# Assessing & Improving the Clinical Learning Environment to Promote Quality Interprofessional Education and Practice

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## DISCLOSURES

## ACKNOWLEDGEMENTS

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# THE CLINICAL LEARNING ENVIRONMENT

*The Clinical Learning Environment (CLE) is the space in which health professionals interact to provide care for patients, including the learning and development of skills critical to patient care and outcomes.*

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# WHY THE CLE IS IMPORTANT

## Evaluating Obstetrical Residency Programs Using Patient Outcomes

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MANY PHYSICIANS AND NON-physicians likely assume that some residency programs tend to produce better physicians than others—either because those residency programs train physicians better or because those residency programs can recruit more ca-

**Context** Patient outcomes have been used to assess the performance of hospitals and physicians; in contrast, residency programs have been compared based on non-clinical measures.

**Objective** To assess whether obstetrics and gynecology residency programs can be evaluated by the quality of care their alumni deliver.

**Design, Setting, and Patients** A retrospective analysis of all Florida and New York obstetrical hospital discharges between 1992 and 2007, representing 4 906 169 deliveries performed by 4124 obstetricians from 107 US residency programs.

**Main Outcome Measures** Nine measures of maternal complications from vaginal and cesarean births reflecting laceration, hemorrhage, and all other complications after vaginal delivery; hemorrhage, infection, and all other complications after cesarean delivery; and composites for vaginal and cesarean deliveries and for all deliveries regardless of mode.

**Results** Obstetricians' residency program was associated with substantial variation in maternal complication rates. Women treated by obstetricians trained in residency

- Hospital-based deliveries in New York and Florida 1992-2007
- 4M Deliveries, 4,124 Obstetricians, 107 US Residency Programs
- Assessed risk-standardized major maternal complication rates
- Residency programs ranked by patient outcome
- Top quintile 10.3% complication rate
- Bottom quintile 13.6% complication rate

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# BACKGROUND

In 2018, NE Medicine added CLE to the balanced scorecard.

A baseline measure was needed to establish quarterly goals.

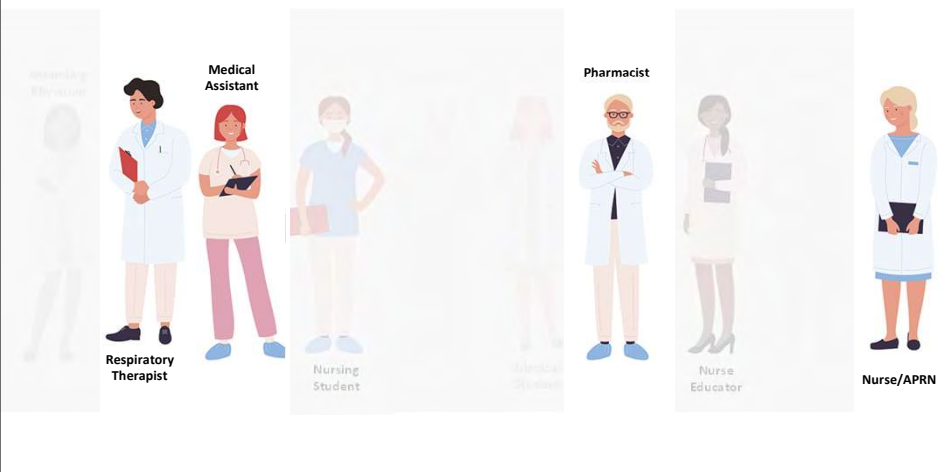Accurate measurement of the "hidden" curriculum is difficult.

