AAMC CURRICULUMINVENTORY

AAMC

Tomorrow's Doctors, Tomorrow's Cures®

AAMC CI Newsletter, November 4, 2020
CI Data Collection Complete, Introducing AAMC CI Keywords, and Building a CI Chapter 5

CI data collection complete!

Congratulations to our participating medical schools who submitted their 2019-2020 curriculum to AAMC! We know this year was especially difficult when it comes to documenting change in curriculum. From COVID's impact on student engagement in clinical learning, to impact on clinical faculty and staff, and from personal health and safety concerns, to budget worries, it is a testament to the commitment of medical schools to their students and to patients that curriculum was able to shift so swiftly and in such profound ways.

Thank you so much for contributing to this essential data set – the AAMC uses data to create national reports for schools, to help fulfill its mission to advocate for medical education programs, and to conduct research.

Although it feels like we just finished a marathon of curriculum data collection, we are already sprinting ahead for next year's data collection. On August 1, 2021, the AAMC CI will collect curriculum data which occurred from July 1, 2020 through June 30, 2021.

To prepare for this upcoming data collection, the CI Staging site, where schools can test upload their CI data files, is undergoing an upgrade for the next year. **CI Staging will be temporarily closed for maintenance while the upgrade is complete. We anticipate having the CI Staging environment ready for use again in February 2021.** Meanwhile, the CI Portal, where you can view your school's Verification and Accreditation Support Reports, and where you can view national aggregate reports, is open. If you have an urgent need regarding CI Staging, please contact ci@aamc.org.

Introducing the AAMC Curriculum Inventory Keyword List

For the first time in its program history, the AAMC Curriculum Inventory (CI) is offering a keyword list for schools to use to tag their curriculum! The AAMC CI Keywords are currently available on our Resources to Use Your CI Effectively webpage.

The creation of a list of keywords can be a time-consuming and expensive process so we hope this will be a useful resource for schools. Using keywords to tag content within your CI can help you search your curriculum through queries and produce reports so that you can more easily use your CI data. Your technical platform may have additional methods by which you can tag and search your CI, but the use of keywords is one approach that is both within the CI standards and is shared back with your school in your Verification Report. Consistent use of keyword in your CI data submission also improve the AAMC CI data analysis process in producing aggregate national curriculum reports for public access as well as for custom curriculum data report requests.

Developed by the CI Committee and with assistance from several AAMC Reference Center librarians, this keyword

Association of
American Medical Colleges
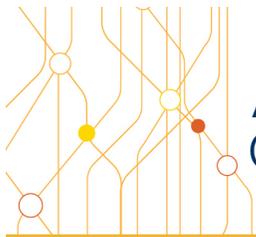
list was compiled through the review of terms from several notable sources, including the Liaison Committee on Medical Education (LCME) Data Collection Instrument, the LCME Annual Medical School Questionnaire Part II, the United States Medical Licensing Examination (USMLE) blueprint, and sample keywords from medical schools.

This keyword list is intended to be high level, with fewer than 100 terms. Terms were determined both in relation to the sources analyzed, and through an iterative, evidence-based process. The initial draft was piloted across more than 1000 unique events to determine which terms were needed.

The 2021 upload season will be the first opportunity for schools to use this keyword list within their CI data file to share with AAMC. It will remain an optional field, meaning it's not a required component when submitting your file to the AAMC and of course you always can choose to use an alternative keyword list already in place, but we hope you will test out the AAMC CI keyword list and share your feedback. If you have questions please reach out to ci@aamc.org.

Building a Curriculum Inventory (CI) – Course Level Details for Your CI

So far we have reviewed getting started with your CI in chapter 1, choosing a technical platform in chapter 2, program-level learning objectives in chapter 3, and determining an organizational strategy for your CI in chapter 4. Please see past chapters on the Resources to Establish Your CI webpage. Now we will begin to fill out the details of your CI, beginning with courses.

