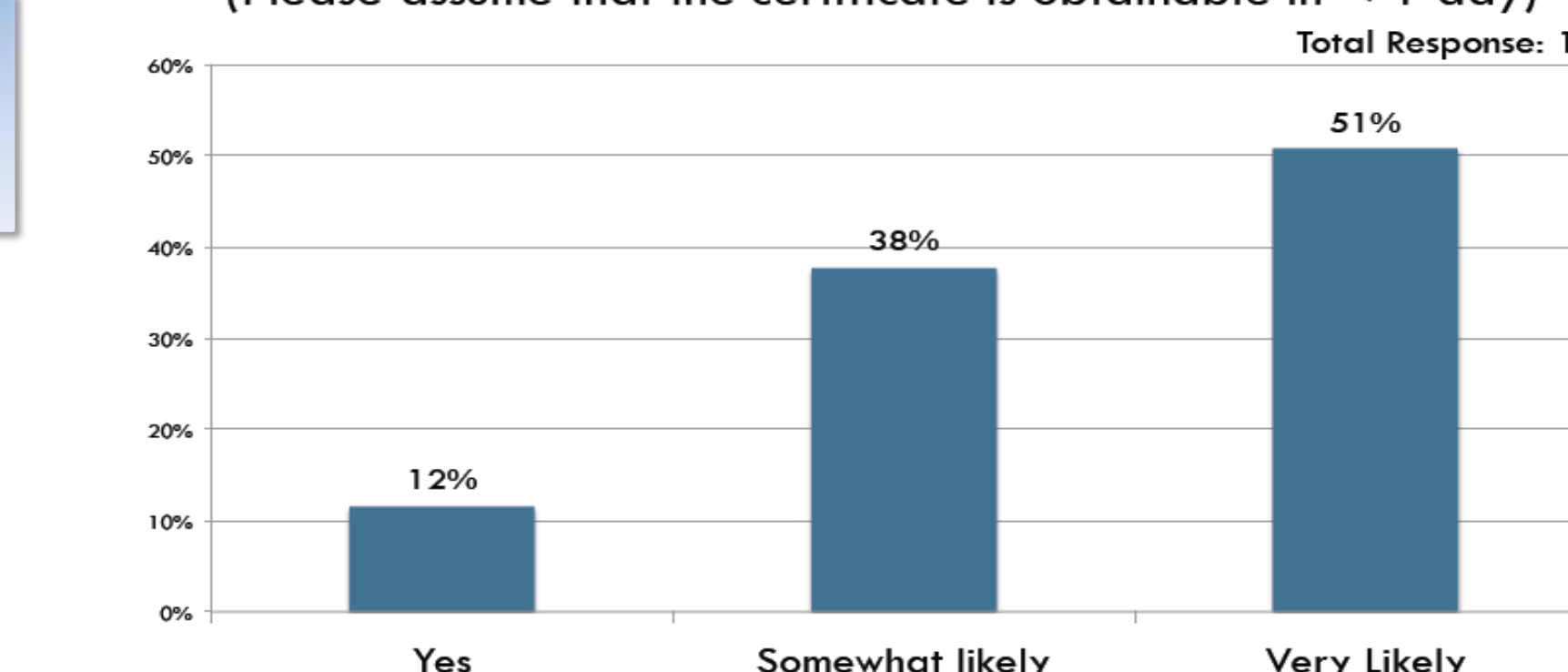
If an elective or student group on health care leadership was available, how likely would you participate?



