Council on Chiropractic Education (CCE) White Paper:

Meta-Competency Outcomes Assessment, and Assurance of Programmatic Effectiveness

Purpose

A *white paper* is an authoritative report or guide written to inform readers about a complex issue; it represents the issuing body's viewpoint on the matter. This white paper comes from the CCE Council, with a spirit and intent to provide assistance to all constituencies of the CCE, including accredited programs, site team peer reviewers, and others, in understanding the intersection of principles and best practices in the assessment of student learning and program effectiveness as presented in CCE Accreditation Standards (*Standards*) 2.A.3 and 2.H. Working together, all parties share an interest in promoting outcomes assessment as a means to improve students' educational experiences and learning achievement in chiropractic education. This white paper does not represent a change in the *Standards*. The role of the white paper is to ensure that all stakeholders have the same understanding of what constitutes meeting the requirements of Sections 2.A.3. and 2.H. (1-2) and to disseminate the agreed-upon guidance using identical messaging at every level.

Contents

Background

In everyday terms, the meaning of assessment in an educational setting refers to the measurement of both what a person knows and can do (Banta & Palomba, 2014). Although assessment will undoubtedly apply to a student's learning, it may also be used to describe the processes of examining an academic program's effectiveness. The term assessment has evolved over the last two decades, shifting from signifying the examination of a student's benchmark score to meaning the collection of data and the subsequent use of these data for improvement (Barham, Tschepikow, & Seagraves, 2013). In a higher education setting, aggregate data from multiple individual measures of assessment are used to monitor and discover strengths and weaknesses in an educational program and to inform decisions that may guide change and influence improvement in the program.

The United States Department of Education (USDE) and the Council on Higher Education Accreditation (CHEA) are the governmental and nongovernmental recognition bodies through which the CCE obtains recognition. Both agencies are focused on student achievement as a central indicator of quality, and both agencies pay great attention to student achievement and success (CHEA, 2019). The key questions and issues from other CCE stakeholders (licensing boards, the chiropractic profession, and the public) concern teaching and learning, along with the competency of graduates entering the workforce. Both USDE and CHEA use criteria that are centered on student achievement and success as defined by the mission or purpose of a college or university; assessment is the mechanism applied to accomplish this and measure success. Further, in addressing accreditation, jurisdictional licensing authorities throughout the U.S. are influential voices calling for the replacement, or at least augmentation, of the longstanding accreditor emphasis on resources and processes. Instead, these authorities contend, the emphasis should be on outcomes-based measurement assessments that ensure graduates are competent. The call is persistent, even as accrediting organizations themselves are taking significant steps to embrace the emphasis on outcomes and interpretation of results. Finally, the public expects accreditors to play a stronger role in sustaining the academic performance of institutions. As a result, students will be assured a quality education, and taxpayer money supporting education will be well spent.

Defining Assessment

The literature defining assessment explores descriptions of best practices for processes and expected outcomes. The U.S. nongovernmental recognition body, the Council on Higher Education Accreditation, describes an ongoing cycle of iterative improvement in collecting data to effect solutions to problems at the program level (Eaton, 2011; Emil & Cress, 2014).

The shift in the accreditation process promoted by USDE and CHEA oversight bodies has been to broaden accreditation and focus more on outcomes than on inputs. The outcomes center on the assessment of student learning and the corresponding use of assessment data for programmatic improvement. The intersection of the *Standards* that address these roles of assessment align with Sections 2.A and 2.H (CCE, 2018).

Sections 2.A.3 and 2.H are distinctly different from other CCE accreditation standards in that they are far more principle-based, providing educational programs a basic framework while allowing programs to define assessment systems with more flexibility in accordance with their programmatic missions.

A recent CCE internal analysis revealed that program deficiencies in Sections 2.A.3 and 2.H were the number-one and number-two *Standards* most frequently cited by the Council with a *concern* following an Initial, Reaffirmation, or Interim site visit. In these cases, the programs were cited with a *concern* because the CCE Council concluded that the program did not sufficiently evidence meeting the requirements of the *Standards.*

The Assessment of Curriculum, Competencies, and Outcomes

> **Current Language of the *Standards*, Section 2.H.**
>
> The didactic and clinical education components of the curriculum, wherever offered and however delivered, are structured and integrated in a manner that enables the graduate to demonstrate attainment of all required meta-competencies necessary to function as a doctor of chiropractic/chiropractic physician. Best practices in assessment of student learning, regardless of instructional modality, measure student proficiency in the identified meta-competency outcomes and produce data that are utilized to guide programmatic improvements.

