Metrics of Successful Mentoring

Marc Chimowitz, MBChB
Director KL2 Program, SCTR
MUSC

Mentoring in Academics - Origin of “Mentor”

- Homer’s Odyssey
- Odysseus placed his friend Mentor in charge of his son Telemachus when he left for the Trojan war
- “one who imparts wisdom to and shares knowledge with someone less experienced”
Contemporary Definition of Mentoring in Academic Setting

- A dynamic, collaborative, reciprocal and sustained relationship focused on a junior colleague’s acquisition of the values and attitudes, knowledge and skills, and behaviors necessary to develop into a successful independent faculty member


Key Mentoring Responsibilities

- Communication
- Career and Professional Development
- Content Mentoring – Research, Education, Clinical
- Psychosocial Support
Key Mentoring Responsibilities

Communication
- Establish expectations
- Frequency of meetings
- Listening skills
- Prompt feedback
- Manage disagreements and conflict
- Foster trust

Career and Professional Development
- Facilitate opportunities and connections
- Promote mentee in and out of institution
- Help understand promotion requirements and fiscal realities
- Help ensure sufficient protected time
- Help navigate the system
- Model and instruct on ethical behavior
Key Mentoring Responsibilities

- **Content Mentoring – Research, Education, Clinical**
  - Identify gaps in knowledge and skills
  - Identify training opportunities
  - Identify resources
  - Help formulate aims
  - Help design and develop plan to accomplish aims
  - Monitor progress
  - Step aside to allow independence

- **Psychosocial Support**
  - Discuss work-life balance
  - Effective time management
  - Demonstrate leadership skills
  - Be sensitive to cultural diversity
  - Encourage peer mentoring (often similar issues for colleagues at same level of training)
  - Serve as role model
Evaluating Effectiveness of A Mentoring Relationship

Complex Relationship Consisting of Multiple Interactions Across a Broad Spectrum of Activities

Measuring the Effectiveness of Mentoring

- Multiple Outcomes - Some Difficult to Measure
- Quantitative and Qualitative Outcomes
- Both Important
Quantitative Metrics of A Mentoring Relationship

“Demographics” of the Relationship

Mentor → Mentee

Objective Outcomes

Qualitative Metrics of A Mentoring Relationship

Eval. of Mentee

Mentor ← Mentee

Eval. of Mentor
Evaluating Effectiveness of A Mentoring Relationship

“Demographics” of the Relationship

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mentee Dept, Rank, Track, Gender, Race, Age</td>
<td>ENT, Assistant Prof, Academic – Clinician, Female, White, 35yr</td>
</tr>
<tr>
<td>Mentor Dept, Rank, Track, Gender, Race, Age</td>
<td>ENT, Prof, Academic – Clinician, Female, Black, 57yr</td>
</tr>
<tr>
<td>Mentor Contract Established?</td>
<td>Yes</td>
</tr>
<tr>
<td>Career Development Plan Established?</td>
<td>Yes</td>
</tr>
<tr>
<td>Frequency of Meetings</td>
<td>Weekly</td>
</tr>
<tr>
<td>Duration of Typical Meeting</td>
<td>1 hour</td>
</tr>
<tr>
<td>Length of Relationship</td>
<td>18 months</td>
</tr>
<tr>
<td>More than 1 mentor? If yes, specify number and who</td>
<td>1 other, Dr. X assists with research mentoring</td>
</tr>
</tbody>
</table>
Evaluating Effectiveness of A Mentoring Relationship

- Eval. of Mentee
- “Demographics” of the Relationship
- Eval. of Mentor

Mentor

Mentee

Objective Outcomes

What is the Ultimate Goal of Mentoring?

- Career Development and Advancement
- Probably Best Measured by Progress to Promotion
- Requirements for Promotion Are Measurable >>> Quantitative Metrics of Mentoring Should be Linked to Promotion Criteria
### Mentoring Metrics for Research Oriented Faculty

