

## Establishing, Presenting and Using Outcome Measures \*

Outcome measures are important to accreditation and other forms of evaluation. Outcome measures are quantifiable indicators that gauge productivity, in this case productivity of a school or graduate program of public health. Although this paper refers to schools, the information and advice herein are also applicable to graduate programs outside schools of public health. These quantifiable indicators may represent a school in its entirety, or an individual function carried out by a school, such as education, research, or service. Outcome measurement, sometimes referred to as performance measurement or outcomes assessment, is the practice of identifying and assessing 1 or more indicators that capture and reflect the achievements of a school or program. Monitoring of indicators enables a school to document the outcomes, successes and ultimately the effectiveness of its efforts.

The use of outcome measures to characterize a school is not a substitute for reflective observation of the processes associated with the life of the academy, such as the nature of the social networks among students, faculty and alumni; the feeling of allegiance to an institution and its science; and the sense of belonging to a profession. The use of outcome measures is not a substitute for thoughtful evaluation, nor does it relieve schools from observing and assessing the less tangible parts of the academic mission, the things that are not easily measured. The use of outcome measures is an adjunct to these processes; it should support and sustain deliberative evaluation that is meaningful to the multiple stakeholders of a school.

The emphasis on outcome measurement has expanded in recent years due to mounting pressure for accountability and the need to document effectiveness to various constituents. This interest has occurred in higher education; in disciplines such as medicine, public health, and business; and even in the federal government, where Congress in 1993 enacted the Government Performance and Results Act (GPRA),<sup>1</sup> requiring federal agencies to develop strategic plans, set goals and objectives, and identify quantifiable measures in order to judge effectiveness and success of an agency's activities. Identifying and monitoring outcome measures has utility in planning and evaluation efforts, but it can also provide the critical evidence necessary to garner support from various stakeholders important to an institution, such as legislators, university officials, faculty, students, external funders, employers, and other community representatives.

Assessment, defined as “the process of collecting, organizing, and interpreting data for the purposes of determining to what degree an educational program is meeting its mission, goals and objectives,” plays an important role in documenting the effectiveness of an institution and can be an important factor in an accreditation review.<sup>2</sup> Accreditation is about assessment at many

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\* This is a technical assistance document, intended to be helpful to institutions seeking accreditation and to site visit teams in evaluating schools and programs. It is not a policy paper and does not supplant formally adopted criteria that guide the decision-making process of the Council on Education for Public Health. Interested parties should refer to *Accreditation Criteria for Schools of Public Health, June 2005* or *Accreditation Criteria for Public Health Programs, June 2005*, for the accreditation criteria.

<sup>1</sup> Government Performance Results Act of 1993. Office of Management and Budget, White House Website. Available at: [www.whitehouse.gov/omb/mgt-gpra/gplaw2m.html](http://www.whitehouse.gov/omb/mgt-gpra/gplaw2m.html). Accessed 8/27/01

<sup>2</sup> Gelmon, SB, Reagan JT. Assessment in a Quality Improvement Framework; A Sourcebook for Health Administration Education. AUPHA. June 1995.

different levels. Accreditation evolved through the years, moving away from judgments solely about resources and inputs, toward the evaluation of outcomes. In making this transition, the use of outcome measures has become a part of the documentation required for many accrediting agencies.<sup>3</sup> The accreditation criteria used by the Council on Education for Public Health (CEPH) to evaluate schools and programs emphasize the importance of developing measures by which progress can be monitored and assessed.

CEPH's *Criterion 1. Mission*,<sup>4</sup> asks schools to identify a mission, supported by goals, and further supported by measurable objectives. A school seeking initial or continued accreditation must define its own mission or statement of purpose. In doing so, it is guided by CEPH's broad mission of "enhancing health in human populations, through organized community effort."<sup>5</sup> Within this context, a school is asked to address the health of the community through at least 3 major functions: instruction, research, and service. A school has flexibility to develop its mission in order to capture its unique essence and address its particular target audience, so long as the mission embraces this concept of public health and incorporates teaching, research and service activities.