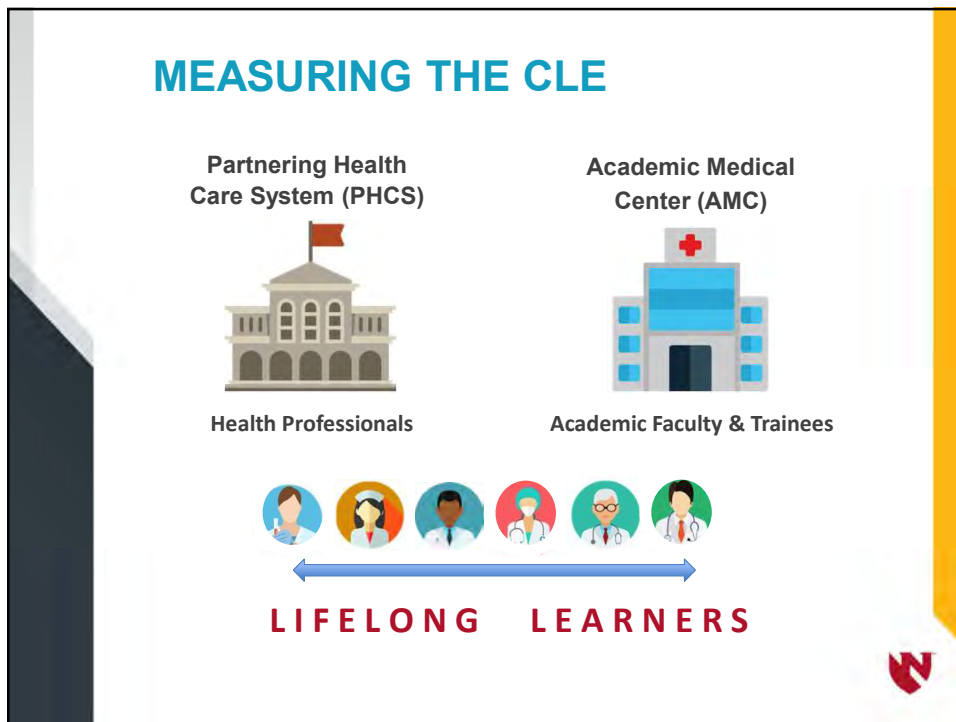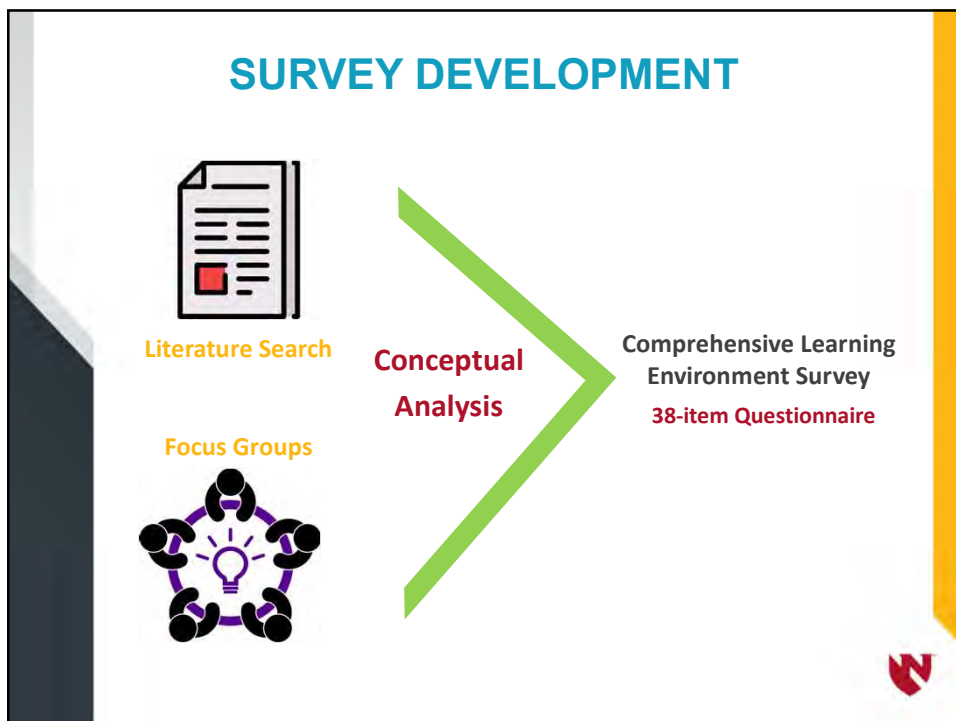Measurement of CLE historically narrow in scope.