<table>
<thead>
<tr>
<th>Metric</th>
<th>Academic</th>
<th>Academic</th>
<th>Academic</th>
<th>Clinician</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous to meet all the criteria for Associate Professor.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Outstanding career exemplifying scholarship.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Direct involvement in research.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Key individual in training of students and/or post-graduates.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Serves as Course Director for one or more major courses.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Continued publication of reviews, chapters, textbooks, peer reviewed papers, and/or innovative teaching materials (e.g., curricula, educational programs, syllabi, video materials, computer programs, etc.) that influence the science and practice of medicine at the regional &amp; national levels.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Continued publication of important and original clinical and/or laboratory investigations with significant authorship.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Total publications with significant authorship since promotion to Associate Professor.</td>
<td>210 210</td>
<td>210 210</td>
<td>210 210</td>
<td>210 210</td>
</tr>
<tr>
<td>Total publications with authorship since promotion to Associate Professor.</td>
<td>219 219</td>
<td>219 219</td>
<td>219 219</td>
<td>219 219</td>
</tr>
<tr>
<td>National recognition, as evidenced by election to generalist or specialty societies, service on national committees, study sections, editorial boards, visiting professorships, or invitations to speak in CME courses.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>E</td>
</tr>
<tr>
<td>Leadership roles in appropriate department, hospital and college.</td>
<td>R</td>
<td>E</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>
Mentoring Metrics for Research Oriented Faculty

- # grants submitted by mentee
- # grants funded
- # first authored original publications by mentee
- # senior authored publications by mentee
- Importance of original publications (e.g., impact factor, editorial written on paper)

Career development progress of mentee, e.g., number of presentations of research at national / international meetings, invited presentations at meetings or other universities, election to study sections or specialty societies,
Mentoring Metrics for Research Oriented Faculty

- Mentee’s role as a mentor (for promotion to Professor): # of individuals mentored, achievements of these mentees
- Mentee’s contributions to research-oriented committees at department, college, university, community, state, regional, national and international levels
- Leadership roles in research in appropriate department, college, or university
- Other, e.g., Research awards of mentee
- Did mentee get promoted?

Mentoring Metrics for Clinician-Educators And Academic Educators
### Mentoring Metrics for Clinician-Educators And Academic Educators

- Clinical load of mentee (e.g., RVUs)
- Innovative clinical care developed by mentee, e.g., telemedicine, new surgical technique
- Organization of clinical services to foster clinical care, medical education or research (e.g., developing a data base for clinical research)
- Documentation of teaching activities including formal courses taught, course materials developed, innovative teaching methods developed
- Evaluations of teaching by students, residents, fellows, peers, course directors and department chairs

<table>
<thead>
<tr>
<th>Professor</th>
<th>Academic I/C</th>
<th>Academic C</th>
<th>Clinician Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continues to meet all the criteria for Associate Professor with major accomplishments in research, teaching, and/or clinical service.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Distinguished career exemplifying scholarship, excellence &amp; productivity in research, outstanding success as a teacher, and/or outstanding service contributions are required.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Principal investigator on significant research grants.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Co-investigator on research grants.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Direct involvement in research.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Key individual in training of students and/or post-graduates.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Serve as Course Director for one or more major classroom courses.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Continues to carry a heavy clinical or teaching load.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Continued publication of reviews, chapters, textbooks, peer reviewed papers, and/or innovative teaching materials (core curricula, educational programs, syllabi, video materials, computer programs, etc.) that influence the source and practice of medicine or the regional &amp; national level.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Continued publication of important and original clinical and/or laboratory investigations with significant authorship.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Total publications with significant authorship since promotion to Associate Professor and in total files 2:</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>Total publications with authorship since promotion to Associate Professor and in total files 2:</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
<tr>
<td>National recognition, as evidenced by election to generality or specialty societies, service on national committees, study sections, editorial boards, inviting membership on and/or invitations to speak at CME courses. Leadership roles in appropriate department, hospital and college.</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>
Mentoring Metrics for Clinician-Educators And Academic Educators

- Participation in research
- # first authored original publications by mentee (clinical, education or research)
- # senior authored publications of mentee (clinical, education or research)
- Importance of original publications (e.g., impact factor, editorial written on paper)
- # grants submitted (education or research) by mentee
- # grants awarded

Mentoring Metrics for Clinician-Educators And Academic Educators

- Career development of mentee, e.g., # presentations at national / international meetings, invited presentations at meetings or other universities, election to specialty societies
- Mentee’s role as a mentor (for promotion to Professor): # of individuals mentored, achievements of these mentees
- Mentee’s contributions to clinical – educational committees and leadership at department, college, university, community, state, regional, national and international levels
- Other: honors and awards for teaching
- Was mentee promoted?
Are “Products” The Most Important Metric of Mentoring?

- Products key measure of effectiveness, e.g., successful grant submissions, leading educational program at a national meeting, etc.
- If mentee productive, mentor presumed to be doing a good job.
- But:
  - Could have poor mentorship and successful scholar and vice versa.
  - Product metrics do not provide an opportunity for early evaluation of relationship to solve problems.