The heart of Section 2.H is the assessment of the student competency prior to graduation. It is the opinion of the Council that the assessment of competency should be performed in a clinical or simulated clinical learning environment with the building blocks represented in the diadactic curriculum. Best practices in assessment of clinical competency suggest that a major portion of the assessment of student competency should be performed in the context of the clinical workplace and should be criterion-referenced (Holmboe, Sherbino, Long, Swing, & Frank, 2010). Furthermore, the assessment of competency should be based on authentic encounters and frequent direct observations (Carraccio, Wolfsthal, Englander, Ferentz, & Martin, 2002; Govaerts, Van der Vleuten, Schuwirth, & Muijtjens, 2007; Williams Klamen & McGaghie, 2003).

It is important that assessment instruments and methods be valid and align with the meta-competency outcomes (MCO). Furthermore, the evaluation of knowledge and skills should align appropriately within the framework of Bloom's taxonomy and/or Miller's Model of Clinical Competence (Miller's Pyramid). Methods should include direct observation of performance and other methods, such as chart review, case study exercise, global review, patient survey, literature research, and so forth.

The requirement for meeting Section 2.H.2 is evidence that each graduating student has achieved a successful level of competency of all MCOs. As is emphasized in the *Standards*, "The DCP [Doctor of Chiropractic Program] employs best practices to assess and demonstrate

each student's achievement of meta-competency outcomes (MCO)." Therefore, the program needs to demonstrate that each MCO is evaluated and scored. A student's strengths or weaknesses for a single MCO may not be obvious when a single method or instrument is applied to assess clustered MCOs. The Council has determined that although the assessment of multiple MCOs in various aspects of a patient encounter is acceptable, caution is advised regarding over-tagging or over-clustering of MCOs in a single tool because the strengths or weaknesses of a student's achievement of a particular MCO becomes unidentifiable, thereby weakening the validity of the assessment method or instrument.

Best practices in assessment promote the use of multiple tools and strategies. Humphrey-Murto et al. found that "no single assessment tool can capture all aspects of clinical competence." Clinical competence is a complex construct necessitating a diverse set of assessment tools and strategies (Humphrey-Murto et al., 2017, p. 689). The program needs to demonstrate that each MCO is evaluated and scored for each student and that, generally, outcomes are assessed with one or more direct assessment measures.

Demonstrating individual MCO achievement usually involves using multiple tools to strengthen assessment by triangulating the data. In an assessment plan with multiple tools, an individual assessment instrument is only one piece of the whole plan. Optimally, a minimum of three different data points should be collected for each MCO, thereby enabling assessment results to be triangulated. Programs should evaluate current assessment tools for effectiveness, and weaker tools should be redesigned or eliminated. Each assessment method should include an established frequency and threshold/performance target and, in the use of rubrics, reflect progressive knowledge/skills in the clinical portion of the curriculum. When multiple methods are used to evidence a single MCO, the program should provide a description of how the summative score is calculated and what the threshold is, so that the students, program, site team evaluators, and Council members all understand the measures indicating when competency is attained and when decisions are made to remediate students or to improve the program.

A strong assessment plan would include offering rich formative feedback to the student as the result of the assessment process. An effective system must continuously link robust assessment with equally robust feedback on a continuous basis (Humboe et al., 2010; Humphrey-Murto et al., 2017; Lockyer et al., 2017). Assessment should inform learners of their progress toward becoming competent, and formative feedback is an essential part of assisting students with that goal (Humphrey-Murto et al., 2017).

Summative assessments provide evidence and data that each student has met all the MCOs prior to graduation. Documented and systematic processes should be used to review each student's MCOs achievement data prior to graduation. Additionally, performance expectations and thresholds (e.g., via syllabi and/or clinic manual) should be communicated to students, and systematic mechanisms should be used to identify and remediate students when deficiencies identified through the assessments become known.

Validity and reliability are important characteristics of assessment methods and of the data they produce. Validity is the overall judgment of the degree to which theory and evidence support the interpretation of assessment scores for a specific purpose. An assessment strategy is valid when the related sampling is sufficient and appropriate. An assessment strategy is considered reliable when it yields consistent results regardless of when it is used and who uses it. Just as programs need multiple methods of assessment to compensate for the shortcomings of any one method, so do programs need multiple assessors to compensate for rater shortcomings such as biases, halo effects, and leniency (Lockyer et al., 2017).