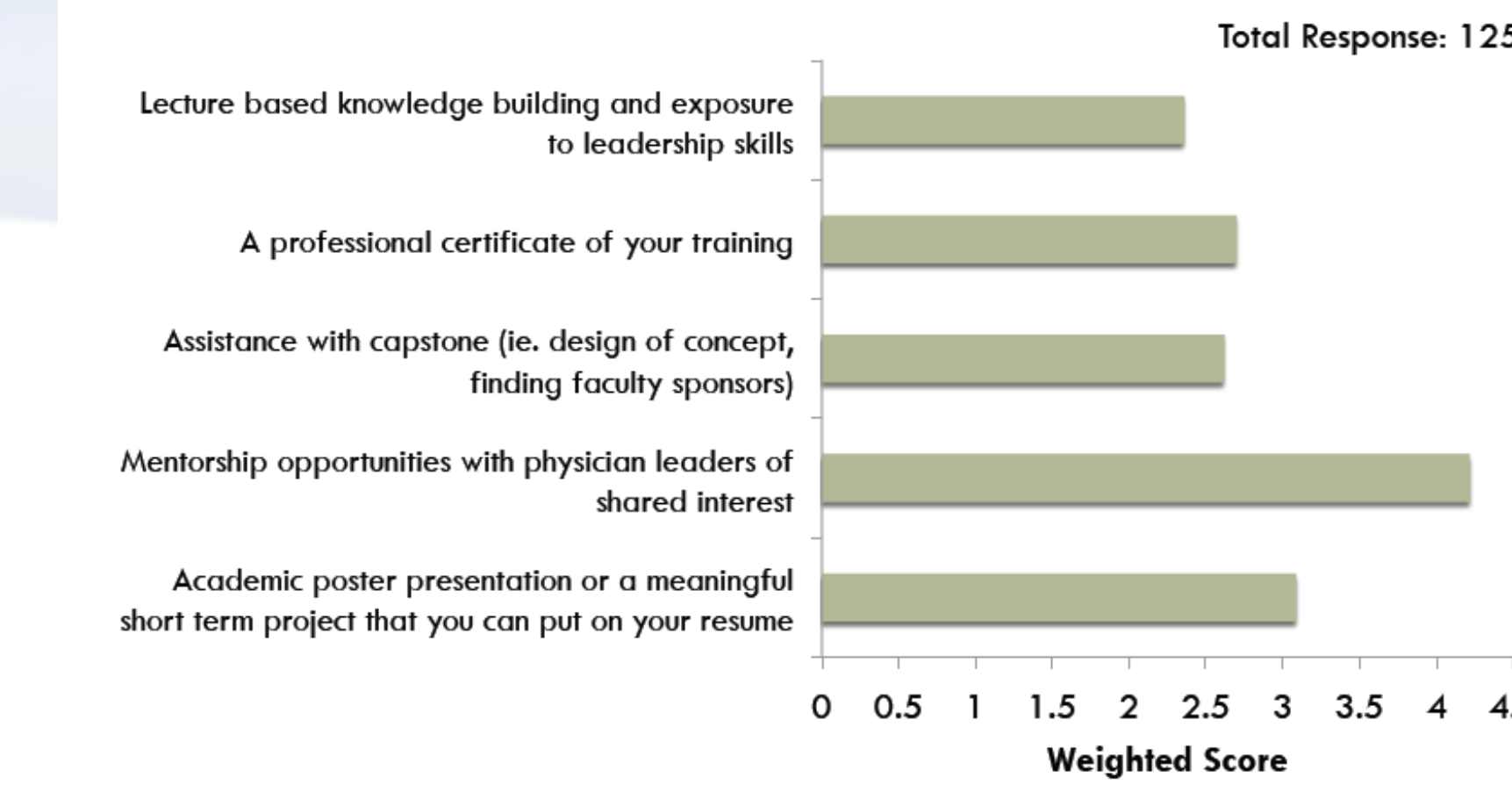
You have a crystal ball. You look into the future. Twenty years from now, you are . . .



