College Mental Health Research Symposium

Monday, March 12 & Tuesday, March 13, 2018
University of Michigan School of Public Health
Welcome

- 8th annual symposium
- Unique opportunity for researchers, clinicians, administrators, advocates, and others to meet, discuss, and collaborate
- Diverse audience brought together by a shared goal to improve college student mental health
- Special acknowledgments:
  - UM Depression Center
  - UM School of Public Health
Symposium Participants

- >20 colleges/universities
- ~10 organizations
- Faculty/researchers
- Campus practitioners
- Clinicians
- Advocates
- Health IT/entrepreneurs
- Graduate and undergraduate students
- Others?
Overarching Questions for Research Symposium

• How might we create an ideal campus mental health system, given the increasing demand for mental health services and the emerging technologies and programs available? What additional data and research do we need most urgently to answer this question more confidently? What new research and data are most needed?

• What are new opportunities for collaboration?

• Other suggested questions? Other things you’re hoping to get out of the symposium?
Motivation

How can we invest most efficiently in the mental health of college students?
What are the returns from potential interventions?

Design and evaluate programs and interventions

Collect descriptive data
Opportunity at Colleges

Mental Health Symptoms/Needs

Social Environment

Access/Barriers

Utilization of Services

Academic Environment

Health programs and resources

Key Outcomes
(mental health, academic performance, substance use, etc)
Symposium Format

• **Day 1 is about specific topics**
  ◦ Innovation Panels and Discussion
  ◦ Leveraging Data to Promote Student Health and Success
  ◦ Mobile Apps for Health and Wellness
  ◦ Wellness Paradigms on College and University Campuses
  Panel Q & A
  ◦ Sense of Belonging, Climate, and Mental Health

• **Day 2 is about processes, use of knowledge, dissemination**
  ◦ Research-to-Practice Panels and Discussion
  ◦ Strategies for Monitoring and Evaluating System Change
  ◦ Collaborations: Cross-Campus and National
  ◦ Data and Research Resources on College Student Mental Health
Guidelines for Discussion

• Interactive and inclusive

• When sharing information, be concise and refer to resources for learning more

• Notes will be taken and shared later
Today

• The State of College Student Mental Health

• Innovation Panels and Discussion
  - Leveraging Data to Promote Student Health and Success
  - Mobile Apps for Health and Wellness
  - Wellness Paradigms on College and University Campuses

• Break

• Sense of Belonging, Climate, and Mental Health

• Happy Hour
The State of College Student Mental Health

Who are today’s college students?
Key data points
Who are Today’s College Students?

- Jasmine Morigney & Shelby Steverson
The State of College Students

College Mental Health Research Symposium
Race

[Image of students]

[Bar chart showing race demographics]

https://postsecondary.gatesfoundation.org/what-we-are-learning/todays-college-students/
https://nces.ed.gov/programs/digest/d16/tables/dt16_302.60.asp
First Generation College Students


U.S. Department of Education
Digital Nativity

Digital Learning Technology Helpfulness Retaining New Concepts

- Not at all helpful: 6%
- Somewhat helpful: 29%
- Very helpful: 35%
- Extremely helpful: 65%

Social Media Use

% of U.S. adults who use at least one social media site, by age

Social platforms like Snapchat and Instagram are especially popular among those ages 18 to 24

PEW RESEARCH CENTER

http://www.pewinternet.org/fact-sheet/social-media/
Debt


Why is this important?

College students are independent and responsible for their health, and many are financially independent.

75% of mental health disorders are onset by age 24.