Chapter 5: Course Level Details for Your CI

Chapter 5 Highlights

- Initial course details
- Representing rotational or integrated clerkships
- Representing optional (e.g., elective, selective courses)
- Course-level learning objectives

Initial course details

Once you have your organizing principles and content outline determined from Chapter 4, you can build out the details. For each course, clerkship, module, block, thread, etc. that you include in your CI, the field within the CI standards you will use is a "sequence block." For each sequence block you document in your CI, the details you will need at this stage include:

- Title. Sample titles include "cardiovascular course," or "patient safety module," "internal medicine clerkship," etc.
- Course/module type. This includes:
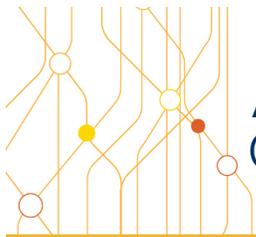
- o Whether the course/module is required or optional,
  - ▪ Required course/modules are those that a student must complete to graduate. "These [course/modules] are stipulated as necessary to be done for all students in order to meet the expectations of the program" (Merriam-Webster, 2019).
  - ▪ Optional course/modules are those that "allow students to self-elect for participation" (Rabow et al, 2016) in the class (Agarwal et al, 2015). Optional electives, for example, could include research projects or 'away rotations'. Please note that the AAMC CI currently does not have a mechanism for collecting data on away or global rotations. We will be evaluating different away rotation scenarios in order to provide further guidance on how to best capture this data in your CI data submission in the future.
  - o Whether the course/module is a clerkship or not,
    - ▪ Whether the clerkship is rotational or integrated (more details on rotational clerkships are described below further in Chapter 5).
- Start and end dates. The AAMC CI collects curriculum from the *previous* academic year, so to upload your CI data in August 2021, your course start and end dates will generally fall between July 1, 2020 and June 30, 2021. While your CI reporting dates will be July 1, 2020 through June 30, 2021, it is acceptable if some content within your CI (e.g., academic levels, courses) fall outside those bounds. For example, while the academic year begins July 1, 2020, you may have clerkship courses which begin in May 2020, and you should go ahead and include this in your CI.
- Duration. This is documented in days (e.g., 20 days).

Task 1: Design your curriculum's visual schematic and confirm it is accurately listed on the CI website.

Representing rotational clerkships

Rotational clerkships are ones that repeat throughout the year where each student experiences the clerkship once, but the clerkship repeats multiple times so that a cohort of students can enroll. For rotational clerkships, the start and ends dates may span a long period of time, however the duration for a given student may be relatively short. For example, a psychiatry clerkship may run from July 1, 2020 (start date) through June 30, 2021 (end date), but for each student is four weeks (duration).

For these rotational clerkships, because your CI submission should represent one hypothetical, typical student's experience in your curriculum, there should only be one instance of the rotational clerkship in your CI, if this is true for what one student would experience.

How these curricular experiences populate in your CI may vary depending on your technical platform. If your technical platform pulls your CI data from all students' calendars, you may have multiple instances of the same rotational clerkship in your CI, which would be inaccurate. It is important to correct this before sharing your CI data with AAMC because if your rotational clerkships are entered 12 times instead of once, CI reports would reflect 12 times more content in a given content area than actually exists. One way to address this problem is to create a
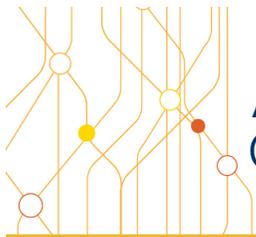
"typical" rotational clerkship (e.g., typical psychiatric clerkship), and use only that typical clerkship in your CI submission, rather than pull CI data from all students' calendars.

Task 2: Consider how to represent rotational clerkships in your CI. One solution is to represent the clerkship with a "typical" iteration.

Representing integrated clerkships

Integrated clerkships are ones where content "cuts across subject matter lines, bringing together various aspects of the curriculum into meaningful association to focus upon broad areas of study" (Shoemaker, 1989). In a medical school context, integrated clerkships are ones that include content across disciplines. For example, an integrated clerkship experience for students might include following a panel of diverse patients over a period of time from internal medicine, family medicine, and pediatrics, where students act as patient advocates and navigators. In this example, the integrated clerkship includes content from several clinical disciplines: internal medicine, family medicine, and pediatrics.