If programs are to meet best practices in assessment, students should be evaluated by multiple qualified evaluators. Additionally, faculty must have training in the appropriate use of the assessment instrument. The individuals who conduct the assessment require training that extends beyond the tools and forms they use and encompasses the philosophy, goals, and focus of the assessment instrument (Lockyer et al., 2017). Frequent calibration exercises conducted with evaluators can help control assessment drift and improve the reliability of the data.

Current Language of the *Standards*, Section 2.H.2.

2. Assessment of Learning Outcomes and Curricular Effectiveness

The DCP employs best practices to assess and demonstrate each student's achievement of meta-competency outcomes. The DCP determines its own method of meta-competency delivery and assessment to document student competency and curricular effectiveness. Data related to assessment of student learning and curricular effectiveness are utilized for program improvement and are factors in institutional planning and program resource allocation. Ultimately, the DCP is accountable for the quality and quantity of its evidence of compliance with the meta-competencies and its curricular objectives and outcomes.

Section 2.H.2 requires assessment data to be aggregated to inform program improvement. At the program level, data collected from the assessment of individual students should be aggregated and used to assess curriculum effectiveness and to determine whether a cohort was able to reach desired levels of competence within the defined period. Such data must also be subject to predetermined program performance thresholds from which to make decisions about program improvement. Data collected for a cohort should be applied in a continuous process of quality improvement and innovation. Programs should continually use the data to determine what works, for whom, in what circumstances, and why (Pawson & Tilley 1997). The process is continuous given that program interventions are almost always "partial solutions" that must be continually refined and revised (Pawson, 2013).

The Interconnection Between *Standards* A and H

Programs commonly use NBCE performance results and program completion rates, in conjunction with a variety of academic and non-academic operations metrics, to assess and monitor program effectiveness. Program learning outcomes (PLOs) and aggregate data from the assessment of student learning and competency are essential for informing improvements in the curriculum and are also used to inform improvements across the program, such as faculty training, student and academic support services, academic policies, and admissions. Thus, Sections A and H of the *Standards* connect via the intersection of the assessment of student learning data and other program outcomes and data and overlap within the concepts of the *Standards* (Figure 1). That can make placement of narrative descriptions and evidence in self-study or interim reports challenging. Very simply, Section A focuses on overall program success (e.g., curriculum, program/learning outcomes, and other program success data); Section H focuses on individual student learning success (e.g., MCO data) and curricular effectiveness. Metrics, thresholds, data analysis, and data utilization are all important in describing program and student success. Additionally, since curricular effectiveness is a subset of program effectiveness, data reporting may overlap. It is also helpful to clearly articulate the roles and responsibilities of individuals, groups, and committees involved in data collection/management, reporting, and program improvement processes.
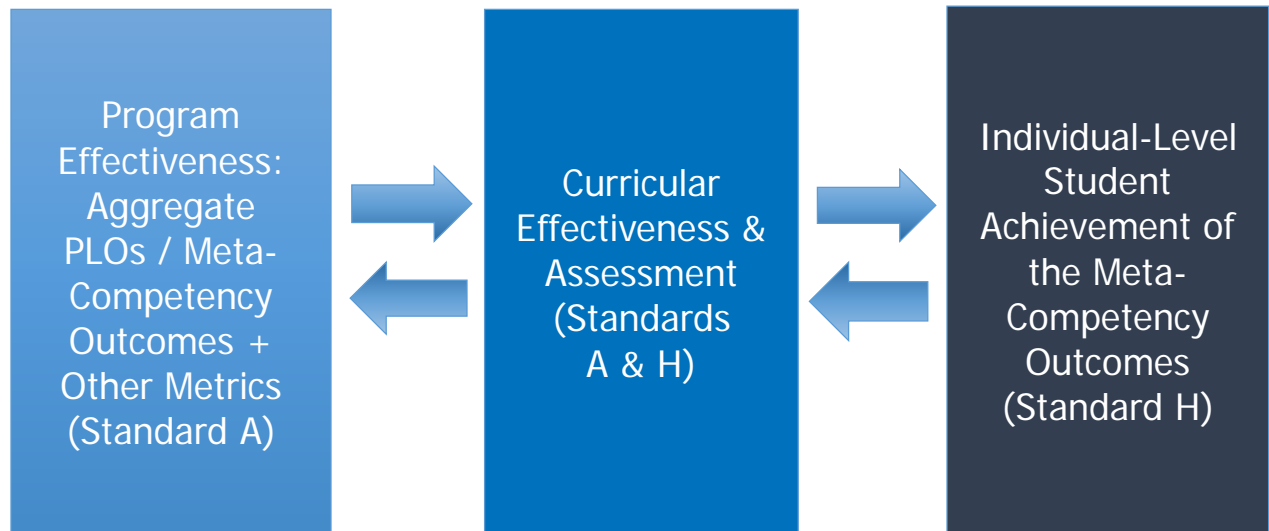

FIGURE 1. The relationship and interconnection of Standards A and H.

