Integrative Cases For Medical Students: Connecting Public Health With Basic And Clinical Sciences

Christine S. Seibert, MD

University Of Wisconsin School Of Medicine And Public Health

http://www.med.wisc.edu/education/md/curriculum/integrative-cases/1231

**ABSTRACT:**

Integrative Cases are a longitudinal series of educational experiences in which first- and second-year medical students examine an issue or case from many perspectives that blend clinical, basic science and public health approaches. The cases bring students together with community public health practitioners as well as clinicians and scientists across the UW-Madison undergraduate and health sciences campuses.

Through small group experience-based activities and faculty-led small group discussions, students discover the many factors influencing health and wellbeing, the interconnections between those factors, and important roles for physicians in promoting health and wellbeing for both individuals and populations that extend beyond traditional ideas of clinical medical care.

The choice of topics has highlighted significant public health problems and issues in Wisconsin and the US. Topics to date have included Determinants of Health; Healthy Birth Outcomes; Driving under the Influence; Health Systems; Obesity; Tuberculosis; and Health Policy Advocacy.

**EDUCATIONAL METHODS OR APPROACHES USED:**

Integrative Cases utilize brief didactic plenary presentations followed by experience-based activities with 5-20 students, and conclude with faculty-facilitated small group discussions of ~35 students.

**PROJECT DESCRIPTION:**

The University of Wisconsin Medical School became the University of Wisconsin School of Medicine and Public Health (UWSMPH) in 2005 with the goal of developing a new educational model that unites public health and medicine. The school has embarked on a curriculum transformation that is integrating a population health perspective through all four years of the traditional "2 years basic sciences plus 2 years clinical clerkships" undergraduate medical education program. As part of that effort, the school introduced these Integrative Cases in the fall of 2008.

First year medical students have 2 cases per semester (4 cases per year). Second year medical students complete one more advanced case per semester (2 cases per year). Cases range from 1 to 3 days, beginning with a short plenary that engages students and provides a brief overview of the topic and logistics of the case. The plenaries also often include first-person perspectives of the topic by a physician or patient. Then the class (approximately 175 students) is divided into five groups of about 35 students. Each group researches one aspect of the case (a “domain”), such as basic science, clinical care and prevention, public health, health care systems, and social/ethical issues. For example, while some students assigned to a basic science domain investigate the pathophysiology underpinning a clinical problem, other students assigned to a clinical prevention domain explore epidemiology, risk factors, and barriers to preventing the same problem.

For the rest of day one, students investigate questions specific to their assigned domain. Their research is active and experiential; students meet with a wide range of experts including patients, advocates, community leaders, research scientists, physicians and other health professionals, engaging in active learning across campus and in the community in groups ranging from a few students to a maximum of
about 20. On day two, the students reunite in “mixed” rooms of about 35 students, with all domains represented. There they share and apply their findings through discussion and activities led by faculty facilitators. Depending on the case, there may be a closing plenary with experts who build upon what students have learned and discuss the physician’s role in population health. There are no assessments and students are encouraged to think broadly and put aside the “memorize the right answer” approach they frequently adopt for exams.

Though Integrative Cases have been implemented in 1 to 3 day formats, including one case with an emergency department experience that occurred several weeks prior to a case, the general format schedule is as follows:

**Day One:**

- Opening Plenary (30-45 minutes)
- Organizational session with faculty facilitators where students learn about and sign up for activities to be completed later on day one (30 minutes)
- Experience-based activities with basic scientists, clinicians, community leaders, advocates, patients or public health practitioners (~2 hours)
- Students complete written reflection or other assignment (1 hour), uploading to web-based course management system for faculty review by 8pm.

**Day Two:**

- Small group discussions with faculty facilitators synthesizing the previous day’s activities from one aspect of the case (1 hour)
- Small group discussions with faculty facilitators bringing together students from each aspect of the case to integrate information and impressions across domains. (1 to 2 hours)
- Closing Plenary (30 min to 1 hour)

Advanced cases for second-year students move beyond exposure and exploration of issues to skill building. Skills that second-year students learn include preparation of expert testimony and letters to the editor, on-air messaging (radio and television) and how to host a twitter conference as well as the development of a treatment plan for a patient drawing on community resources.

Approximately 1.5 FTE professional and support staff in the Medical Education Office develop and oversee the delivery of the cases. Grant funds purchased protected time for some faculty facilitators and provide modest stipends to participating patients. Community experts are generally uncompensated but enthusiastic and have returned to participate for several years. We are currently in the planning stages for funding sustainability of the cases. These cases are expected to be supported by the school at the termination of the grant.

**HEALTHY PEOPLE OBJECTIVE ADDRESSED:**

This project is directly tied to HP2020 objective ECBP-12-16: Increase the inclusion of core clinical prevention and population health content in health professions education. The Integrative Cases, which connect core prevention and population health content to basic and clinical sciences are required for all medical students in the 4 year MD program at University of Wisconsin School of Medicine and Public Health.
Healthy People 2020 and Education For Health
Successful Practices for Clinical Health Professions

PROGRAM OR COURSE GOALS:

Number of students enrolled/participating in 2010-2011 school year: 350

Goals of the Integrative Cases are...