Please note that according to the MedBiquitous Curriculum Inventory (CI) specifications, a clerkship can be either rotational OR integrated; clerkships are not able to be documented as both rotational and integrated. The concepts of "rotational" and "integrated" can only be applied to sequence blocks which are clerkships; they cannot be applied to non-clerkship sequence blocks.

Task 3: Consider if integrated clerkships need to be modeled in your CI.

Representing elective and selective courses

Elective courses typically mean that students can opt-in to taking a course or may choose not to take a course. Elective courses would therefore be designated as "optional." One way to think about electives is to consider a course that is optional, where there is no academic penalty if a student chooses not to take the elective. As an example, perhaps a global health trip to Central America is offered during winter break of the first year of medical school. Students are offered the optional elective trip, but they could also choose to do something else with their winter break time (e.g., have a part-time job, study, go home to visit family) without academic penalty. The only consequence would be not acquiring any credit hours offered for that course. Elective courses, like the example described above, are designated "optional" (rather than "required") in your CI to model them accurately.
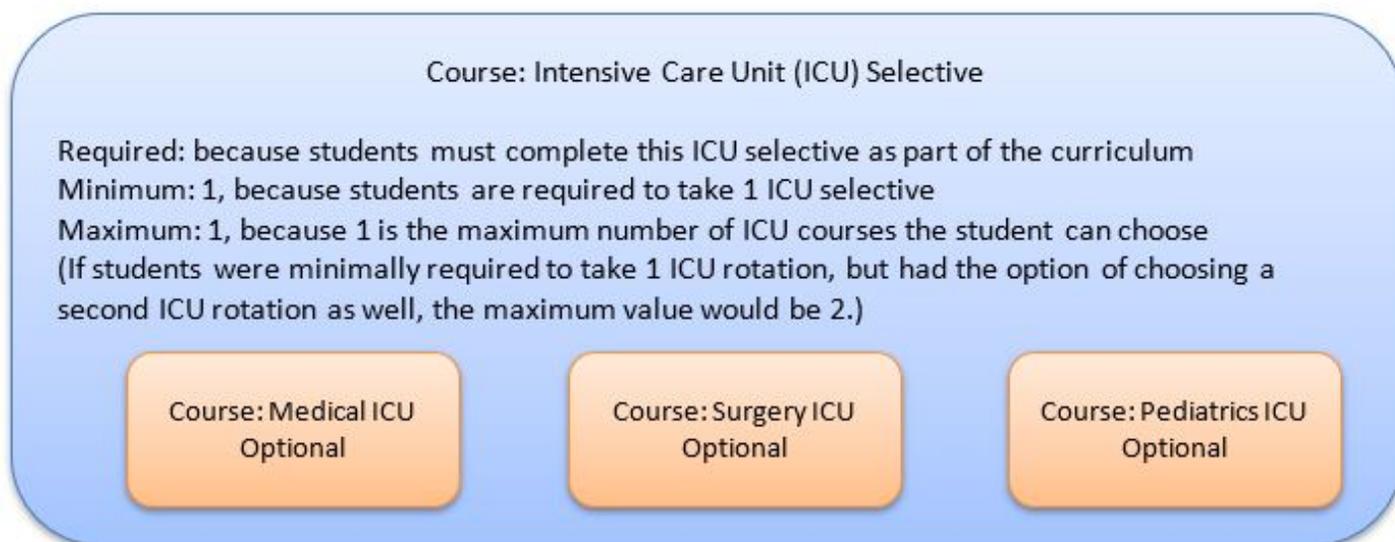
Selective courses typically mean that students have some flexibility in choice but there are limitations and requirements on which and how many students choose. For example, perhaps students are required to complete one intensive care unit (ICU) rotation. Students can choose from an ICU rotation in medicine (MICU), surgery (SICU), or pediatrics (PICU). Students therefore must choose one ICU rotation of the three. There is some degree of
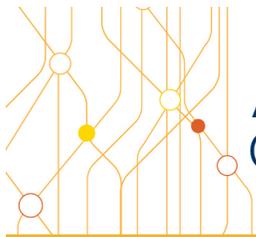
choice (e.g., which ICU rotation is available when a student wants to take it and will best prepare the student for their future career?). There are also limitations on that choice – students must choose one of these three ICU options. Another common example are sub-internships (sub-I's). Perhaps all students at your school are required to complete a sub-internship, but there are multiple sub-internship options students can choose from (e.g., medicine, surgery, pediatrics, etc.).