1 in 5 young adults experience a mental health condition.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4527955/#!po=65.9091
http://time.com/4473575/college-mental-health-guidebook/
https://nami.org/collegeguide
Recent Data

- ACHA-NCHA Spring 2017 Reference Group Executive Summary
  - 63,497 students on 92 campuses

- CCMH 2017 Annual Report
  - 161,014 students on 147 campuses
    - https://sites.psu.edu/ccmh/files/2018/02/2017_CCMH_Report-tr4m88x.pdf

- HMS 2016-2017 National Report
  - 53,760 students on 54 campuses
    - http://healthymindsnetwork.org/system/resources/WsiZHiJiJWtcvMDkvMTtvMTNiMjZiMDRMNg2XohNU19uYXRpb25hbC5wZGYiXVo/HMS_national.pdf
# Key Findings from the Field: Prevalence

<table>
<thead>
<tr>
<th></th>
<th>Depression symptoms</th>
<th></th>
<th>Anxiety symptoms</th>
<th></th>
<th>Suicidality, past yr</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Felt so depressed that it was difficult to function”, past yr = 39% (ACHA-NCHA)</td>
<td></td>
<td>“Felt overwhelming anxiety”, past yr = 61% (ACHA-NCHA)</td>
<td></td>
<td>10% (ACHA-NCHA)</td>
</tr>
<tr>
<td></td>
<td>Positive screen (PHQ-9 ≥10) = 31% (HMS)</td>
<td></td>
<td>Positive screen (GAD-7 ≥10) = 26% (HMS)</td>
<td></td>
<td>11% (HMS)</td>
</tr>
</tbody>
</table>
### Key Findings from the Field: Help-Seeking

<table>
<thead>
<tr>
<th>Organization</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACHA</td>
<td>Diagnosed or treated for psychiatric condition, past yr = 9%</td>
</tr>
<tr>
<td>HMS</td>
<td>Lifetime diagnoses of mental disorders = 36%</td>
</tr>
<tr>
<td></td>
<td>Counseling or therapy, past yr = 24%</td>
</tr>
<tr>
<td></td>
<td>Psychiatric medication, past yr = 22%</td>
</tr>
<tr>
<td></td>
<td>Any mental health therapy/counseling and/or psychiatric medication among</td>
</tr>
<tr>
<td></td>
<td>students with positive depression or anxiety screens, past yr = 51%</td>
</tr>
<tr>
<td></td>
<td>Informal help-seeking, past yr = 61%</td>
</tr>
<tr>
<td>CCMH</td>
<td>Counseling prior to college = 21%</td>
</tr>
<tr>
<td></td>
<td>Counseling after starting college = 18%</td>
</tr>
<tr>
<td></td>
<td>Counseling prior to and since starting college = 14%</td>
</tr>
<tr>
<td></td>
<td>Taken prescribed medication prior to college = 9%</td>
</tr>
<tr>
<td></td>
<td>Taken prescribed medication after starting college = 14%</td>
</tr>
<tr>
<td></td>
<td>Taken prescribed medication prior to and since starting college = 12%</td>
</tr>
</tbody>
</table>
Key Findings from the Field: Other Data Points

- Academic impairment
  - Anxiety, past yr = 24% (ACHA-NCHA)
  - Depression, past yr = 16% (ACHA-NCHA)
  - Emotional or mental health difficulties, past month = 74% (HMS)
- Flourishing (positive mental health)
  - Score of $\geq 48 = 42\%$ (HMS)
Trends Over Time (HMS)

Anxiety (GAD-7)

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>17%</td>
</tr>
<tr>
<td>2014</td>
<td>22%</td>
</tr>
<tr>
<td>2015</td>
<td>20%</td>
</tr>
<tr>
<td>2016</td>
<td>21%</td>
</tr>
<tr>
<td>2017</td>
<td>26%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>22%</td>
</tr>
<tr>
<td>2009</td>
<td>23%</td>
</tr>
<tr>
<td>2010</td>
<td>25%</td>
</tr>
<tr>
<td>2011</td>
<td>23%</td>
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<tr>
<td>2012</td>
<td>22%</td>
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<td>2013</td>
<td>22%</td>
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<td>2014</td>
<td>27%</td>
</tr>
<tr>
<td>2015</td>
<td>25%</td>
</tr>
<tr>
<td>2016</td>
<td>25%</td>
</tr>
<tr>
<td>2017</td>
<td>31%</td>
</tr>
</tbody>
</table>

