Developing a competency-based academic curriculum with effective outcome assessment to evaluate public health practice workforce training.

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Definition of Core Competencies

• Core competencies are the essential knowledge, skills and attitudes necessary for the practice of public health.
  – They transcend the boundaries of specific disciplines and are independent of program and topic.
  – They provide the building blocks for effective public health practice, and the use of an overall public health approach.

• The core competencies are typically developed from SBS, Biostats, ENVH, EPI and HPM (in US these are the required core) and other cross cutting domains
Definition of Concentration Competencies

• Concentration competencies are the essential knowledge, skills and attitudes necessary for the practice of public health as a specific type of public health (not medical) practitioner such as:
  – Epidemiologist
  – Environmental Health Specialist
  – Social Behavioral Scientist/Health Promotion
  – Biostatistician
  – Health Policy or Leadership
Values that drive competency development (Canada, ‘07)

- Important values in public health include:
  - commitment to equity, social justice and sustainable development,
  - recognition of the importance of the health of the community as well as the individual
  - respect for diversity, self-determination, empowerment and community participation.
  - These values are rooted in an understanding of the broad determinants of health and the historical principles, values and strategies of public health and health promotion.
Outline for Presentation:
Steps for Developing a Competency Based Curriculum

1. Work with the SPH or PHP stakeholders to develop goals for teaching, research and service - these guide the development of the curriculum (and the SPH or PHP);

2. Create (or revise) objectives for academic program development to help decode which skills, attitudes and knowledge to build (will become the program(s) evaluation structure);

3. Synthesize available competencies and create a list of competencies (based on objectives) your specific institution’s graduates should develop – both core and concentration (will become the assessment structure);

4. Assess the current curriculum for overlaps and gaps in core public health skills and redevelop the plan – if new program develop the plan;
Steps for Developing a Competency Based Curriculum, con’t.

5. Develop quality assurance process using syllabi for curriculum plan for courses;

6. Facilitate required practice-based experiential learning and applied research opportunities to develop higher level competencies;

7. Creating an assessment process that examines learning at the course/practicum/research project level and documents student learning of competencies across the entire curriculum;

8. Continual curriculum improvement (based on assessment and overall evaluation findings).
1. Work with stakeholders to develop goals and objectives for teaching, research and service – lead to competency based curriculum plan

- Students, graduates
- Community members, public health professionals (advisors)
- COPH Faculty, administrators, larger institution
- Groups described in mission or vision of SPH or PHP (rural, underserved, etc.)
- The “public”
- Funders, etc.
2. Create (or revise) objectives for academic program development to help decode which skills, attitudes and knowledge to build (will become part of the program(s) evaluation structure);

• 2 examples follow
## JPHCOPH process – example of development goals/obj - for DrPH

<table>
<thead>
<tr>
<th>Workforce Goal:</th>
<th>Sample objective with activity (of 18)</th>
<th>Outcome expected</th>
<th>Proposed measure of the this outcome</th>
<th>Data source</th>
<th>Criteria for success or benchmark - baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide three exceptional competency-based DrPH programs () and graduate leaders for the public health workforce who contribute to the mission of JPHCOPH during their academic training and throughout their careers.</td>
<td>All graduates will demonstrate the core competencies for the DrPH programs through effectively designed and delivered coursework, practicum and dissertation.</td>
<td>Demonstration of core competencies in all settings</td>
<td>Successful completion of and evaluation of coursework, Comp exams, practicum and dissertation</td>
<td>Preceptor Evaluation, Course grades and assessments, dissertation defense and presentation Comp exams Alumni self reports</td>
<td>Practicum = 90% students will receive a 4 or better (5 point scale) on competency evaluation completed by Preceptor Alumni report – 80% 4 or better for each competency Employer need baseline</td>
</tr>
<tr>
<td>Research Goal:</td>
<td>Sample objective with activity</td>
<td>Outcome expected</td>
<td>Proposed measure of the this outcome</td>
<td>Data source</td>
<td>Criteria for success or benchmark - baseline</td>
</tr>
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<tr>
<td>All MPH graduates will demonstrate the skills to conduct community based research in rural settings that will enhance health equity.</td>
<td>All MPH graduates will demonstrate competencies for rural, community based research that effectively supports health equity in coursework, the practicum and capstone. (Skills include cultural comp., use of ecological model, determining best practices, etc.)</td>
<td>Demonstration of identified competencies in these situations</td>
<td>Successful completion of and evaluation of coursework Comp exams, practicum and capstone</td>
<td>Preceptor Evaluation, Course grades and assessments, capstone defense and presentation Alumni self reports Employer</td>
<td>Practicum = 90% students will receive a 4 or better (5 point scale) on Preceptor competency evaluation -- Alumni report 80% 4 or better for each competency Capstone research – 90%4 or 5 on assessment Employer baseline</td>
</tr>
</tbody>
</table>
3. Synthesize (from a list of available competencies) your specific institutions’ graduates
- develop both core and concentration competencies