How will you model these types of selective courses in your CI? Recall that the goal is to model what any typical, hypothetical student may experience in the curriculum (e.g, must take 1 ICU rotation), and model your complete and accurate curriculum (e.g., can choose from 3 ICU selective options). The MedBiquitous Curriculum Inventory Implementation Guidelines, from pages 10-13, on our Resources for CI Developers webpage, may be a helpful resource here.

With our selective ICU course described above, here is how it could be modeled, using the "nested sequence block" concept discussed in Chapter 4.

Course: Intensive Care Unit (ICU) Selective

Required: because students must complete this ICU selective as part of the curriculum
Minimum: 1, because students are required to take 1 ICU selective
Maximum: 1, because 1 is the maximum number of ICU courses the student can choose
(If students were minimally required to take 1 ICU rotation, but had the option of choosing a second ICU rotation as well, the maximum value would be 2.)

Course: Medical ICU
Optional

Course: Surgery ICU
Optional

Course: Pediatrics ICU
Optional

It may be that the definitions and examples of electives and selectives above do not line up perfectly with your school's application of such terms. Whether optional courses are referred to as electives or selectives at your school, the vernacular per school is not so critical for the AAMC CI – what is important is that the *electives, selectives, and optional courses at your school are modeled accurately*. The samples above may help in using the aspects of the MedBiquitous Curriculum Inventory (CI) specifications to best modeled your optional courses.

Task 4: List all courses, modules, clerkships, etc., which are optional (e.g., electives, selectives), and determine how to model them accurately in your CI, considering the examples above.
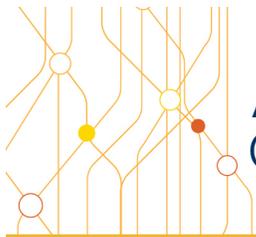
Course-level learning objectives

Each of the course/modules and clerkships in your list will have learning objectives, and there are many questions to consider before finalizing the course-level learning objectives for inclusion in your CI.

Are there documented learning objectives for each course/module, or are any missing? Do the learning objectives reflect the content of the course/module? Do the objectives reflect relevant and up to date medical and other literature? Are the learning objectives written in descriptive, specific, outcomes-based language?

It is also important to confirm that the learning objectives at the course-level collectively meet your school's goals, i.e., the program objectives. For example, perhaps for your pre-clerkship courses, a collective goal is that all the course-level learning objectives add up to preparedness for the clerkship experience. Or perhaps course learning objectives collectively need to prepare learners for a licensing exam. Whatever your curriculum goals are, it is helpful to write them down, and then consult your learning objectives to ensure they are collectively meeting your goals. Curriculum goals are discussed at length in Chapter 3 – program objectives drive curriculum.

It may be useful to engage content experts both to review the content of the learning objectives, but also to judge the relatedness of the learning objectives to each other and to your school's program objectives, and goals. For example, if one of your goals for the pre-clerkship learning objectives is to collectively prepare students for clerkships, perhaps clerkship directors should be consulted in reviewing the learning objectives.

Task 5: Gather draft learning objectives for each course, module, clerkship, etc. you need to include in your CI.