Sample Size:
- Anx.: n=17905, n=16100, n=14911, n=13903, n=42640
- Dep.: n=5591, n=8097, n=22795, n=8997, n=23408, n=17744, n=16050, n=14978, n=30243, n=43046
Trends Over Time (HMS)

Therapy (past year)

- 2007: 13% (n=5344)
- 2008: 16% (n=6965)
- 2009: 17% (n=2593)
- 2010: 18% (n=8770)
- 2011: 18% (n=2924)
- 2012: 18% (n=789)
- 2013: 19% (n=19745)
- 2014: 22% (n=15982)
- 2015: 22% (n=29507)
- 2016: 23% (n=47081)

Psychiatric medication (past year)

- 2007: 12% (n=5516)
- 2009: 15% (n=8004)
- 2010: 15% (n=22370)
- 2011: 16% (n=8779)
- 2012: 18% (n=2393)
- 2013: 16% (n=7584)
- 2014: 19% (n=15582)
- 2015: 19% (n=14985)
- 2016: 18% (n=28736)
- 2017: 22% (n=48133)
Trends Over Time (CCMH)

**CCAPS-34 Trends: Average Subscale Score (2010 to 2017)**

- **Depression**
- **Generalized Anxiety**
- **Social Anxiety**

NOTE: Data from 2013-2017. N=195,421 unique students with CLICC data.
Innovation Panels and Discussion

Leveraging Data to Promote Student Health and Success
Adam Partes & Megan Phillips

Mobile Apps for Health and Wellness
Emily Lattie & Martha Neary

Wellness Paradigms on College and University Campuses
Laura Horne & Dorothy Kent
Session Objectives and Overview

- Return to work from 2017 CMHRS
- Discuss questions and recommendations from three white papers
  - Leveraging Data to Promote Student Health and Success
  - Mobile Apps for Health and Wellness
  - Wellness Paradigms on College and University Campuses
Break

15 min
Sense of Belonging, Campus Climate, Marginalized Students, and Mental Health

Panelists: Sara Abelson, Tabbye Chavous, Daphne Watkins, & Sasha Zhou

Moderator: Peter Ceglarek
**Session Objectives**

- Discuss what we mean by “sense of belonging” and “campus climate”
- Consider the ways in which campus climate has been measured in the literature and in research/surveys
- Discuss trends regarding campus climate in recent years
- Understand the connection between sense of belonging, campus climate, and student mental health
- Identify gaps in the research/data needed to understand and address these issues
- Discuss strategies/programs to improve sense of belonging, campus climate, and student mental health
Happy Hour

The Healthy Minds Network
for Research on Adolescent and Young Adult Mental Health
College Mental Health Research Symposium

Monday, March 12 & Tuesday, March 13, 2018
University of Michigan School of Public Health
Tuesday

• Breakfast and Day 2 Overview
• Day 2 is about processes, use of knowledge, dissemination
• Research-to-Practice Panels and Discussion
  - Strategies for Monitoring and Evaluating System Change
  - Collaborations: Cross-Campus and National
  - Data and Research Resources on College Student Mental Health
• Wrap-Up
Strategies for Monitoring and Evaluating System Change

• Session objectives
  • Differences between rigorous evaluation and quality improvement
  • The need for both rigorous evaluation and quality improvement
  • Advantages/limitations of rigorous evaluation and quality improvement
  • Articulate examples of tools, data collection, ways of analyzing results that can be used for rigorous evaluation and quality improvement
Evaluating System Change: Ohio Healthy Campus Initiative
JED Campus &
The Healthy Minds Study

- Value of assessing systems change (JC) and student attitudes/behaviors (HMS)
  - Identify trends that point to correlations between enhancing systems, policies/programs and student attitude/behavior change (service use, awareness, stigma, etc.)
  - Assess progress over time and strengthen case for maintaining/expanding resources/programs
- When implemented together, these initiatives yield a comprehensive approach to using research to enhance campus mental health programs and policies
Ohio Cohort