Evaluating Effectiveness of A Mentoring Relationship:

- “Demographics” of the Relationship
- Eval. of Mentee
- Eval. of Mentor
- Mentor
- Mentee
- Objective Outcomes
Measuring the Effectiveness of Faculty Mentoring Relationships
Ronald A. Berk, PhD, Janet Berg, MS, RN, Rosemary Martimor, MS, MSH, RN, Beverly Watson-Mixon, DNP, RN, and Theresa F. Yee, MSN, MPH, RN

Abstract

“Mentor” is a term widely used in academic medicine but for which there is no consensus on an operational definition. Further, criteria are rarely reported for evaluating the effectiveness of mentoring. This article presents the work of an Ad Hoc Faculty Mentoring Committee whose tasks were to define the “mentor,” specific concrete characteristics and responsibilities of mentors that are measurable, and develop new tools to evaluate the effectiveness of the mentoring relationship. The committee developed two tools, the Mentorship Profile Questionnaire, which describes the characteristics and outcomes of the mentoring relationship from the perspective of the mentee, and the Mentorship Effectiveness Scale, a 12-item six-point agreement/dissatisfaction Likert-type rating scale, which evaluates 12 behavioral characteristics of the mentor. These instruments are explained and copies are provided. Psychometric properties, including the importance of content-related validity, invariance, response bias due to acquiescence and halo effects, and limitations on collecting reliability evidence, are examined in the context of the mentor-mentee relationship. Directions for future research are suggested.


Mentorship Effectiveness Scale Developed by the Ad Hoc Faculty Mentoring Committee, Johns Hopkins University School of Nursing

Your name: ____________

Directions: The purpose of this scale is to evaluate the mentoring characteristics of ________ who has identified you as an individual with whom he/she has had a professional, mentorship relationship. Indicate the extent to which you agree or disagree with each statement listed below. Circle the number that corresponds to your response. Your responses will be kept confidential.

Strongly Agree (5)
Agree (4)
Slight Agreement (3)
Disagree (2)
Strongly Disagree (1)
Not Applicable (0)

Scale: My mentor was helpful.

0 1 2 3 4 5 6

1. My mentor was approachable.
2. My mentor demonstrated professional integrity.
3. My mentor demonstrated content expertise in my area of need.
4. My mentor was approachable.
5. My mentor was supportive and encouraging.
6. My mentor provided constructive and useful criticism of my work.
7. My mentor motivated me to improve my work.
8. My mentor was helpful in providing direction and feedback on professional issues (e.g., networking).
9. My mentor showed my deficiencies (e.g., lack of experience, skills, self-confidence). 
10. My mentor acknowledged my contributions appropriately (e.g., committee contributions, awards).
11. My mentor suggested appropriate resources (e.g., workshops, conferences, role models, mentoring partners).
12. My mentor challenged me to expand my abilities (e.g., role of APA in non-professional activities, such as a section of an article).

Please make additional comments on the back of this sheet.

Copyright © 2002 The American Journal of Medical Education
Barriers to Evaluating Mentors

- Power differential: career dependence - negative feed could compromise mentee’s career

  Male Speaker 4: I can think on multiple occasions when I would have probably liked to have made a minor comment about something that my mentor could improve and didn’t. Quite frankly, did not say anything.
  Male Speaker 1: There’s no way in hell.
  Male Speaker 4: There’s no way I would.
  Male Speaker 1: Why are you shooting yourself in the head? That’s painful.

Other Barriers to Evaluating Mentors

- Lack of anonymity (i.e., confidentiality) - honest feedback difficult
- Feedback is subjective
- Mentors may not be willing to recognize their faults or change behavior
- Mentor program directors, Mentor Champions, and even Chairs have limited ability or authority to fix
Evaluating and Giving Feedback to Mentors: New Evidence-Based Approaches

Lauren Anderson, M.Ed., Karin Silet, M.A., and Michael Fleming, M.D.
Department of Family and Community Medicine, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, USA
Institute for Clinical and Translational Research, University of Wisconsin-Madison, Madison, Wisconsin, USA

Figure 1.
New model to evaluate mentoring relationship.
A National Survey of Mentoring Programs for KL2 Scholars

Karin A. Silet, M.A.¹, Pamela Asquith, Ph.D.¹, and Michael F. Fleming, M.D., M.P.H.²
¹Institute for Clinical and Translational Research, University of Wisconsin-Madison, Wisconsin, USA
²Northwestern University Feinberg School of Medicine, Illinois, USA

Summary of a national survey of CTSAs (n = 46).