Current Language of the *Standards*, Section 2.A.3.

3. Program Effectiveness

The DCP evaluates its operations to identify strategic priorities and improve performance through institutional and program effectiveness processes. The DCP develops performance metrics for academic and non-academic operations and the results obtained are tracked, analyzed, and regularly reviewed to inform planning. Periodic reviews are conducted to ensure the effectiveness of performance measures and planning processes.

    The DCP systematically reviews its program effectiveness to make appropriate changes. The program review process includes an analysis of aggregate outcome data. The DCP establishes thresholds for student outcome data to measure performance and improvement over time. Program effectiveness data are disseminated internally in a timely fashion and incorporated in institutional effectiveness, planning and decision-making processes to revise and improve the program and support services, as needed.

The program effectiveness process, as outlined in Figure 2, is a quality improvement assessment cycle that (a) develops specific program effectiveness metrics; (b) systematically collects data on regular cycles; (c) establishes thresholds for each metric; (d) documents a formal analysis of data that informs program effectiveness; (e) provides for meaningful dissemination of data/reports to appropriate stakeholders; (f) uses data to inform program improvements and planning; and (g) actually implements improvements to the education program where indicated.

The design and processes for program effectiveness may vary from program to program, but should always include the primary processes indicated in the diagram below (Figure 2). *The Examples of Evidence* for Section A provides several exemplars for documenting outcomes. Although the examples listed are not all inclusive, and the DCP may choose to use all, some, or none of the examples of documentation, two bulleted elements below identify artifacts that are especially helpful for demonstrating a DCPs operational process of program effectiveness:

- Institutional effectiveness report or similar document, which tracks performance metrics or key performance indicators, for academic and non-academic operations.

- Program effectiveness or review report or similar document that tracks and analyzes program-level outcome data, such as student achievement of the program's learning outcomes and the meta-competencies; retention and completion rates; NBCE performance; licensing and/or placement rates; and program satisfaction.
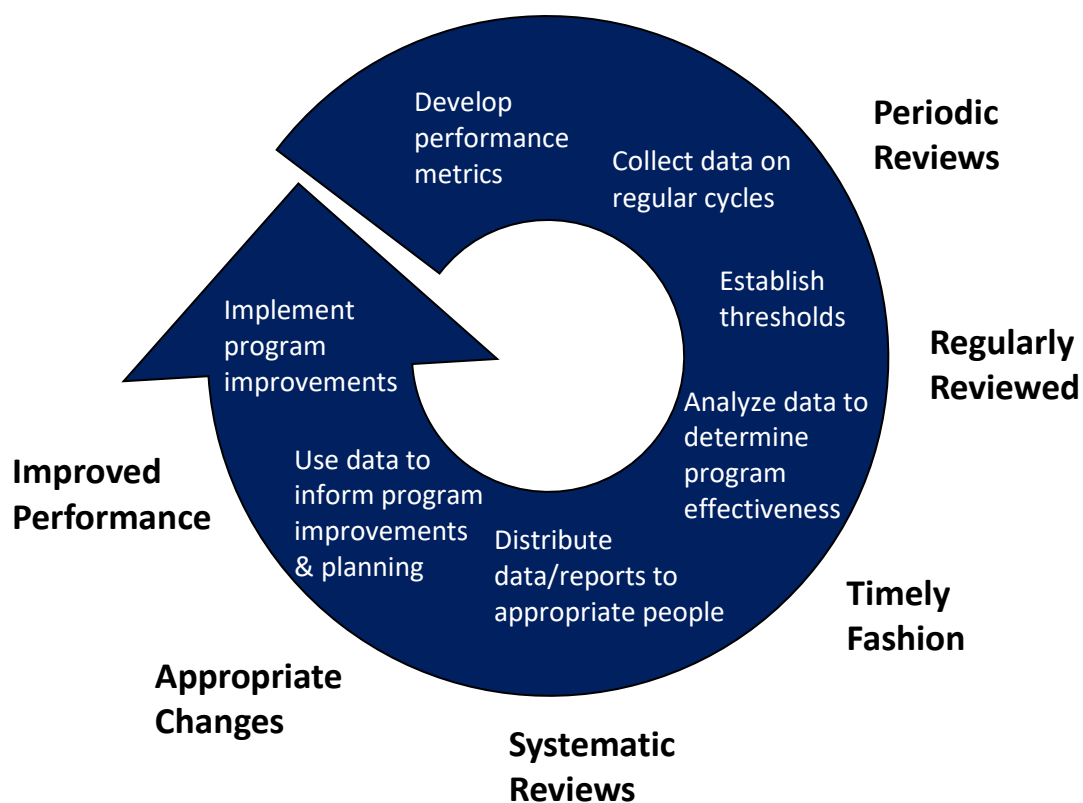
FIGURE 2. Determining systematic review of program effectiveness.