1. Make connections across basic science, clinical medicine and public health
2. Recognize the distinction between population and individual approaches to health
3. Participate in experiences and examine themes that expand the view of medicine and public health
4. Explore questions that promote interest and inquiry toward future and lifelong learning
5. Recognize the impacts of multiple systems on patient well-being
6. Demonstrate strategies that integrate a public health perspective with clinical care to improve the health of individuals and communities
7. Develop an understanding of patient perspectives in clinical and public health approaches

Did you conduct a needs assessment as part of your planning process? ☑ Yes ☐ No

There were a series of brainstorming sessions with over 40 of faculty, staff and students to elicit ideas about content and teaching methods of the cases. These sessions were instrumental in the development of the Integrative Case goals.

PROFESSIONS INVOLVED:

Physicians and other health care providers (e.g., nurses, social workers, PT, OT, psychologists, health educators) spanning more than ten departments; faculty from elsewhere at the University (e.g., law school, engineering school, food sciences) public health officials from Madison and Milwaukee; community organizations; public policy leaders (e.g. state legislators, city, county and state officials); first and second-year medical students.

LESSONS LEARNED/EVALUATION RESULTS:

Since Integrative Cases were first implemented in the fall of 2008, they have been evaluated using online post-event questionnaires emailed to students after each case. The questionnaires focus on goals specific to each case, ratings of particular sessions and facilitators, general impressions of the case and student suggestions for improvement. These cases have proven to be largely successful in accomplishing their case-specific goals individually and the overarching Integrative Case goals as a set, especially after adjustments to activities and timing were made based on feedback from the initial post-event questionnaires. Informal feedback from facilitators is also routinely solicited.

One of the greatest challenges has been to find or develop tools for measuring public health competencies and assessing student learning. We have relied heavily on subjective student self-evaluation and faculty feedback. Several different assignments have been used for students to demonstrate their learning, most frequently brief written reflections following their activities, but with some 175 students and volunteer faculty, it has not been feasible to provide individual feedback.

Importantly, the learning outcomes of these cases are being incorporated into broader assessments as part of the evaluation of the four-year integrated public health curriculum. We have developed and piloted a number of different assessment tools for public health competencies including end-of-third-year OSCEs (Objective Structured Clinical Evaluations), residency director and graduate surveys.
We were surprised to uncover such a wealth of resources in the community, across campus and within our hospital that were thrilled to interact with medical students but have never been asked. Students are exposed to inspirational multidisciplinary faculty from the UWSMPH, University and community, many of whom they would be unlikely to encounter in their coursework. Both students and faculty enjoy the unusual teaching and learning opportunity, with community and university faculty consistently electing to return to repeat the case the next year.

Another key point is that achieving the goals of the cases does not seem to require a specific structure. Hence, their reproducibility is not limited to schools with a curricular structure similar to ours. We have implemented these cases in a variety of ways and they have been equally successful. Activities could be spaced over a longer period, for example, and discussion sessions could take less curriculum time. Flexible instructional design (and faculty) has been invaluable.

Lastly, support from our Dean for the integration of medicine and public health in our curriculum has been crucial to the success of our curriculum transformation. Curricular time would not have been spared for these cases without that key sponsorship.

CONCLUSION:
By focusing on patients and integrating clinical, basic science, and public health approaches, these highly-rated Integrative Cases avoid perpetuating the schism between medicine and public health. Having clinical faculty facilitate these cases (rather than public health MDs or practitioners), demonstrates to students, early in their training, the relevance of this approach. These cases tap into valuable resources within and outside the university that traditionally have had little or no role in medical education, especially in the preclinical years. The involvement of patients, clinical faculty, public health officials and community leaders in these cases not only demonstrates the importance of partnerships to the medical students, but shows the community that the medical school is invested in addressing public health issues collaboratively.

COMPANION MATERIALS: (Course syllabi, resource lists, tests, website, etc.)
http://www.med.wisc.edu/education/md/curriculum/integrative-cases/1231

SAMPLE INTEGRATIVE CASE FACILITATOR GUIDE: DUI

SAMPLE INTEGRATIVE CASE STUDENT EVALUATION: DUI

OTHER Materials available by request.

PUBLICATIONS:

SECONDARY AUTHOR(S):
Schapiro, Renie MPH, Remington, Patrick L. MD, MPH, Bagwell, Stephen W. MA

CONTACT:
Renie Schapiro, MPH
Integrative Case Director
University of Wisconsin School of Medicine and Public Health
4285 Health Sciences Learning Center, 750 Highland Avenue
Madison, WI 53705
608-265-3472 rschapir@wisc.edu