Participating campuses: Cleveland State University, Defiance College, Denison University, Hocking College, Kent State University, Lakeland Community College, NEOMED, Shawnee State University, Xavier University, Walsh University
Evaluation of OH Healthy Campus Initiative

- Sources of data
  - Baseline HMS
  - Administrator survey data from JED Campus
  - 3-year follow-up HMS
  - Follow-up administrator survey/interview data collected as part of OH HCI
HMS & JED Campus
Theory of Change

- Strategic Planning
- Life Skills
- Social Connectedness
- Identifying Students At Risk
- Help-seeking Behavior
- Substance Abuse and Mental Health Knowledge/Attitudes
- Crisis Management
- Lethal Means
- Student Mental Health Outcomes
JED Theory of Change & HMS

- Improvements made in campus systems as a result of JC
- Positive changes in student behavior as a result of changes made on campus
- Student outcomes achieved as a result of JC
## Increase in Perceived Culture of Care on Campus and Help-Giving Behavior

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
</table>
| **Students experience culture of caring and compassion on campus** | At my school, I feel that students' mental and emotional well-being is a priority.  
At my school, I feel that the campus climate encourages free and open discussion about mental and emotional health.  
At my school, students are working to promote mental health on campus.  
At my school, the administration is listening to the concerns of students when it comes to health and wellness.  
At my school, I feel that the campus environment has a negative impact on students' mental and emotional health.  
There is a good support system on campus for students going through difficult times. |
| **Students more likely to give help when they see someone in distress** | In the past year, I have intervened (by trying to help) in the following situations on my campus  
When I intervened, I was able to make the situation better.  
In the past year, I witnessed the following risky or difficult situations on my campus but did not intervene:  
I decided not to intervene because... |
# Increase in Emotional Resilience and Improved Skills to Manage Emotions

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students flourish and feel more positively about their own lives</td>
<td>Positive Mental Health (Scale)</td>
</tr>
<tr>
<td>Students are better able to manage emotions</td>
<td>Psychological inflexibility / experiential avoidance (Scale)</td>
</tr>
<tr>
<td>Students develop an increased level of emotional resilience</td>
<td>Emotional Resilience (Scale)</td>
</tr>
</tbody>
</table>
## Increase in Sense of Belonging to the Campus among Students

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students experience an enhanced sense of belonging and connectedness on campus</td>
<td>I see myself as a part of the campus community.</td>
</tr>
<tr>
<td></td>
<td>I fit in well at my school.</td>
</tr>
<tr>
<td></td>
<td>I feel isolated from campus life.</td>
</tr>
<tr>
<td></td>
<td>Other people understand more than I do about what is going on at my school.</td>
</tr>
<tr>
<td></td>
<td>At my school, we are a campus where we look out for each other.</td>
</tr>
</tbody>
</table>
### Increase in Identification of and Outreach to Students who are Struggling

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students are more able to recognize the signs of struggle in other people</strong></td>
<td>I feel confident in helping someone with a mental health problem</td>
</tr>
<tr>
<td></td>
<td>Have you ever participate in a mental health GKT program?</td>
</tr>
<tr>
<td></td>
<td>I have a good idea of how to recognize that someone is in emotional or mental distress.</td>
</tr>
<tr>
<td><strong>Students feel more responsible to help fellow students</strong></td>
<td>I am responsible to help if a friend is struggling.</td>
</tr>
<tr>
<td><strong>Students are more likely to intervene when someone is in crisis/danger</strong></td>
<td>I am responsible to help if a classmate is struggling.</td>
</tr>
<tr>
<td></td>
<td>If I saw someone was drinking too much, I would intervene (by trying to help)</td>
</tr>
<tr>
<td></td>
<td>If I saw someone was experiencing significant emotional distress or thoughts of suicide, I would intervene (by trying to help)</td>
</tr>
</tbody>
</table>
# Increase in MH Service Utilization and Help-seeking and Decrease in Stigma