Once you have drafted learning objectives for each course/module, there are additional questions to ask. Are these learning objectives the appropriate degree of difficulty, and do they build upon each other over time? Consider alignment of your learning objectives *within* courses and modules, *across* and *between* courses and modules, and across time. In the simplified, limited example below, the colored arrows below represent how vertical and horizontal alignment and integration of content (in this case, learning objectives) could be considered.
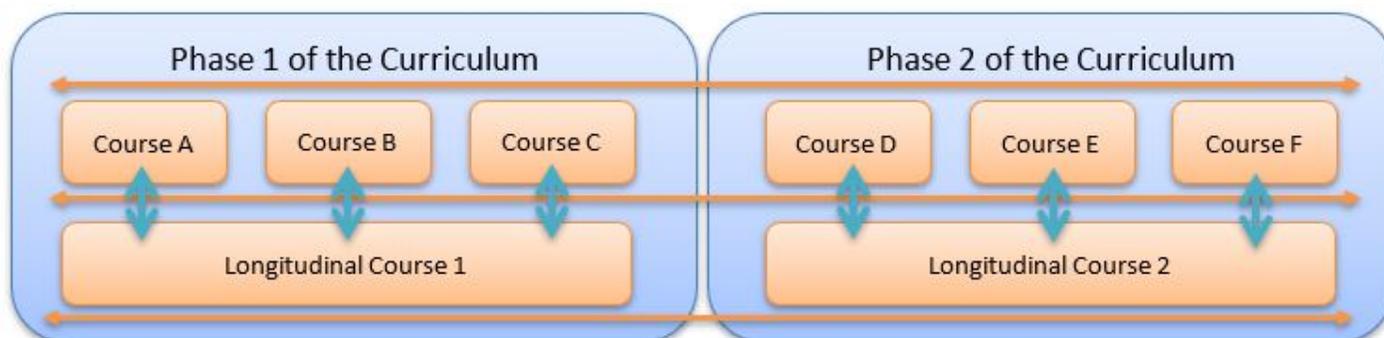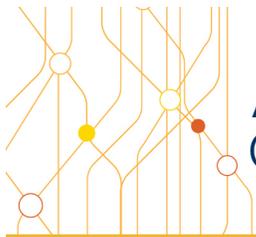
At this stage, you can check to make sure that learning objectives are not too easy or too challenging for where the students will be at a given phase of the curriculum. If the learning objectives relate to each other across courses and over time, there will be limited duplication of content presented to students and fewer gaps in content coverage.

For resources regarding writing learning objectives with effective language, please see the library in our virtual curriculum community . With whatever approach you choose, it will be helpful to write down and broadly share your school's guidelines so that faculty take a consistent approach across courses when editing their learning objectives. Offering faculty development in writing effective learning objectives using your school's guidelines is another way to support faculty through this process. You may also want to establish a centralized clearinghouse to review learning objectives to ensure quality. This will be especially important if you have multiple authors contributing to your learning objectives.
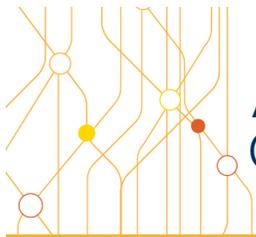
Again, program-level learning objectives drive curriculum. Any learning-objectives at the course/module level should be driven by your program objectives. However, there are likely some commonalities in the wording/content of learning objectives schools need, and there may be sources you can refer to for sample learning objectives. Some professional societies for clinical areas have recommended learning objectives. For example, the Association of Directors of Medical Student Education in Psychiatry (ADMSEP) have a " Clinical Learning Objectives Guide for Psychiatry Education of Medical Students " organized by unit (e.g., "clinical skills"), topic (e.g., "history-taking, examination, and medical interviewing"), and learning objective (e.g., "elicit and accurately document a complete psychiatric history, including the identifying data, chief complaint, etc."). If the sources are up to date, evidence-based, informed by content experts, and well-written, it may be more efficient to use these examples as inspiration rather than start from scratch. There are also learning objective models per topic area, when available, in national curriculum reports available on the CI Portal. As you choose which resources or samples to use or consult, keep a written record per course/module – this may be helpful for your curriculum committee (or similar oversight body) when conducting curriculum evaluation and course reviews.