Reporting on program effectiveness data and analyses may also vary from program to program. Some programs use key performance indicators (KPIs) and compile these performance metrics into a single report; others may create a series of reports to evidence the collection and analysis of program performance metrics (Table 1).

TABLE 1
Program Effectiveness Data and Reports

Commonly exhibted in Standard A	Commonly exhibited in Standard H
Annual College Report	Assessment Data Reports
Institutional Effectiveness Report	• Course Assessments
• Institution Level	• Objective Structured Clinical Examinations
• Program Level	(OSCE)
Department-Level Scorecards/Dashboards	Meta-Competency Outcomes
• Finance	• Clinic Assessments
• Student Services	o Individual
• Admissions	o Aggregate
• Academic Affairs	o Trend
• Clinic	o Progression through Clinic
Program Assessment Plan	• Assignments & Projects
• Metrics	• Portfolios
• Cycles	Clinic Quality Assurance System
• Data/Results/Trends	• Compliance/Audit Criteria
	• Data/Results/Trends

The nomenclature included in Section 2.A.3 and the corresponding examples of evidence highlight the primacy of program effectiveness as a method or process used to evaluate the effectiveness of the DCP as a whole, with special attention paid to program-level outcomes that include both academic and non-academic measures. Several components of the *Standards* and CCE policies help to inform the required program effectiveness metrics. These include:

- Academic and non-academic operational metrics (see Standard A.3);
- NBCE Performance (see Standard A.4);
- DCP Completion Rate (see Standard A.4); and
- Data related to the assessment of student learning and curricular effectiveness (see Standard H.2), including:
  o PLOs / Meta-Competency Outcomes (aggregate).

Programs have wide latitude in choosing their effectiveness metrics based on the program's unique needs and circumstances. Table 2 provides some examples of academic, non-academic, operational, and student outcome metrics commonly used in program effectiveness processes.

TABLE 2
Examples of Metrics Used to Measure Program Effectiveness

• retention/attrition rates	• clinic/patient care quality assurance metrics & performance	• NBCE performance – Policy 56
• GPA/academic standing	• patient satisfaction rates	• NBCE Parts I–IV & sub-test analysis
• course pass rates/course completion rates	• student satisfaction with the program, academic student services, etc.	• DCP completion rate – Policy 56
• AATP academic & NBCE performance	• community service participation rates	• PLO performance and/or Institutional LO
• OSCE/gate-keeping exam performance	• technology and facility utilization	• MCO achievement (aggregate)
• student and academic services/tutoring utilization rates	• alumni survey results	• employment rate
• faculty research & scholarship output	• budget vs. actual & composite financial index (CFI)	• Title IV default rate

As indicated in Figure 2, Section A.3 requires program effectiveness metrics that:
- have thresholds;
- are tracked;
- are analyzed;
- have cycles of collection and review;
- provide for the dissemination of data & reports in a timely fashion; and,
- inform program improvements and is incorporated into planning processes.

Deficiencies or *concerns* in Section A.3 most commonly arise from failure to include the PLOs and/or the aggregate MCOs as measures of program effectiveness. Sometimes, however, *concerns* arise when there are deficiencies in one or more of the primary components of program effectiveness, such as not establishing thresholds, not analyzing data on regular cycles, or not using data to inform program improvement or planning.