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are more likely to seek counseling services</td>
<td>Have you ever received MH counseling or therapy?</td>
</tr>
<tr>
<td></td>
<td>How many total visits or sessions have you had in past 12 months?</td>
</tr>
<tr>
<td></td>
<td>Are you currently receiving counseling or therapy?</td>
</tr>
<tr>
<td></td>
<td>From which of the following places did you receive counseling or therapy?</td>
</tr>
<tr>
<td></td>
<td>In past 12 months have you received counseling or support for MH from any of the following sources?</td>
</tr>
</tbody>
</table>
### Increase in MH Service Utilization and Help-seeking and Decrease in Stigma (cont.)

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students are more likely to seek help from other campus professionals</strong></td>
<td>During this school year have you talked with any academic personnel about MH problems affecting your academic performance?</td>
</tr>
<tr>
<td></td>
<td>In past 12 months have you received counseling or support for MH from any of the following sources?</td>
</tr>
<tr>
<td><strong>Students are more likely to seek help from non-campus professionals</strong></td>
<td>In past 12 months have you received counseling or support for MH from any of the following sources?</td>
</tr>
<tr>
<td></td>
<td>If you were experiencing serious emotional distress, whom would you talk to about this?</td>
</tr>
<tr>
<td>Student Attitudes (ToC)</td>
<td>HMS Items</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **Students report fewer barriers to accessing care** | In past 12 months, which of the following factors have caused you to receive fewer services for your mental or emotional health than you would have otherwise received?  
In past 12 months which of the following explain why you have not received medication or therapy for your mental or emotional health? |
| **Students experience less internal stigma** | When I feel depressed or sad, I tend to keep those feelings to myself.  
Sometimes I feel ashamed of having a mental illness.  
I wish I could disclose to others my mental illness. |
| **Students experience less external stigma** | Sometimes I keep my mental illness a secret.  
I would willingly accept someone who has received mental health treatment as a close friend.  
I feel that receiving mental health treatment is a sign of personal failure  
I would think less of a person who has received mental health treatment. |
## Decrease in Substance Abuse, Increased Knowledge/Attitudes about Mental Health Issues and Services

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students experience a decrease in substance abuse</strong></td>
<td>Over past 2 weeks, about how many times did you have 4/5 or more alcoholic drinks in a row? &lt;br&gt; Over past 30 days, how many cigarettes did you smoke per day? &lt;br&gt; Over past 30 days, have you used any of the following drugs?</td>
</tr>
<tr>
<td><strong>Students expand knowledge of MH issues</strong></td>
<td>Relative to the average person, how knowledgeable are you about mental illnesses and their treatments? &lt;br&gt; As far as you know, which of the following are common symptoms of depression? &lt;br&gt; As far as you know, which if the following are considered to be effective self-help strategies for reducing anxiety? &lt;br&gt; I have a good idea of how to recognize that someone is in emotional or mental distress &lt;br&gt; As far as you know, which of the following are generally considered highly effective treatments for depression?</td>
</tr>
<tr>
<td><strong>Students expand awareness of MH services on campus</strong></td>
<td>If I needed to seek professional help for you mental or emotional health, I would know where to go on my campus</td>
</tr>
<tr>
<td><strong>Students expand awareness of MH services on campus</strong></td>
<td>Are you aware of mental health outreach efforts on your campus?</td>
</tr>
</tbody>
</table>
## Student Outcomes

<table>
<thead>
<tr>
<th>Student Attitudes (ToC)</th>
<th>HMS Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Students’ mental health improves</strong></td>
<td>Positive mental health</td>
</tr>
<tr>
<td></td>
<td>Depression</td>
</tr>
<tr>
<td></td>
<td>Diagnosed mental illnesses</td>
</tr>
<tr>
<td></td>
<td>Anxiety</td>
</tr>
<tr>
<td></td>
<td>Emotional resilience</td>
</tr>
<tr>
<td><strong>Students are less likely to abuse substances</strong></td>
<td>Substance use</td>
</tr>
<tr>
<td></td>
<td>Witnessing</td>
</tr>
<tr>
<td><strong>Students are less likely to die by suicide</strong></td>
<td>Non-suicidal self-injury</td>
</tr>
<tr>
<td></td>
<td>Suicidality</td>
</tr>
</tbody>
</table>
Strategies for Monitoring and Evaluating System Change