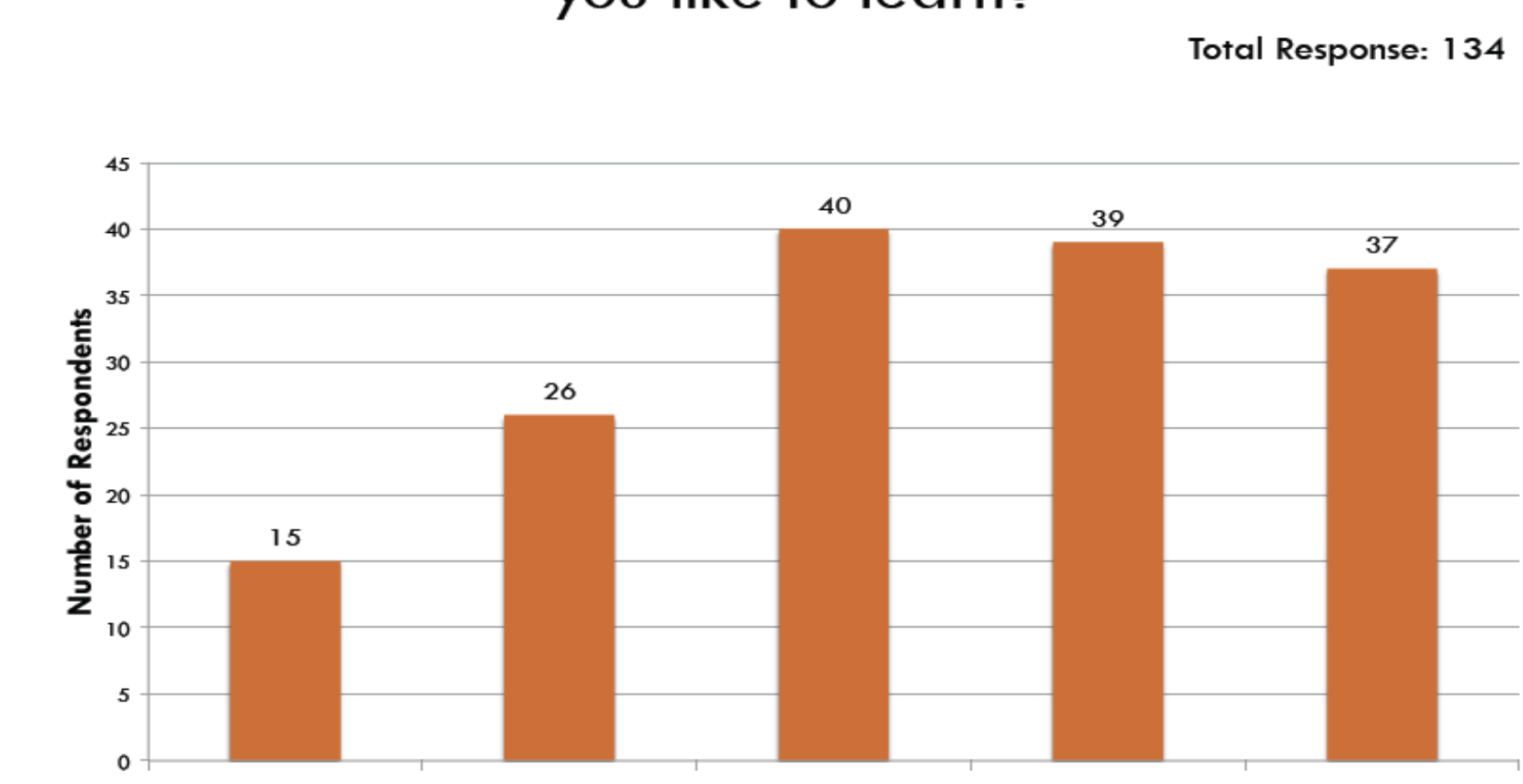
It has been shown that knowledge of health systems and process improvement are highly valued skills for health care executives and physicians who are in leadership roles. How likely would you pursue a certificate program that will give you the foundation for these skillsets? (Please assume that the certificate is obtainable in < 1 day)