Although data-driven decision-making is an essential component of program effectiveness, some programs do not clearly exemplify this practice in their programmatic self-analysis processes. In some cases, deficiencies or *concerns* arise from insufficient tracking or recording of the decisions that can be traced back to the supporting data, which highlights the importance of well-documented, consistent processes. Examples of data-driven decision-making may be seen in such actions as:

- modification of the curriculum;
- modification of assessment tools or methods;
- identified need for training faculty in assessment methods and/or instruments;
- modification of policies and/or procedures;
- decisions to continue or maintain current processes and/or procedures;
- decisions to continue monitoring outcomes;
- modification of admission requirements;
- action plans/objectives/priorities, as identified in planning documents (Program and/or Institution); and
- allocated resources for improvements via budget processes or planning processes.

The *Standards* for Program Effectiveness (A.3) and Planning (A.2) are integrated, albeit separate, processes (Figure 3). Although planning metrics may be used to measure achievement of a goal or an objective related to specific initiatives, they may cease to be adhered to once the goal or objective is achieved. However, program effectiveness metrics are used for ongoing monitoring of the program as a whole. At the heart of any educational program is assessment of student learning and student outcomes; thus, program learning outcomes (PLO) and aggregate MCOs are important metrics to include in this process. Various academic and non-academic operational metrics, such as retention, AATP performance, utilization of tutoring services, employment rates, research and scholarship output, and CFI, monitor program success outcomes related to academics, academic support, and other non-academic areas central to the educational program. If program improvement activities are to receive appropriate consideration and resources, including those related to student learning and curricular effectiveness, program effectiveness processes should be linked to the planning and budgeting processes. Commonly, this occurs through sequential program effectiveness review cycles and annual planning and budgeting cycles.
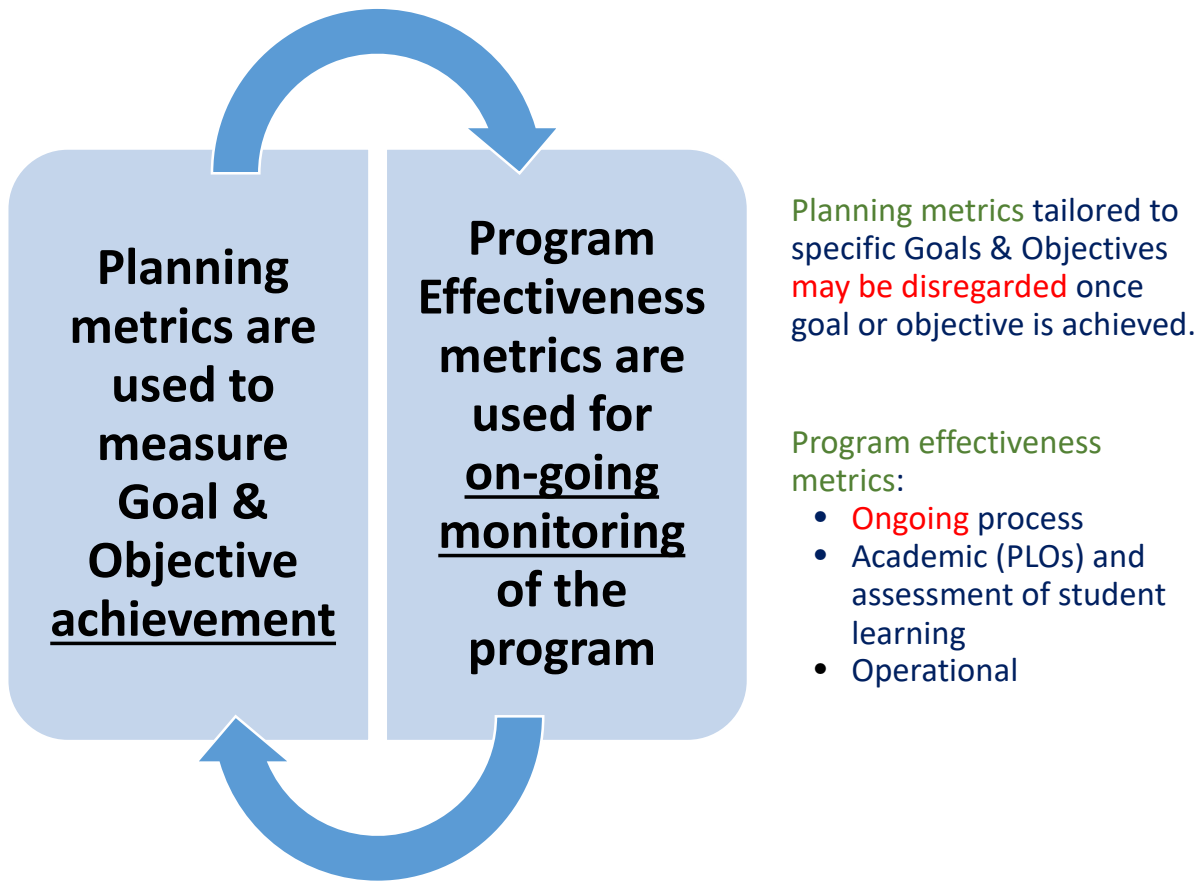
Planning metrics are used to measure Goal & Objective achievement