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# CLE LITERATURE REVIEW

Medical Assistant

Pharmacist

Respiratory Therapist

Nursing Student

Nurse Educator

Nurse/APRN

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# MEASURING THE CLE

**Partnering Health Care System (PHCS)**

**Academic Medical Center (AMC)**

**Health Professionals**

**Academic Faculty & Trainees**

**L I F E L O N G     L E A R N E R S**

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# SURVEY DEVELOPMENT

**Literature Search**

**Focus Groups**

**Conceptual Analysis**

**Comprehensive Learning Environment Survey**

**38-item Questionnaire**

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## SURVEY DEVELOPMENT

### Diverse Focus Group Process from AMC & PHCS

**"What factors or attributes contribute to an optimal clinical learning environment that are specific, measurable, actionable, and realistic attributes?"**

| Group 1 | Survey Draft 1 | Group 2 | Survey Draft 1 |
|---|---|---|---|
| | Total ? | | Total ? |
| **Interactive Physical Environment** | 4 | **Resources** | 9 |
| **Translational Education** | 3 | **Safe Quality Care** | 6 |
| **Alignment of Learner Competencies** | 3 | **Personal/Professional Development** | 2 |
| **Teacher-Learner Atmosphere** | 10 | **Organizational Culture** | 4 |
| **Student Leadership** | 1 | **Personal Well-Being** | 1 |
| **Transparent Evaluation Standards** | 2 | **Communication** | 7 |
| **Interprofessional Education & Collaboration** | 6 | | |

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## SURVEY DEVELOPMENT

Organizational Development Survey Items
(Marsick & Watkins; 2003)

**Original question**

In my organization, people help each other learn.

**Modified question**

**Health professionals from multiple disciplines contribute to the care team's learning.**

**Alignment**

Teaching Learning

Psychosocial Interaction

Organizational Culture

Physical Space

**CLE Attributes** (Flott & Linden, 2016)
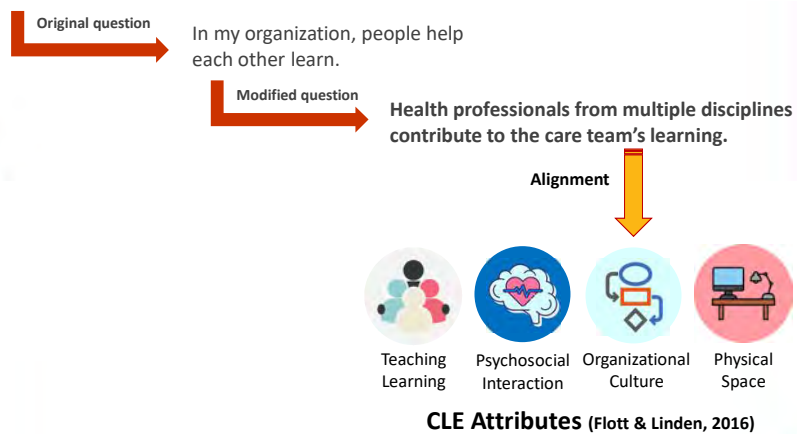
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# SURVEY DEVELOPMENT



## Final 2018 Survey

| CLE Attribute | # Survey Items |
|---|---|
| Physical Space | 3 |
| Teaching/Learning | 8 |
| Psychosocial Interaction | 5 |
| Organizational Culture | 13 |

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# SURVEY DEPLOYMENT

**Recruited via Email**

**Inclusion: Have you provided direct patient care within the past 6 months?**

*In general, how often do the following activities occur in the CLE at Nebraska Medicine? Select the corresponding button under your response from 0-100%.*

|  | 0% | 20% | 40% | 60% | 80% | 100% |
|---|---|---|---|---|---|---|
| Quiet workspace is available that is conducive to learning. | O | O | O | O | O | O |
| Challenging clinical scenarios are used as an opportunity to learn. | O | O | O | O | O | O |