<table>
<thead>
<tr>
<th></th>
<th>2006 grantees ( n = 12 )</th>
<th>2007 grantees ( n = 11 )</th>
<th>2008 grantees ( n = 14 )</th>
<th>2009 grantees ( n = 8 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadmap KL2 prior to award</td>
<td>3 (25%)</td>
<td>4 (36%)</td>
<td>1 (7%)</td>
<td>0</td>
</tr>
<tr>
<td>NCRR KL2 prior to award</td>
<td>4 (36%)</td>
<td>6 (54%)</td>
<td>3 (22%)</td>
<td>0</td>
</tr>
<tr>
<td>NCRR K30 prior to award</td>
<td>10 (83%)</td>
<td>9 (82%)</td>
<td>11 (86%)</td>
<td>6 (75%)</td>
</tr>
<tr>
<td>Average number of KL2 scholars</td>
<td>14 scholars</td>
<td>10 scholars</td>
<td>5 scholars</td>
<td>5 scholars</td>
</tr>
<tr>
<td>Average duration of KL2 award</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
<td>3 years</td>
</tr>
<tr>
<td>MS required</td>
<td>9 (75%)</td>
<td>7 (63%)</td>
<td>8 (57%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>MS encouraged</td>
<td>1 (8%)</td>
<td>1 (8%)</td>
<td>0</td>
<td>1 (12%)</td>
</tr>
<tr>
<td>Mentor contract used</td>
<td>5 (42%)</td>
<td>5 (45%)</td>
<td>4 (30%)</td>
<td>0</td>
</tr>
<tr>
<td>Mentor training programs</td>
<td>4 (30%)</td>
<td>4 (36%)</td>
<td>3 (22%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>Formal evaluation of mentor</td>
<td>6 (50%)</td>
<td>6 (54%)</td>
<td>3 (22%)</td>
<td>1 (12%)</td>
</tr>
<tr>
<td>Fiscal incentives to mentor</td>
<td>3 (25%)</td>
<td>4 (36%)</td>
<td>1 (7%)</td>
<td>2 (25%)</td>
</tr>
</tbody>
</table>
Metrics for Evaluating Department-Wide Mentoring Programs

- Survey of faculty: participation and satisfaction with the mentoring program and satisfaction with career development
- Attrition of faculty in the department, especially junior and mid-level faculty for the wrong reasons
- Promotion of faculty within the department
Metrics for Evaluating Department-Wide Mentoring Programs

- **Research:**
  - # career development awards of mentees (e.g., K23, K08, K99/R00, VA career development awards)
  - # first R01s, VA Merit Review awards of mentees
  - # mid-career awards for trained mentors NIH (K05, K07, or K24 grants)
  - Total research funding resulting from all mentored activities
  - Total # first, mid, last authored publications from all mentored activities

- **Clinical and Educational**
  - Growth of clinical services, revenue, and new programs resulting from mentored activities
  - New courses, educational activities resulting from mentored activities
  - # educational grants resulting from mentored activities
  - Total # first, mid, last authored publications resulting from all mentored clinical and education activities
Does Mentoring Work in Academic Medicine?

- Not systematically studied
  - **Sambunjak D, et al. JAMA 2006**: “had an important influence on personal development, ... and research productivity, including publication and grant success”
  - **Palepu A, et al. Acad Med 1998**: “faculty with mentors rated their research preparation and research skills higher than faculty without mentors”
  - **Windgard DL, et al. Acad Med 2004**: “Improved retention rates of mentored faculty, savings in faculty recruitment greater than cost of the mentoring program”

Randomized Trial to Evaluate Effectiveness of Mentor Training

- 15 site study (all CTSA sites) led by University of Wisconsin-Madison
- K series mentors randomized to participation in mentor training program or not
- **Primary aim**: to determine whether a skills-focused, case-based, mentor training program can improve the mentoring skills of K series mentors
- **ClinicalTrials.gov Identifier**: NCT01184131
- **Final Paper In review** (Stephanie House 4/29/13)
Summary

- More reliable data on best practices for effective mentoring and impact of mentoring on productivity of mentees emerging – CTSAs have played an important role
- Available data suggest that effective mentoring improves productivity of mentees
- Mentees who have been effectively or ineffectively mentored know it!

Summary

- Key metrics on each mentor – mentee relationship and department-wide mentoring programs should be collected
- Quantitative and qualitative metrics important to track success of programs and to provide feedback to mentees, mentors and program leaders
- Qualitative metrics pose potential interpersonal challenges - can be overcome if a priori commitments made between mentor and mentee (contract useful in this regards)