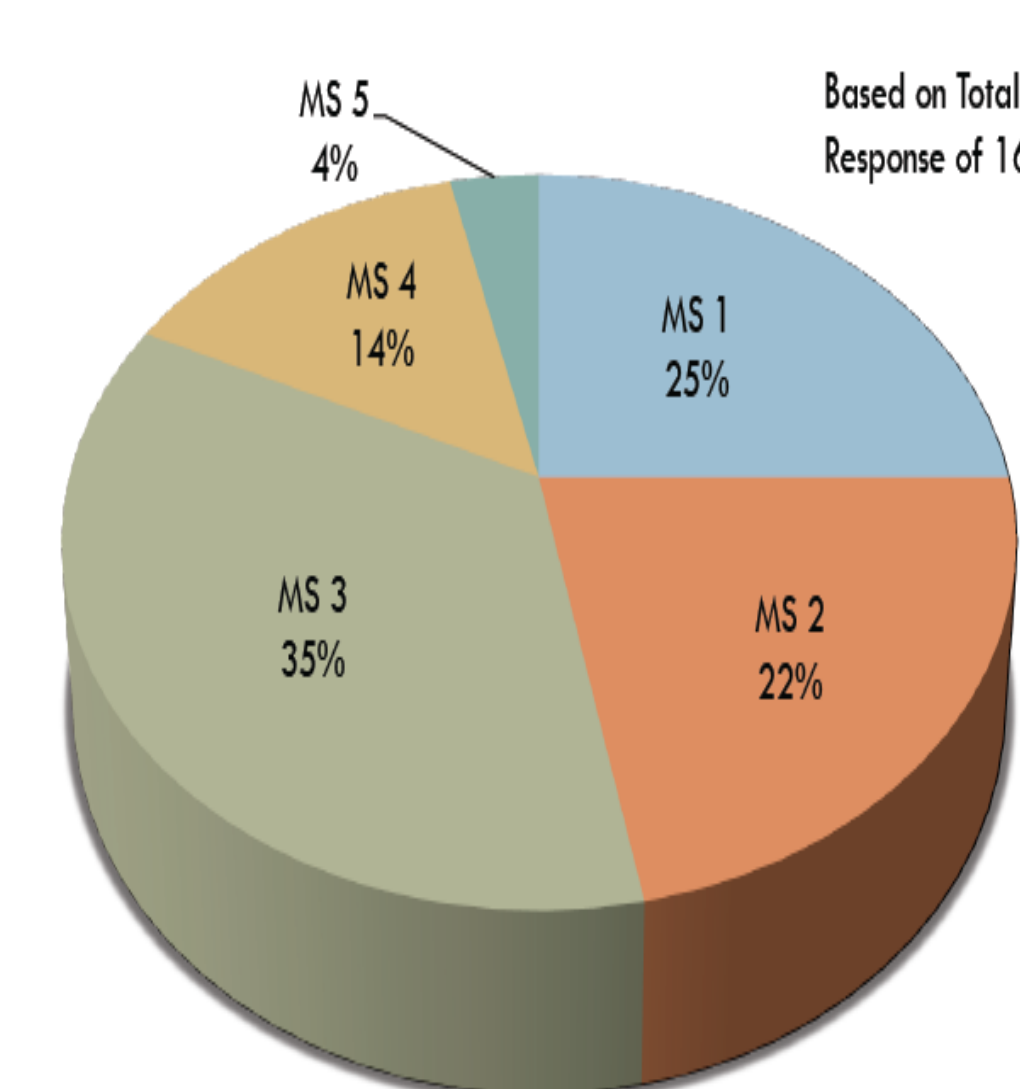
How would you rank your interest in the following deliverables? (1= not interested, 5 = most interested)



If an elective or student group on health care leadership was available, what topics would you like to learn?



Survey Response (%) By Class



Root Cause Analysis	Counter Measures
Lack of clear "value add"	Identify and provide opportunities for a tangible product at end of program – ie. structured mentorship, poster, presentation, journal articles
Lack of awareness of QI among students	Reframe QI and health systems under broader themes, such as leadership, critical thinking, etc. Consider exposing student earlier in training.
Competition with other electives	Identify ways to differentiate from other electives. Identify topics of interest among students. Use of technology to make participation easier, ie. skype, google hangout.
Didactic lectures may not be the right format for teaching	Incorporate greater case based content Consider more practical field work or mentorship opportunities that expose students to career options
Leadership transitions makes it difficult to sustain an elective for the long term	Identify faculty as well as students champions to maintain continuity

### CONCLUSION

#### Findings

"Word Cloud" of Leadership Interests Based on Student Response



- 168 students responded to at least one question on the survey.
- An estimated **20% of the UMMS student population** (n=125) completed the survey.
- Our survey identified **overwhelming interest in the topic of leadership**, with 20% of respondents reporting "very likely", and 54% "somewhat likely" to take an elective or join a student group on the topic.
- UMMS students aspired to be **leaders of hospitals, clinics, and medical departments** as well as starting their own private practices.
- Students are most interested in receiving **career guidance for leadership and mentorship opportunities**.
- A staggering 89% of respondents were either "somewhat interested" or very interested in a 1 day training **certificate on health systems and process improvement**. Of the 89%, 51% reported they were "very interested".

#### Next Steps

- Combining the results from the root cause analysis, counter measures, and evidence from the student survey, we have the data we need to **design and implement an informed and attractive educational option for students**.
- A similar leadership survey can be released to other health professional schools (ie. nursing, pharmacy) to **identify interprofessional areas of focus**.
- Integrating **Lean management** in UME is one way to teach students about health care systems, and process improvement.

#### References and Acknowledgements

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