- Quality improvement
  - See slides at the end of this PDF
Collaborations: Cross-Campus and National

- Allison Smith & Lee Swain
- Session objectives
  - Think about the “who” (who on our campuses, who at a national level) are the influencers of student mental health?
  - Describe strategies for building the will and mobilizing these influencers to recognize their role
  - Identify ways of facilitating action and learning from one another
Data and Research Resources on College Student Mental Health

• Session objectives
  - Think about the currently available data and research resources that are most useful
  - Identify the biggest gaps, needs, and opportunities
  - Generate ideas about other resources

• FAQs are an example of trying to fill a need for an easy summary of a handful of common question
  - Ways to enhance what we’re doing with FAQs
Symposium Wrap-Up
Symposium Wrap-Up

- Next steps
- Will follow-up with notes/materials from Symposium
- Symposium evaluation
- Next year’s Symposium: March 12-13, 2019
- Depression on College Campuses Conference begins today at 1pm at the Rackham Building
College Mental Health Research Symposium

Thank you for joining us!
Using Data for Quality Improvement

How will we know that a change is an improvement?

1. Identify Opportunities
   - Concern About a Potential Issue
2. Establish a Team
3. What are we trying to accomplish? (Set an Aim)
4. Understand the Problem
   - The Model for Improvement
   - Three Questions
5. How will we know that a change is an improvement? (Establish Measures)
6. What changes can we make that will lead to improvement? (Develop Ideas for Change)
7. Test Changes
8. Implement Changes
9. Spread Improvement

Throughout the Improvement Journey, we use the Plan-Do-Study-Act (PDSA) cycle, a science-based framework to test and refine, in an iterative way, our hunches, theories, and ideas for changes that will result in improvement.

Click Next to continue.
Why are we measuring?

Research?  
Judgment?  
Improvement?

The answer to this question will guide your entire quality measurement journey.
**Different Purposes of Measurement**

Take a look at the differences between measurement for improvement compared with measurement for other common purposes in the table below.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Judgement or Accountability</th>
<th>Research</th>
<th>Improvement and Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing strategy</td>
<td>No test; evaluate current performance level</td>
<td>One large test that is blinded or controlled</td>
<td>Many sequential, observable tests</td>
</tr>
<tr>
<td>Sample size</td>
<td>Obtain 100% of available, relevant data</td>
<td>Gather as much data with as many potentially influential variables as possible</td>
<td>Gather “just enough” data to learn and complete another cycle</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>No hypothesis</td>
<td>Fixed hypothesis</td>
<td>Hypothesis is flexible and changes as learning takes place</td>
</tr>
<tr>
<td>Bias</td>
<td>Measure and adjust for bias (e.g., risk adjustments)</td>
<td>Design to eliminate or control bias</td>
<td>Accept consistent bias</td>
</tr>
<tr>
<td>Determining if a change is an improvement</td>
<td>No change focus; typically, focus is on comparison to others (e.g. to other providers or similar organizations)</td>
<td>Statistical tests (e.g., t-test, chi-square test) and p-values</td>
<td>Run charts or statistical process control (SPC) charts</td>
</tr>
</tbody>
</table>

A Family of Measures

Measurement for improvement allows us to answer questions such as:

- What is the current state?
- Which factors, such as processes and activities, have an impact on the outcomes?
- Are the processes stable and reliable?
- How do we know if a change is an improvement?
What Types Of Measures Are There?

When we establish our **Family of Measures** for an improvement initiative, we always want to try to create a balanced set of measures that include:

1. **Outcome measures**, which tell you how the system is performing. These measures quantify the ultimate result that you want to improve.