Goal statements are outgrowths of the mission. They are declarations of what an organization wants to accomplish over several years.<sup>6</sup> CEPH asks for 1 or more goal statements representing each major function of the school. Finally, in order to assess the accomplishment of goals, a set of measurable objectives for each goal must be established. These objectives are intended to capture the means by which a school will operationalize its stated mission. Objectives should be specific, measurable statements describing what the school wants to accomplish, usually within a specified time frame. The objectives should describe desired outcomes and be future-oriented. Together, the mission, goals and objectives should identify in specific terms what a particular school has set out to accomplish. There should be a clear relationship between the mission and goals, and between the goals and the objectives. Implicit in CEPH's criteria is the expectation that there be a clear relationship between objectives and selected outcome measures. Outcome measures are the variables by which attainment of objectives may be judged. It is within this self-generated framework that schools are evaluated for accreditation.

Identifying and tracking outcome measures is a challenging task. This technical assistance paper is intended to a) clarify what outcome measures are and how they fit into the CEPH accreditation process; b) provide guidance on developing outcome measures; c) suggest ways to present results of outcome measures; and d) discuss uses of the data gathered from outcome measurement activities. This paper should be helpful to various audiences, including school and program leaders, university officials, self-study coordinators, and accreditation site visitors.

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<sup>3</sup> Ibid.

<sup>4</sup> *Accreditation Criteria for Schools of Public Health, and Accreditation Criteria for Public Health Programs*. CEPH, June 2005.

<sup>5</sup> Definition adopted by CEPH, 1978.

<sup>6</sup> Bryson JM, Alston FK. *Creating and Implementing Your Strategic Plan, A Workbook for Public and Nonprofit Organizations*. Jossey-Bass. 1996.

## Establishing Outcome Measures

Outcome measurement contributes to the credibility of any evaluation activity. Outcome measures may relate to outputs or inputs. Output measures reflect the products of an activity or, in this case, of a school. For example, outputs include the skills and competencies achieved by students; research conducted by faculty; and service activities operated, facilitated or managed by the school to the local and professional community. Input measures refer to factors that enable a school to function. For example, these include financial, space and computer resources, faculty, and students. Without these inputs, a school cannot function. CEPH expects both types of outcome measures.

The requirement to develop various measures by which a school's progress can be assessed is woven into the fabric of the CEPH accreditation criteria. A logical process for developing outcome measures<sup>7</sup> includes a) identifying a range of potential measures, b) specifying desired outcomes for these measures, and c) building the tools or systems necessary to assess performance against these measures over time. When identifying measures, the school should decide what key measures or variables are essential performance indicators. In doing so, it is useful to develop outcome measures that are aligned with the larger goals and objectives of the school.<sup>8</sup> When contemplating what measures to monitor, it may be useful to consider the following factors<sup>9</sup>:

- **Relevance:** What is the importance of this measure? Is the improvement meaningful to the stakeholders? Does it reflect a virtue of the school? Is it in alignment with the school's mission?
- **Potential for improvement:** Is improvement possible? Does the measure demonstrate substandard or variable quality? Since it is not realistic to monitor every aspect of a school's performance, factors that discriminate between adequate and substandard or variable quality may be most useful to monitor.<sup>7</sup>
- **Controllability:** Can this measure be influenced by the school? Measures that are amenable to change by the school will be most useful for internal planning and management, but measures that are outside the school's control may be equally important, especially in documenting conditions to external stakeholders.

CEPH requires outcome measures in all four areas established for accreditation. System-level changes that take place as a result of reviewing outcome measures often relate to organizational arrangements and governance of a school.

While schools must present certain measures in the domains of teaching, research and service, schools may choose their own measures beyond these minimal requirements. The minimum

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<sup>7</sup> Barton, PL. Selecting Outcome Measures by Which to Judge Success. Presented at: American Public Health Association Annual Meeting; November 15, 2001; Boston, MA.

<sup>8</sup> Engelkemeyer, SW. Institutional Performance Measures. AAHE Bulletin. American Association for Higher Education. Vol. 51., No. 4. December 1998.

<sup>9</sup> McGlynn E, Asch S. Am J Prev Medicine 1998; 14(3S): 14-21.

reporting requirements include data on student/faculty ratios, institutional expenditures per full-time-equivalent (FTE) student, research dollars per FTE faculty, graduation rates, and job placement rates. A school should select additional measures that characterize the adequacy and success of the school's activities. A school may track as many indicators as it deems appropriate. More measures are not always better, however. The key is to select a set of measures that are relevant to the mission and operations of the school and that can stimulate the school to undertake improvements in the internal systems and external relationships in the school. Appendix 1 provides examples of measures that can be useful for monitoring performance of a school.