Program Effectiveness metrics are used for <u>on-going monitoring of the program</u>

Planning metrics tailored to specific Goals & Objectives may be disregarded once goal or objective is achieved.

Program effectiveness metrics:
- Ongoing process
- Academic (PLOs) and assessment of student learning
- Operational

FIGURE 3. Planning and program effectiveness functions and processes.

Clarifications needed to align stakeholders

As a means to calibrate programs, peer review teams, mentors, and volunteers, the following clarifications relative to Sections 2.A and 2.H are to be applied. Importantly, from a peer review standpoint, the reviewing of assessment plans should not be approached with a checklist mindset. The peer review team should be concerned with confirming whether the program has demonstrated that it has a systematic process in place to assess student learning; is applying its process to determine the level of student competency achieved; regularly informs its stakeholders of students' performance; and uses the outcomes data to make improvements in its educational processes. Peer review teams should keep in mind that they are determining whether the program is meeting the spirit and intent of the standard and is showing continuous improvement.

The essential elements that demonstrate alignment with Section 2.H

1. A well-documented process;

2. Curriculum maps or similar representation, showing where meta-competency curricular objectives are taught/addressed with a clear linkage between the design of specific courses and learning activities;

3. An assessment plan to measure student learning and achievement of the MCOs in clinical or simulated learning environments (unless otherwise indicated), including:

   a) Appropriate methods and tools to measure each MCO;
      - Direct assessment of MCOs (indirect permitted as supporting evidence);
      - Evaluation of students by multiple evaluators; and
      - Faculty training in the methods and instruments used;

   b) Demonstrated thresholds for MCOs assessments;
   c) Established processes, timelines, and frequency of MCOs assessments; and
   d) Established processes to review individual student achievement of MCOs prior to graduation.

4. Assessment data to be aggregated, systematically analyzed, disseminated, and used to inform program improvement.

The essential elements that demonstrate alignment with Section 2.A.3

1. A well-documented process;

2. A continuous program-level evaluation process showing the integration of academic and non-academic operations in conformity with the cycle of determining systematic review of program effectiveness (Figure 2); and

3. Data-driven decision-making exemplified in the programmatic self-analysis processes.

Conclusion

CCE revised its *Standards* in 2018 to include the requirement that evidence be presented showing that outcomes are being achieved. In addition to policies that require programs to meet specific thresholds and outcomes for completion rates of both students entering a program and students passing national board examinations to obtain licensure, Section 2.H of the *Standards* outlines comprehensive educational program competencies. The *Standards* specifically require the program to assess and measure individual student achievement of the 31 meta-competency outcomes (MCOs) prior to graduation. As is emphasized in the *Standards*, "The DCP employs best practices to assess and demonstrate each student's achievement of meta-competency outcomes (MCO)." Therefore, the program needs to demonstrate that the assessment methods used to evaluate the MCOs follow best practices in the assessment of clinical competencies. Further, Section 2.H.2 requires outcome assessment data to be aggregated to inform curricular effectiveness and to determine whether a cohort reached desired levels of competence within the defined period.

Section 2.A.3 of the *Standards* requires programs to monitor and assess the effectiveness of the program as a whole through selected academic and non-academic operational metrics. Although the *Standards* identify several required metrics, the programs choose many of their effectiveness metrics based on their unique needs and circumstances. CCE evaluates program effectiveness metrics and processes by examining the program's systematic data collection and analyses; performance of metrics against stated thresholds or targets; and use of data to inform decisions about program improvements, planning, and resource allocation. The Council evaluates program data, quantitatively and qualitatively, in the context of compliance with the *Standards*.

The goals of this white paper are to provide guidance to all constituencies of the CCE, including accredited programs, site team peer reviewers, and others, in understanding the intersection of principles and best practices in the assessment of student learning and program effectiveness. Additionally, the white paper was produced to provide clarity regarding nomenclature and interpretation of the intent of best practices. Working together, all parties share an interest in promoting outcomes assessment as a means to improve students' educational experiences and learning achievement in chiropractic education. The CCE, as an organization, desires that all parties continue to communicate with each other to promote student learning, student achievement, and program effectiveness.