• ASPH - Association of Schools of Public Health (discipline and crosscutting) www.asph.org
• COL - Council of Linkages for Academic and Public Health www.phf.org
• Canadian Public Health Competencies
• IOM - Institute of Medicine “Who will keep the public healthy?” 2003

• Concentration/Discipline specific:
  – Health Education, Environmental Health, Applied Epidemiology, Leadership, etc.
Process steps:
A. Synthesize DOMAINS of competency groupings to determine what organizing constructs meet your needs – much overlap

- COL – 8 (Planning, Assessment, etc.)
- ASPH
  - 5 Core (EPI, ENVH, SBS, HPM and BIO)
  - 6 Crosscutting (PHBiology, Systems Thinking, Comm, Cultural Comp, etc.)
- CA – Next slide
- IOM – 8 (Ecological, CBPR, Communication, Ethics, Genomics, Planning, Public Health Law, etc.)
Domains for CA Competencies

- 1.0 Public Health Sciences
- 2.0 Assessment and Analysis
- 3.0 Policy & Program Planning, Implementation & Evaluation
- 4.0 Partnerships, Collaboration and Advocacy
- 5.0 Diversity and Inclusiveness
- 6.0 Communication
- 7.0 Leadership
Process Step B: Choose, revise and list competencies

Synthesize a list of competencies in the relevant theme areas (based on objectives) your specific institution’s graduates should develop

– both core and concentration (this will become the student learning assessment structure – do your graduates attain these competencies?)

An example of this process: Your group might choose 10 in each core area (for all graduates regardless of concentration) and 15 in the areas relevant to concentrations in your SPH or PHP

• All students will attain the core competencies
• All graduates in a certain concentration will ALSO attain the concentration competencies

Sample task chart follows:
<table>
<thead>
<tr>
<th>Task</th>
<th>Biostatistics</th>
<th>Environmental Health</th>
<th>Epidemiology</th>
<th>Health Policy Mgt</th>
<th>SBS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MPH and DrPH Curriculum Task Chart</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Core Competency Plan Agreed Upon</td>
<td>April 10</td>
<td>April 10</td>
<td>April 10</td>
<td>April 10</td>
<td>April 10</td>
</tr>
<tr>
<td>Final Core MPH Syllabus (i) Revised and submitted</td>
<td>April 15</td>
<td>April 15</td>
<td>April 15</td>
<td>April 15</td>
<td>April 15</td>
</tr>
<tr>
<td>Final Concentration Comp developed</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
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<tr>
<td>“Crosswalk” Concentration Comp with Courses</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
<td>April 11</td>
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<tr>
<td>Assess need(s) for concentration course changes/deletions/additions</td>
<td>April 14</td>
<td>April 14</td>
<td>April 14</td>
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<td>April 14</td>
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<tr>
<td>Develop new concentration program outlines</td>
<td>April 14</td>
<td>April 14</td>
<td>April 14</td>
<td>April 14</td>
<td>April 14</td>
</tr>
<tr>
<td>Develop revised/new syllabi for concentration required courses</td>
<td>April 16</td>
<td>April 16</td>
<td>April 16</td>
<td>April 16</td>
<td>April 16</td>
</tr>
<tr>
<td>Final DrPH Core Competencies and Plan for Core</td>
<td>April 17</td>
<td>April 17</td>
<td>April 17</td>
<td>April 17</td>
<td>April 17</td>
</tr>
<tr>
<td>Final DrPH Core Syllabi Revised</td>
<td>April 18</td>
<td>April 18</td>
<td>April 18</td>
<td>April 18</td>
<td>April 18</td>
</tr>
<tr>
<td>Final DrPH Concentration Competencies</td>
<td>April 18</td>
<td></td>
<td></td>
<td></td>
<td>April 23</td>
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<tr>
<td>Crosswalk DrPH Concentration with current courses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>April 23</td>
</tr>
<tr>
<td>Revise/Create Concentration Course Syllabi</td>
<td></td>
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<td>April 23</td>
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<tr>
<td>Submit all remaining changes</td>
<td>April 23</td>
<td>April 23</td>
<td>April 23</td>
<td>April 23</td>
<td>April 23</td>
</tr>
</tbody>
</table>
4. Assess the current curriculum for overlaps and gaps in core public health skills (matrix/crosswalking process) and redevelop the plan – if new program develop the plan

