



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Curricular outcomes: a prescription for quality assurance?

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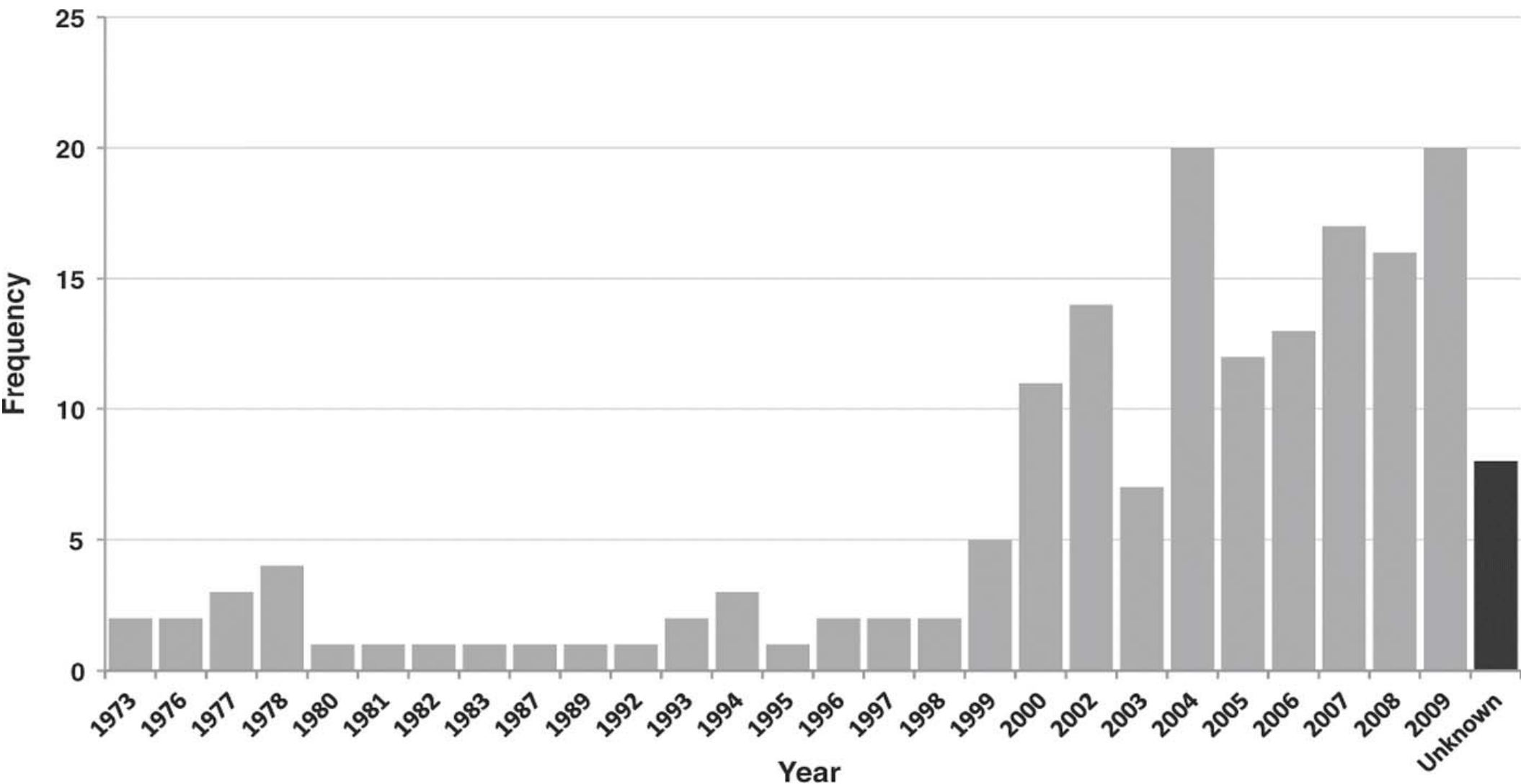




Assignment...