2. **Process measures**, which tell you if the parts or steps in the system are performing as planned to affect the outcome measure. Process measures typically show improvement before outcome measures do.

3. **Balancing measures**, which assess whether the changes designed to improve one part of the system are introducing problems, or unintended consequences, elsewhere. These measures are often not directly related to the aim.
Family of Measures for Depression Population

**Percent of Patients with Structured Diagnostic Assessment in Records**

- **Goal:**
- **Percent of Patients with Follow-up Structured Assessment at 4-8 Weeks**
- **Proportion of Students Treated After 12 weeks with PHQ9 < 10**

Using Data for Quality Improvement

Example Measures
Here are a few examples:

<table>
<thead>
<tr>
<th>Topic</th>
<th>Outcome</th>
<th>Process</th>
<th>Balancing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wait time for walk-in visit</td>
<td>Time from check-in to start of provider assessment</td>
<td>Length of time to check-in</td>
<td>Staff satisfaction</td>
</tr>
<tr>
<td>Patient Satisfaction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression care</td>
<td>% of students on campus who report academic impact from depression</td>
<td>% of students screened for depression in medical services</td>
<td>Appointment availability in counseling services for other mental health issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of students engaged in treatment within 2 weeks of positive screen</td>
<td></td>
</tr>
<tr>
<td>Binge drinking</td>
<td>% of students on campus who binge drink</td>
<td>% of entering students who complete online alcohol educational module</td>
<td>% students reporting that they received information from their school on other (non-alcohol) related topics</td>
</tr>
<tr>
<td></td>
<td>% of students on campus who experience a negative consequence from alcohol</td>
<td>% of students screened for high risk drinking</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of provider visits with positive high risk alcohol screenings that have a brief intervention documented in the health record</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>% of students on campus who are trained on bystander intervention</td>
<td></td>
</tr>
</tbody>
</table>
Using Data for Quality Improvement

Cascading Set of Measures - Levels

Aim

Global Measures
Family of outcome, process, and balancing measures

Change Idea
Measure #1

Change Idea
Measure #2

Change Idea
Measure #3
Using Data for Quality Improvement

AIM
Increase percentage of eligible clinical encounters in which the flu vaccine
is administered from 10% to 35% by May 2018.

Change Idea Measure #1
Percentage of visits in which the patients’ eligibility for the flu
vaccine is assessed and documented in the EHR.

Questions:
• How many students will complete the flu
vaccine status question?
• What will be the staff experience with the
new form and workflow?

Measures:
• % of students who complete the flu
vaccine status question on the pre-visit
questionnaire
• Qualitative staff feedback

PDSA #1: Add question about flu vaccine status to pre-visit questionnaire
administered and collected by front desk and entered in EHR by medical assistant

PDSA #2: Medical Assistant asks about status during intake and documents in EHR.

PDSA #3: Student completes one page eligibility checklist at check-in and returns
checklist to nurse to document in EHR.

Click Next to continue.
Using Run Charts

For quality improvement, the use of run charts is often the method for analysis and developing understanding of results.

What is a run chart and how can it help us with quality improvement?

- A run chart is a visual tool that enables us to build knowledge and learn. Simply put, a run chart is a line graph of data plotted over time.
- As we gather more data over time, we have the advantage of being able to see the behavior of the process that we are measuring over time.
- Run charts help us to differentiate variation due to typical fluctuations (called “common cause variation”) from those caused by something different (called “special cause variation”) within the system, signaling a change that we may want to explore.
- Run charts help us answer questions such as:
  - How much variation do we have?
  - Is process changing meaningfully over time?
  - Has our change resulted in an improvement?
  - Did we hold the improvement?
Using Data for Quality Improvement

Summary: Different Conclusions Emerge

Aggregate Results for Three Departments within the Student Health Center

<table>
<thead>
<tr>
<th>% of visits that were missed opportunities</th>
<th>Before Change</th>
<th>After Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td></td>
<td>30%</td>
</tr>
</tbody>
</table>