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Appendix A - Clarification of Terminology

Below is a sample of nomenclature used in programmatic assessment efforts:

Program, Learning, and Student Outcomes:

Program Learning Outcomes (PLO): All degree programs must have defined learning outcomes for the program that reflect what students will know and be able to do upon completion of the program.

Learning Outcomes: The knowledge and skills that a learner has achieved through learning and proves after the learning process (Dželalija & Balković, 2014, p. 155). Learning outcomes are often used in the education literature and by national qualifications frameworks to address content knowledge in given areas; skills (application of knowledge, cognitive, and practical); and students' attributes that go beyond the disciplinary expertise or technical knowledge (Liu, 2011). The learning outcomes, as referred to in Section 2.H of the Standards, include the Meta-Competency Outcomes. However, a program may identify additional learning outcomes/objectives.

Student Outcomes: **"**The terms 'student learning outcomes*'* and 'student achievement*'* [are] used interchangeably throughout, to refer to "the knowledge, skills and abilities that a student has attained as a result of engagement in a particular set of higher education experiences" (CHEA, 2019, p. 5).

CCE Meta-Competencies and Related Terminology:

Meta-Competency Curricular Objective: The DCP demonstrates that it addresses the Meta-Competency Curricular Objectives, the didactic and clinical education components of the curriculum, that serve as foundational knowledge or skills for the Meta-Competency Outcomes necessary to function as a doctor of chiropractic/chiropractic physician.

Meta-Competency Outcome: As defined in Section 2.H of the *Standards*, the Meta-Competency Outcomes represent the complex knowledge, skills, and attitudes related to patient care, which are assessed to demonstrate student achievement of each MCO. Best practices in assessment of student learning, regardless of instructional modality, measure student proficiency in the published meta-competency outcomes and produce data that are used to guide programmatic improvements.

Curriculum Map: A map or similar representation with accompanying analysis that displays where topics related to the Meta-Competency Curricular Objectives are taught. Similarly, a curriculum map may also display where the Meta-Competency Outcomes are assessed; this is sometimes referred to as the assessment map.

Types of Assessment:

Direct Assessment: Directly measuring student knowledge and learning, rather than linking it to seat time and grades. Direct assessment is based on a sample of actual students' work, including direct observation, projects, exams, oral presentations, and case analysis that

demonstrate the knowledge and skills of the students and provide strong evidence of their learning.

Indirect Assessment: Indirect assessment is based primarily on opinions of students, alumni, and employers, ascertained through surveys, focus groups, and exit interviews that report their perceptions of students' learning as supported by the programs and services provided to students and of how this learning is valued by them.

Course-Level Assessment: An assessment of the course's specific learning objective(s). The assessment method must be appropriate to the stated learning objective(s) and align appropriately with Bloom's taxonomy.

Program Effectiveness Metrics and Related Terminology:

Academic Operations: In the context of programmatic effectiveness, items such as student achievement of the program's learning outcomes and the meta-competencies; retention and completion rates; NBCE performance; licensing and/or placement rates; and program satisfaction.

Non-Academic Operations: Common data points specific to the core mission and operations of the program that are structured to support the academic, social, and psychological needs of the student as they prepare for successful completion of the degree program, to examine its quality [programs and services aligned with the mission of the program], productivity [efficiency in outcomes], and viability [sustainability] (Hutchings, 2010).

Program-Level Outcomes Data: A systematic, on-going, iterative process of monitoring a program or college to determine what is being done well and what needs improvement, including the assessment of learning outcomes and other traditional measures used by higher education institutions.

Aggregate Data: "Refers to numerical or non-numerical information that is (1) collected from multiple sources and/or on multiple measures, variables, or individuals and (2) compiled into data summaries or summary reports, typically for the purposes of reporting or statistical analysis—i.e., examining trends, making comparisons, or revealing information and insights that would not be observable when data elements are viewed in isolation" (Glossary of Education Reform, 2015).

Closing the Loop: As mentioned by many assessment scholars, closing the loop is the discussion and use of assessment results (data) for improvement, and is the primary purpose of assessment (Bresciani, Zelna, & Anderson, 2004; Suskie, 2018).

Program Review/Evaluation: Programs describe their assessment work during a predetermined period of time, summarizing key results and findings and describing actions that will be taken as a result.