“Outcomes-based professional training in Quality Assurance.”

- ✓ Discuss the organization of short-term/long-term QA for an effective curriculum (pharmacy).
- ✓ Suggest principles of QA in running an education program (pharmacy).
- ✓ To provide concrete examples.



Frank JR, et al. Toward a definition of competency -based education in medicine: a systematic review of published definitions. *Medical Teacher*. 2010; 32 (8): p. 632 .



Definition ...

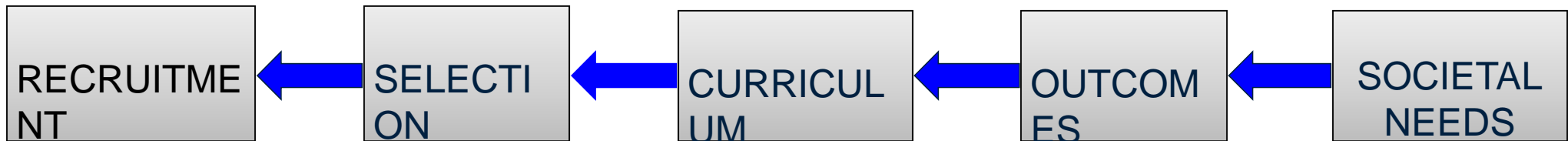
Competency-based education (CBE) is an approach to preparing physicians for practice that is fundamentally oriented to graduate outcome abilities and organized around competencies derived from an analysis of societal and patient needs. It de-emphasizes time-based training and promises greater accountability, flexibility, and learner-centredness.

Frank JR, et al. Toward a definition of competency -based education in medicine: a systematic review of published definitions. Medical Teacher. 2010; 32 (8): p. 636 . (Emphasis added.)

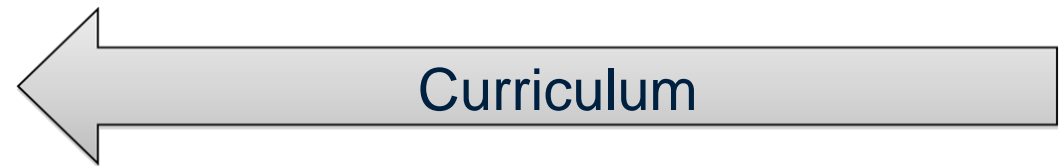
Outcomes as targets...



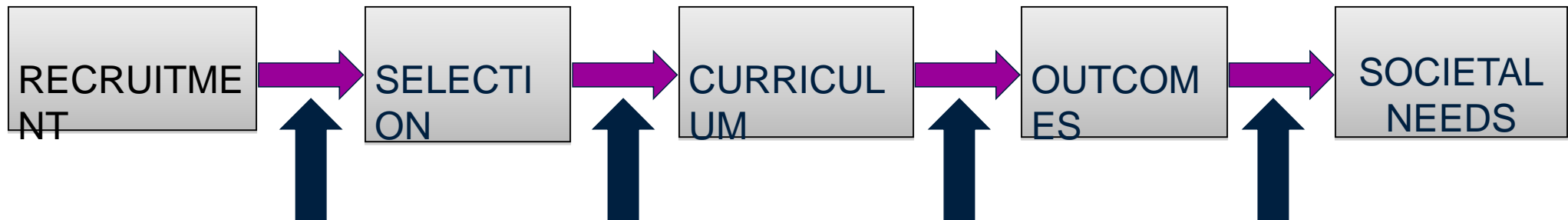
- “Reverse Engineer”
 - **Design backward**



Outcomes as targets...