**2019 Survey**
- 10-items dropped
- High priority items moved to the beginning
- 21 items + 7 demographic questions

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## RESPONDENT CHARACTERISTICS - 2019

| | AMC Faculty & Learners (n = 417) | | PHCS Care Team Staff (n = 448) | |
|---|---|---|---|---|
| Current Organization/Role | n | % | n | % |
| AMC - Student | 97 | 22.9 | | |
| AMC – Resident/Fellow | 90 | 21.2 | | |
| AMC - Faculty | **230** | **54.1** | | |
| PHCS - Advanced Practice Provider | | | 42 | 9.3 |
| PHCS - Nursing | | | **250** | **55.8** |
| PHCS - Pharmacist | | | 36 | 8.0 |
| PHCS - Allied Health | | | 120 | 26.8 |
| Primary Location | n | % | n | % |
| Main Campus Hospital | **330** | **79.1** | **294** | **65.8** |
| Ambulatory Clinic | 62 | 14.9 | 108 | 24.2 |
| Other | 25 | 6.0 | 45 | 10.1 |
| Gender | n | % | n | % |
| Male | 140 | 39.1 | 34 | 8.7 |
| Female | **213** | **59.5** | **342** | **87.9** |
| Other/Prefer Not to Answer | 5 | 1.4 | 13 | 3.4 |
| Age | n | % | n | % |
| < 40 | **239** | **82.0** | **280** | **51.8** |
| 40-59 | 92 | 15.8 | 78 | 39.0 |
| 60 or Older | 30 | 8.3 | 36 | 9.2 |
| Years Affiliated with AMC/PCHS | n | % | n | % |
| 0-3 | 135 | 37.3 | 127 | 32.4 |
| 4-6 | 84 | 23.2 | 49 | 12.5 |
| ≥ 7 | **143** | **39.5** | **216** | **55.1** |

AMC: Academic Medical Center
PHCS: Partnering Health Care System

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## 2019 RESULTS – AMC/PHCS GAPS

| | MEAN SCORE | | DIFFERENCE |
|---|---|---|---|
| | AMC | PHCS | |
| Quiet workspace available that is conducive to learning. | 78.6 | 56.9 | 21.7 |
| Structured time intentionally set aside for learning and reflection. | 74.8 | 53.7 | 21.1 |
| Learning is rewarded. | 85.5 | 70.5 | 15.0 |
| Simulation and mock training realistic and enhances learning. | 80.9 | 69.0 | 11.9 |
| Opportunities for learning and professional growth prioritized. | 82.3 | 71.1 | 11.2 |
| Frequent, structured feedback provided to care team members in order to promote learning. | 78.2 | 67.2 | 11.0 |

AMC: Academic Medical Center
PHCS: Partnering Health Care System

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# CONCLUSIONS

**↑ PHCS  MEAN SCORES**
- Encouragement to ask questions (89.2%)
- Care team trust (87.0%)

**↓ PHCS  MEAN SCORE**
- Structure time set aside for learning (53.7%)
- Workspace availability (56.9%)

**↑ AMC  MEAN SCORES**
- Encouraged to ask questions (89.4%)
- Decisions involving patient's view (89.8%)

**↓ AMC  MEAN SCORE**
- Structured time set aside for learning (74.8%)
- Open/honest feedback to promote learning (78.2%)

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# CONCLUSIONS

**Seven overarching strategies to optimize learning in the CLE**

#1: Embrace learning as a core value

#2: Utilize the clinical care system as an education-rich environment

#3: Develop individual-level skills to optimize the learning process

#4: Rituals and rewards

#5: Establish a "Just Culture"

#6: Remove competing factors

#7: Build communities of practice

**Caverzagie, Goldenberg, Hall (2019)**

**Supporting the intersection between clinical and workplace environments serves patients, learners, and healthcare systems.**

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## REFERENCES

- Flott EA, Linden L. The clinical learning environment in nursing education: a concept analysis. *J Adv Nurs*. 2016;72(3):501-513. doi:10.1111/jan.12861

- Marsick VJ, Watkins KE. Demonstrating the Value of an Organization's Learning Culture: The Dimensions of the Learning Organization Questionnaire. *Adv Dev Hum Resour*. 2003;5.2:132-151.

- Irby DM, O'Brien BC, Stenfors T, Palmgren PJ. Selecting Instruments for Measuring the Clinical Learning Environment of Medical Education: A 4-Domain Framework. *Acad Med*. 2021;96(2):218. doi:10.1097/ACM.0000000000003551

- Caverzagie KJ, Goldenberg MG, & Hall JM. Psychology and learning: The role of the clinical learning environment, *Med Teach*, 2019;41(4): 375-379, doi: 10.1080/0142159X.2019.1567910

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