Women’s Health Department

Specialty Services

Primary Care Department

<table>
<thead>
<tr>
<th>% of visits that were missed opportunities</th>
<th>9/1/2017</th>
<th>10/1/2017</th>
<th>11/1/2017</th>
<th>12/1/2017</th>
<th>1/1/2018</th>
<th>2/1/2018</th>
<th>3/1/2018</th>
<th>4/1/2018</th>
<th>5/1/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Using Data for Quality Improvement

Cycle Time Results for Units 1, 2 and 3:

<table>
<thead>
<tr>
<th>Unit 1</th>
<th>Unit 2</th>
<th>Unit 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Before Change: 70</td>
<td>Avg Before Change: 100</td>
<td>Avg Before Change: 80</td>
</tr>
<tr>
<td>Avg After Change: 35</td>
<td>Avg After Change: 90</td>
<td>Avg After Change: 30</td>
</tr>
</tbody>
</table>
Creating a Run Chart

Run charts can be made in any spreadsheet program such as Excel, or even by hand on graph paper.

Administration of HPV Dose 2 Among Students Who Initiated HPV Series at Student Health Services

- **Baseline Median = 9%**
- **Goal = 70%**
- **Champion Leaves**
- **Test Use of Secure Message Reminders**
- **Test Paper Tracking Sheet**
Minimize Your Variations

As we learned in Module 2, there will always be variation in performance over time. A goal of quality improvement is to minimize the range of variation over time. There are 2 types of variation:

<table>
<thead>
<tr>
<th>Common Cause Variation</th>
<th>Special Cause Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typical variation due to the normal ebb and flow of systems.</strong></td>
<td><strong>Variation that is the result of an unusual event, outside the typical operation of the system.</strong></td>
</tr>
<tr>
<td>Inherent to the system or process</td>
<td>Not inherent to the process design</td>
</tr>
<tr>
<td>Due to regular, natural, or ordinary causes</td>
<td>Due to irregular or unnatural causes</td>
</tr>
<tr>
<td>Affects all the outcomes of a process</td>
<td>Affects some but not necessarily all aspects of the process</td>
</tr>
<tr>
<td>Results in a “stable” process that is predictable</td>
<td>Results in an “unstable” process that is not predictable</td>
</tr>
<tr>
<td>Also known as random or unassignable variation</td>
<td>Also known as non-random or assignable variation</td>
</tr>
</tbody>
</table>
4 rules indicating non-random signals that change in measure is occurring

A Shift: 6 or more

A Trend 5 or more

Too many or too few runs

An astronomical data point

Planning Your Measurement Strategy

- What are you trying to measure?
  - Level: Overall Aim v PDSA
  - What specific measure did you select for this purpose?
  - How are you defining the measure?

- What’s your data collection plan?
  - Who is responsible for collecting the data?
  - How often will the data be collected (e.g., hourly, daily, weekly or monthly)?
  - What are the specific data sources?
  - What is to be included or excluded?
  - How will these data be collected?

- What’s your baseline measurement?

- What are your targets or goals for this measure?
Sampling

- Measurement for improvement is meant to speed learning and improvement, not slow it down.
- Sampling can be a simple, efficient way to help a team understand how a process is performing.
- A good sample will have the same shape and location as the total population, but will have fewer observations.
- Ways to control sampling bias:
  - Simple random sampling
  - Proportional stratified random
  - Judgment sampling
Stratification

- Stratification is the separation and classification of data according to specific variables (such as time periods), demographics (such as age), or factors.
- The goal of stratification is to find patterns in data that will help us understand the causal factors at work.
- Examples:
  - By clinician
  - By location
  - Time (of day, day of the week, time of year)
  - Patient population (specific problem, demographics, medical plan membership)
Using Data for Quality Improvement

Tips for Effective Measurement

1. Plot data over time
2. Seek usefulness, not perfection
3. Track a family of measures
4. Use sampling
5. Integrate measurement into the daily routine
6. Use qualitative and quantitative data
Analyzing and Understanding Your Data