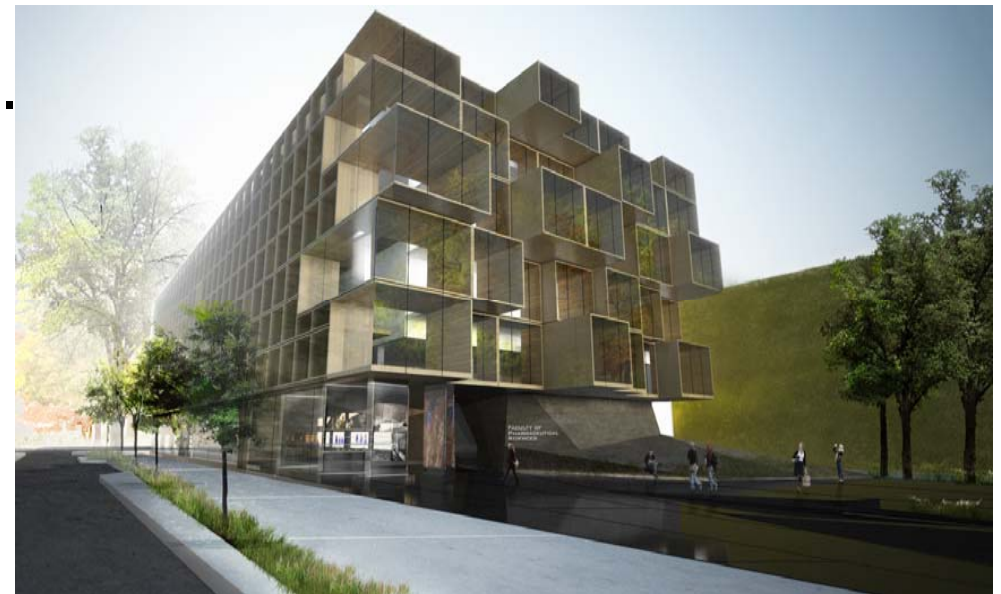


- “Reverse Engineer”
 - Design backwards
 - Implement forward



Current UBC pharmacy program...

- ✓ 1 + 4 years B.Sc. (Pharm.).
- ✓ 608 B.Sc. students.
- ✓ Post Baccalaureate Pharm. D. (22 months).
- ✓ 16 Pharm. D. students.
- ✓ ~ 35 FTE faculty members.
- ✓ ~ 400 clinical faculty.
- ✓ Limited resources for education support and development.





UBC Pharmacy Curriculum...

- ✓ 1998 – 2002 curriculum redesigned.
- ✓ Partly precipitated due to accreditation expectations of program level learning outcomes.
- ✓ Extensive internal and external consultations.
- ✓ Revised curriculum designed to address 17 Ability-based Outcomes.
- ✓ Revised curriculum introduced in 2003 / first graduates 2007.



Ability-Based Outcomes...

General Ability-Based Outcomes (GABO):

1. Critical thinking skills
2. Information access and evaluation
3. Communication skills
4. Scientific inquiry skills
5. Self-directed learning skills
6. Math skills
7. Interpersonal and teamwork skills
8. Ethical behaviour
9. Social awareness

Specific Ability-Based Outcomes (SABO):

1. Meet patient's drug related needs
2. Meet practice, professional and societal responsibilities
3. Provide drug information
4. Communicate and educate effectively
5. Apply and integrate knowledge
6. Manage drug distribution
7. Apply practice management skills
8. Contribute to the profession and society



Program evaluation required...

✓ Guideline 13.1

“A variety of evaluation measures focusing on the efficacy of the curriculum and instruction should be systematically and sequentially applied throughout the professional program in pharmacy. A system of outcomes assessment should be developed which fosters data-driven continuous improvement of curricular structure, content, process, and outcomes.”

Accreditation Standards for the Canadian Council for Accreditation of Pharmacy Programs.

<http://www.ccapp-accredit.ca/standards/> (accessed Oct. 30, 2010)



Educational program evaluation is...