Once outcome measures have been identified, a school should identify data needed to report performance against the measures and, in some cases, to standardize definitions for the data elements. For instance, when calculating student/faculty ratios, how will FTE students and FTE faculty be calculated? While measurement frequently involves assessing quantitative indicators, the importance of qualitative data should not be overlooked. Information gleaned from focus groups, key informant interviews, exit interviews, observations, and periodic questionnaires can yield helpful information.

While outcome measures and performance data provide a description of a school at a point in time, they may also be useful for planning. In this regard, the school should identify target levels that it hopes to attain. A target provides a definitive mark for schools to work toward and facilitates measurement, specifically related to the extent of change that has occurred over time. As schools change, the outcomes by which progress is measured will change. This would be particularly true for new and emerging schools.

Once measures have been identified and target levels or standards determined, careful thought should be given to data management and interpretation. Effective information management will greatly enhance and ease outcome measurement efforts. To ensure quality and credibility, the school needs to consider how the information will be collected, stored, tracked, analyzed, and interpreted by multiple stakeholders. It is essential to have an effective data tracking system. Many institutions have adopted a university-wide data system, whereby the various academic units across the university work within common systems. However, if such a system does not exist, the easiest method to manage data may be to develop a database or a spreadsheet. Many computer software packages include database or spreadsheet products (eg, Microsoft Office's ACCESS™ or EXCEL™) with simple tutorials to assist individuals in their use.

### **Presenting Outcome Measures**

Once measures have been identified and data have been collected, CEPH criteria ask for historical data for those measures for the previous 3 years. If new, a school may not have historical data, but the current year's data are useful nonetheless as a baseline for measuring progress in attaining the desired outcome in the future. Table 1 illustrates a viable method to present information about selected outcome measures. It includes the measure, the target or desired outcome, and 3 years of experiential data. For management purposes, it may also be helpful to document the frequency of measurement (eg, is the assessment conducted annually, monthly) and the date of the last assessment.

Table 1. Examples of Outcome Measures and Targets for Criterion IV. (Resources)				
Measures Within School	Target/Desired Outcome	1998-1999	1999-2000	2000-2001
1. Student/Faculty Ratio	7:1	9.1:1	8.9:1	7.5:1
2. Institutional Expenditures/FTE student	\$20,000	\$15,500	\$18,000	\$21,300
3. Research dollars/ FTE faculty	\$250,000	\$271,209	\$382,746	\$432,579
4. Number of students supported financially	100	73	80	91
5. Average amount of student award	\$10,000	\$3,250	\$4,700	\$3,900

NOTE: Definitions and calculations should be explained. Because of differences in definitions, these measures are not intended to be used for cross-school comparisons.

With outcome data in hand, it is essential for a school to assess its performance. Has the school met or exceeded the targets? Has the school fallen significantly short of targets? If large fluctuations are seen, what causes these? Careful analysis is not only helpful to the planning and decision-making functions of a school, but constitutes the type of self-assessment necessary to conduct a thorough CEPH self-study review.

### Using Outcome Measures

Assessment should be an ongoing organizational practice that provides information on how the activities of a school fulfill their stated aims. Incorporating assessment and monitoring of objectives through outcome measures will help indicate whether or not a school is heading in the direction of its stated mission. Evidence that a school is achieving its objectives provides proof of overall effectiveness and affirms that the school is delivering on its stated mission.

The focus on outcome measurement has gained prominence due to its utility in demonstrating accountability to the many stakeholders associated with a school. These include a university's senior administration that may want to know the performance of various academic programs for budgetary purposes, prospective faculty members who may want to know how the school performs in various areas before accepting a position, prospective students who may want to know how successful graduates are in finding jobs after graduation, or for various external funders that want to assess a school's past performance in various areas. In addition to providing information useful to various constituents, outcome measures hold utility for:

1. **Program planning:** Assessment provides a basis for making informed decisions to modify or redesign educational programs, including expansion and/or termination of programs. Outcome data provide the information necessary for informed decisions and aid in the never-ending quest of judiciously allocating limited programmatic resources.
2. **Program management:** Data derived from monitoring outcome measures allow a dean or director to make better administrative decisions, decisions that are congruent with and contribute to the long-range goals of the school.