<table>
<thead>
<tr>
<th>Competency - All graduates will be able to:</th>
<th>Introduction to PH</th>
<th>Public Health Leadership</th>
<th>Planning and Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate skills for developing an ecologically based evaluation of an intervention</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Analyze the differences in essential services</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Explain 5 specific public health laws and their impact on public health</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Define the social determinants of health</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
5. Develop quality assurance process using syllabi for curriculum plan courses – easy to document

- Syllabi display the competencies the course(s) are designed to help develop - core or concentration
- Syllabi display the specific course learning objectives – these are linked to competencies (actually include the referenced competency)
- All course learning objectives are linked to clearly defined assessments (actually include the reference so students and stakeholder see the plan for competency development)
6. Facilitate required practice-based experiential learning and applied research opportunities to develop higher level competencies;

- In addition to (and frequently following) required courses
- Examples: Competency-based practicum, required research projects, comprehensive exams, thesis, dissertations, etc.
- What is a higher level competency?
  - Using a version of Bloom’s model:
    - Describe, explain
    - Demonstrate
    - Analyze, Synthesize
    - Evaluate
7. Creating an assessment process that examines learning at the course/practicum/research project level and documents student learning of competencies across the entire curriculum;

- Link the objectives to outcomes
- Link outcomes to measures and data sources
- Link data sources to criteria for success
- Example follows:
<table>
<thead>
<tr>
<th>Objective:</th>
<th>Outcome:</th>
<th>Measure:</th>
<th>Data Source:</th>
<th>Criteria:</th>
</tr>
</thead>
</table>
| Ensure all graduates will demonstrate attainment of the core competencies for the MPH degree. | Demonstration of core competencies by graduates | Preceptor evaluation indicates success  
Coursework success/evaluation  
Research project evaluation  
Student perceptions  
Alumni perceptions  
Employer perceptions | Preceptor evaluation survey  
Student Survey  
Alumni Surveys  
Coursework – grades  
Research project presentation  
Graduation rates  
**EMPLOYER SURVEY** | Develop baselines: core competencies and 80% - score 4 on 5 point scale – Preceptors, Students and Alumni  
Coursework grades: All graduates will earn grade of or better in core  
90% Excellent on Research Eval  
80% in 7 years  
80% Report 4 on 5 point scale for each competency demonstrated |
| Ensure all graduates will demonstrate attainment of the concentration specific competencies for the MPH degree. | Demonstration of concentration competencies by graduates | Preceptor evaluation indicates success  
Coursework success/evaluation  
Research project evaluation  
Student perceptions  
Alumni perceptions  
Employer perceptions | Preceptor evaluation survey  
Student Survey  
Alumni Surveys  
Coursework – grades  
Research project presentation  
Graduation rates  
**EMPLOYER SURVEY** | Develop baselines: core competencies and 80% - score 4 on 5 point scale – Preceptors, Students and Alumni  
Coursework grades: All graduates will earn grade of or better in core  
90% Excellent on Research Eval  
80% in 7 years  
80% Report 4 on 5 point scale for each competency demonstrated |
8. Continual curriculum improvement (based on assessment and overall evaluation findings).

- Conduct syllabi audit each semester to ensure the competencies for course are listed (courses are supposed to be delivering competencies – fidelity to the curriculum)
- Faculty review assessments each semester to ensure they are effectively measuring learning objectives at course level (grades as measure)
- Review of all measures of all objectives that are related to the curriculum (in teaching, research or service areas of program planning)
- Determine areas of successes and challenges
- Build on successes
- Develop plan to improve in challenge areas – may need to revise competencies, courses, assessments, attract different students, etc.
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