Task 6: Finalize your course-level learning objectives after additional considerations.

Once edits to the learning objectives are finalized, it is time to link course objectives to program objectives. This applies to all courses, clerkships, modules, whatever you have included in your CI using the "sequence block" concept from the MedBiquitous CI specifications (again located on our Resources for CI Developers webpage).

It may be helpful to establish thresholds for what warrants a link between a course objective and a program objective – if a very broad approach is taken, such that every course objective is linked to many program objectives, it may be difficult to identify your curriculum content in reports. At least one link between each course-level learning objective up to a program objective should be documented.

At this point, you should evaluate if any gaps are identified. Are there course-level learning objectives which do not

relate to a program objective? Are there any program objectives with little or no course-level learning objectives to link to? It will be helpful to address these gaps now, before further CI content is developed, as a school's program objectives and related learning objectives drive content. Keep in mind that number of learning objectives is not necessarily equal to amount of exposure; what matters at the end is not the amount of objectives but the overarching representation of their content at the program-level that fits with the school's mission and vision.

Task 7: Create links between course-level and program-level learning objectives, and address any gaps identified.

If you nested your program objectives into domains (e.g., patient care, knowledge for practice, etc.), it may be helpful to monitor all the course objectives linked up to each domain for breadth and depth. The goal is not to have an equivalent amount of content in each program objective domain, but to make sure the spread of content is intentional.

This also is the time to choose whether you will assign ID codes to each course learning objective. The use of meaningful ID codes is discussed in Chapter 3 when discussing program objectives. The same principles can now be applied if you choose to design a meaningful system for course-level learning objective ID codes.

Task 8: Analyze how your course-level learning objectives are linking up to your program objective domains (if you have them) and consider assigning ID codes to each course-level learning objective.

Chapter 5 key questions

1. Do each of our course, clerkships, modules, threads have a title? Have we documented whether they are required or optional? Have we documented their start dates, end dates, and durations?
2. Have we created a "typical" course, or some other approach that will accurately and completely model our curriculum, for our rotational clerkships? Do we have any integrated clerkships to model in our CI?
3. Do we have a list of all our optional courses, modules, clerkships, etc., including optional electives? Do we have any for which the selective model (some choice in what students can choose, but limitations on those choices) applies, such as sub-I's? What modeling strategy will we use to completely and accurately represent the breadth of what our curriculum offered, and the experience of any typical, hypothetical student?
4. For our course/module level learning objectives,
   a. Are there documented learning objectives for each course/module?
   b. Do the learning objectives reflect the content of the course/module?
   c. Do the objectives reflect relevant and up to date medical and other literature?
   d. Are the learning objectives written in descriptive, specific, outcomes-based language?
   e. Have we consulted our content experts for their input on the learning objectives?
   f. Do these learning objectives add up to meeting our school's program objectives?
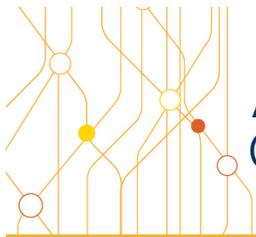
g.   Are these learning objectives the right degree of difficulty?

h.   Do these learning objectives build upon each other over time?

i.   Are these learning objectives aligned across our courses/modules?

j.   What are our school's standards and guidelines for writing learning objectives, and how are we disseminating that information to our faculty?

k.   How are we ensuring consistency in the quality of our learning objectives across courses/modules, across multiple authors?

l.   Have we consulted any sample or model learning objectives, such as those from clinical professional societies?

m.   Does each course/module learning objective have at least one link to a program objective? Have we identified any gaps based on these links which need to be addressed?

n.   If your program objectives are nested in domains, does our coverage of content for breadth and depth play out as expected?

As questions arise, please feel free to reach out to ci@aamc.org.

Onward!

Angela Blood
Director, Curricular Resources
Association of American Medical Colleges
www.aamc.org/cir
ci@aamc.org

Association of
American Medical Colleges