3. **Evaluation:** Assessing a school's successes over time and maintaining a commitment toward continuous improvement are critical. Performance indicators are useful for evaluation as they provide points of reference for comparing quality and performance over time and against a stated objective.
4. **Marketing:** Assessment facilitates the documentation of a school's strengths, an indication to outsiders of the school's vitality. This can be a determining factor to prospective students making a decision to enroll in a program or to potential faculty members contemplating employment offers. Similarly, community organizations and external funders may use this information to make decisions regarding where they want to invest their efforts and resources.
5. **Accreditation:** Assessment and outcome analysis is a critical component of many accrediting agencies' criteria and procedures, including CEPH. Monitoring outcomes on a regular basis eases the task of responding to accrediting agencies at the time of periodic accreditation reviews.

Schools with effective assessment processes are well positioned to identify strengths, weaknesses, opportunities and challenges, thus resulting in the ability to realign goals and allocate resources to achieve their missions.

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## Appendix 1

Appendix 1. Sample Indicators for CEPH Criteria that Require Outcome Measures	
Criterion 1.2. Evaluation & Planning	<ul style="list-style-type: none"> <li>• Evidence of change resulting from evaluation findings</li> <li>• Number of outcome measures met or exceeded</li> <li>• Response rates to student, alumni surveys, etc</li> </ul>
Criterion 2.0. Instructional Programs	<ul style="list-style-type: none"> <li>• Average grade point averages by program</li> <li>• Graduation rates **</li> <li>• Job placement rates **</li> <li>• Average time to complete degree</li> <li>• Attrition rates</li> <li>• First-time pass rate on comprehensive exam</li> <li>• Percent of theses/dissertations that result in publication</li> <li>• Number of student presentations at scientific meetings</li> <li>• Number/type of community projects involving students</li> <li>• Interdisciplinary teaching</li> <li>• Course changes resulting from student evaluations</li> </ul>
Criterion 3.1. Research	<ul style="list-style-type: none"> <li>• Number, amount and source of grants</li> <li>• Number of peer-reviewed publications per FTE faculty</li> <li>• Number of students participating in faculty research</li> <li>• Number of community-based and/or applied research projects</li> <li>• Number of collaborative research projects</li> <li>• Number of faculty or student presentations at scientific meetings</li> <li>• Effectiveness of IRB processes</li> </ul>
Criterion 3.2. Service	<ul style="list-style-type: none"> <li>• Number/type of service projects</li> <li>• Number of continuing education programs in public health</li> <li>• Number of participants in continuing education programs</li> <li>• Number of student internships/practica that include service</li> <li>• Formal linkages with community organizations/PH agencies</li> <li>• Feedback on observations of students in practice</li> </ul>
Criterion 4.1-4.3. Faculty	<ul style="list-style-type: none"> <li>• Number &amp; proportion of faculty with doctoral degrees</li> <li>• Gender, ethnicity, and rank of faculty **</li> <li>• Number of faculty by full-time and part-time status</li> <li>• Number of faculty tenured, tenure-track, non-tenure track</li> <li>• Student evaluations of teaching ability</li> <li>• Proportion of faculty with public health experience</li> <li>• Proportion of faculty involved in service activities</li> <li>• Number of faculty presentations at scientific meetings</li> <li>• Number of awards and honors bestowed on faculty</li> <li>• Number of leadership positions in professional associations</li> </ul>
Criterion 4.4-4.5. Students	<ul style="list-style-type: none"> <li>• Average GPA of applicants, acceptances, and enrollees</li> <li>• Average GRE scores of applicants, acceptances, and enrollees</li> <li>• Diversity of applicants, acceptances, and enrollees</li> <li>• Proportion of applicants with prior public health experience</li> <li>• Reasons for student selecting the particular school</li> <li>• Gender and age diversity (# and %)</li> <li>• Racial/ethnic diversity **</li> <li>• Number of students in governance roles</li> </ul>

\*\* Reporting requirement for CEPH