Cultivating Future Leaders in Healthcare Delivery Science Through a Longitudinal, Immersive Learning-Focused Curricular Thread

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Problem

- Medical school graduates enter a complex healthcare delivery system relying on interprofessional teamwork, multifaceted value-based patient care decisions, and inefficient processes.
- Medical school curricula on Healthcare Delivery Science (HDS) are fragmented and primarily didactic.
- We set out to create an experiential program to train students to practice in well-functioning teams and provide safe, high quality, high value care through training in HDS topics: **V**alue of care, **I**mprovement science, **S**afety of patients, & **T**eam training, **A**dvocacy (VISTA).

Goal

To implement and evaluate a **longitudinal skills-based immersive learning curriculum in healthcare delivery sciences** to provide medical students with the skills to advocate for a better healthcare system for patients
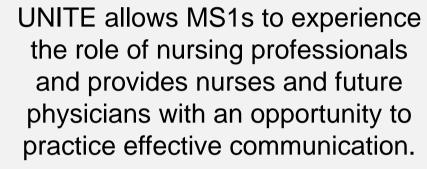
Intervention Design

- The VISTA program consists of several didactic and immersive learning interventions across all VISTA categories and years of medical school.
- To evaluate the program, graduates before and after VISTA implementation were asked to complete a mixed-methods survey.
- Twenty-five 5-point Likert-item questions assessed competence (attitudes, knowledge, and behaviors) on HDS topics.
- A free response question solicited areas for improvement.
- Graduating classes of 2016 & 2017 were pre-VISTA, and classes of 2018-2020 graduated with VISTA.
- The Likert data was dichotomized (4-5 on Likert scale corresponding to high competence) and analyzed using Chi-square tests.

Year	VISTA Category	Experience
MS1	T	UNITE (Nursing Interprofessional Experience)
MS2	V, S	Room of Horrors (low-value care OSCE)
MS2	T	Discharge OSCE and mock multidisciplinary rounds
MS3	V, I	Choosing Wisely smart phrase/Internal Medicine HVC lecture
MS3	A	Microblogging reflection on positive patient advocacy experience
MS4	V	Use Choosing Wisely tools and smart phrase to propose waste reduction in specialty

"Room of Horrors" OSCE gives MS2s practice identifying hospital-based safety threats.

UNITE allows MS1s to experience the role of nursing professionals and provides nurses and future physicians with an opportunity to practice effective communication.

Yammer microblogging allows MS3s to reflect more deeply on what it means to be a patient advocate.

The Mock Multidisciplinary Rounds and Discharge OSCE give MS2s practice with team communication during transitions of care.

Results

- Graduates who underwent the VISTA program reported a significantly higher self-reported percent competence on all HDS-related questions compared those graduating before VISTA implementation.
- The two questions exhibiting the greatest percent increase in competence addressed topics taught through immersive learning interventions (discharge OSCE, patient safety OSCE).
- Two of the three questions with the greatest increase in competence were associated with intended practice behaviors.

Competency Type	Abbreviated Survey Question	Percentage Reporting High Competence (4/5 on Likert) Before VISTA	After VISTA	% Difference	p-value
Behavior	will communicate effectively at discharge	57.9	96.7	38.7	< .001
Knowledge	know what a safety event report is	42.1	79.8	37.8	< .001
Behavior	will consider potential costs to system	60.3	97.5	37.2	< .001
Attitude	prepared to advocate for healthcare delivery changes	42.1	77.5	35.4	< .001
Attitude	felt encouraged to report patient safety concern	36.5	70.8	34.3	< .001
Behavior	have good collaboration with nurses	71.4	97.5	26.1	< .001
Attitude	prepared to participate in patient discharge	71.4	94.2	22.7	< .001
Knowledge	understand follow-up on event reports	5.6	28.3	22.7	< .001
Behavior	can compare hospitals on quality measures	27.8	48.3	20.6	0.001
Attitude	feel prepared to advocate for patients	72.2	91.7	19.4	< .001

*Questions were abbreviated from 5-point Likert-item questions on the VISTA questionnaire to highlight key competencies and are ordered with highest % difference on top. Pre-VISTA (2016-2017) and post-VISTA (2018-2020) data for graduating seniors was dichotomized (4-5 considered high competence) and compared using Chi-Squared analysis.

Key	
	Value
	Safety
	Improvement
	Team Training
	Advocacy

VISTA Category	Identified Areas of Improvement	
	Pre-VISTA Implementation	Post-VISTA Implementation
Value	"[I want to learn about the] cost of tests!!"	"[I want practice] speaking up when we think an unnecessary test is being ordered."
Improvement	"I have no idea what happens at the hospital regarding patient safety and quality improvement."	"[I want] hands-on experience with quality improvement issues… including root cause analysis".
Safety		"[I want to learn] how to advocate for changing unsafe practices."
Team Training	"[I have] very little exposure to other fields."	"I would love to have an 'orientation to the hospital room,' especially if it was led by a nurse."

*Taken from responses to the survey question "What can we improve to prepare you for working in the healthcare system related to the queries above?"

Conclusions

- Integrating longitudinal, experiential training on value of care, quality, improvement, patient safety, and interprofessional education into existing medical school curricula has the power to improve competence in HDS topics.
- Change in intention behaviors shows that these interventions have the potential to change the way future physicians practice medicine.
- Future interventions should place special focus on interactive exercises.

Acknowledgements