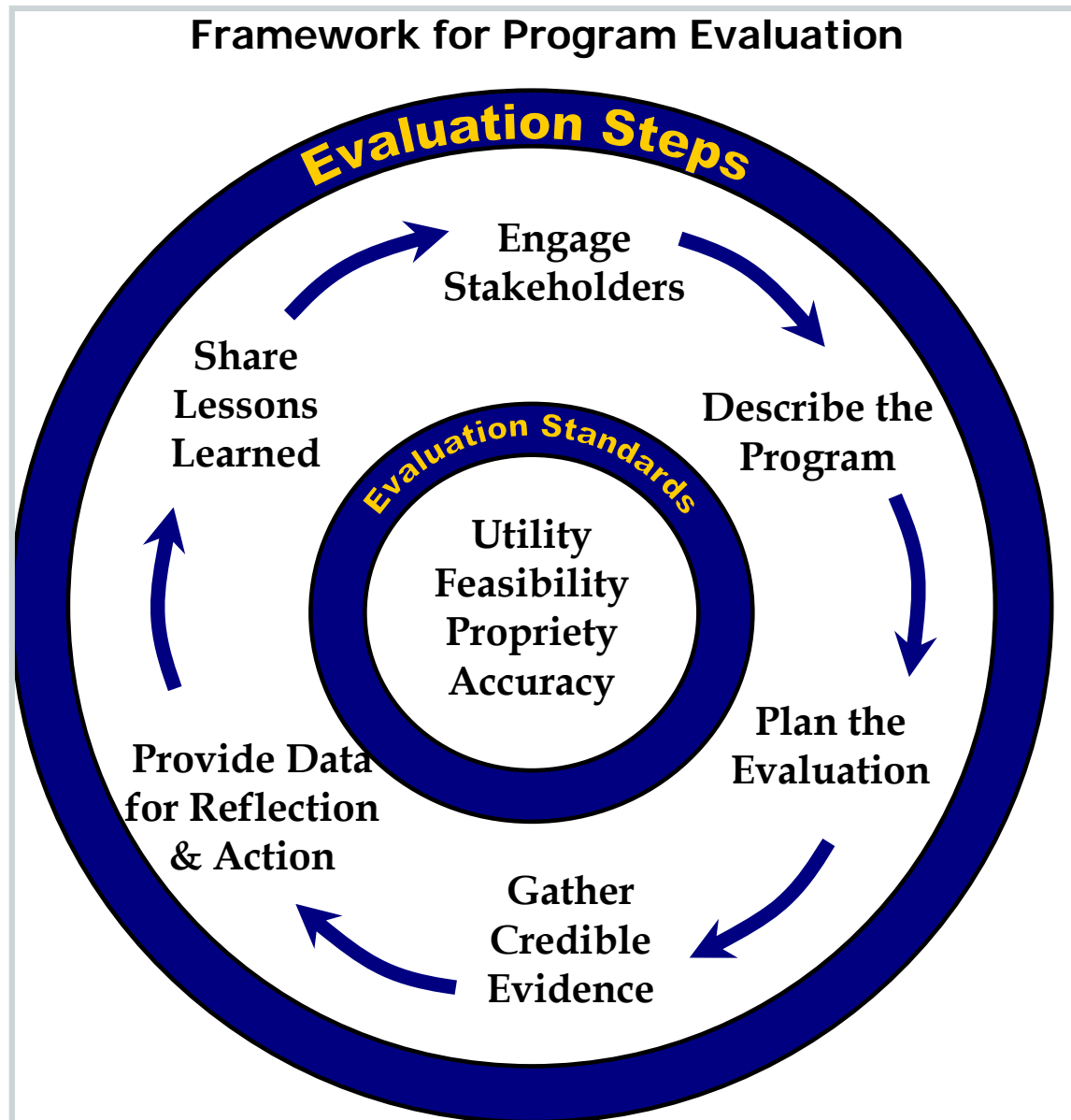
- “the systematic collection and interpretation of evidence, leading, as part of the process, to a judgment of value with a view to action.”

C.E. Beeby (as quoted by Wolf, *Evaluation in Education: Foundations of Competency Assessment and Program Review, 3rd Edition, Praeger Publishers, NY, NY, 1990, p.3*) Emphasis added.

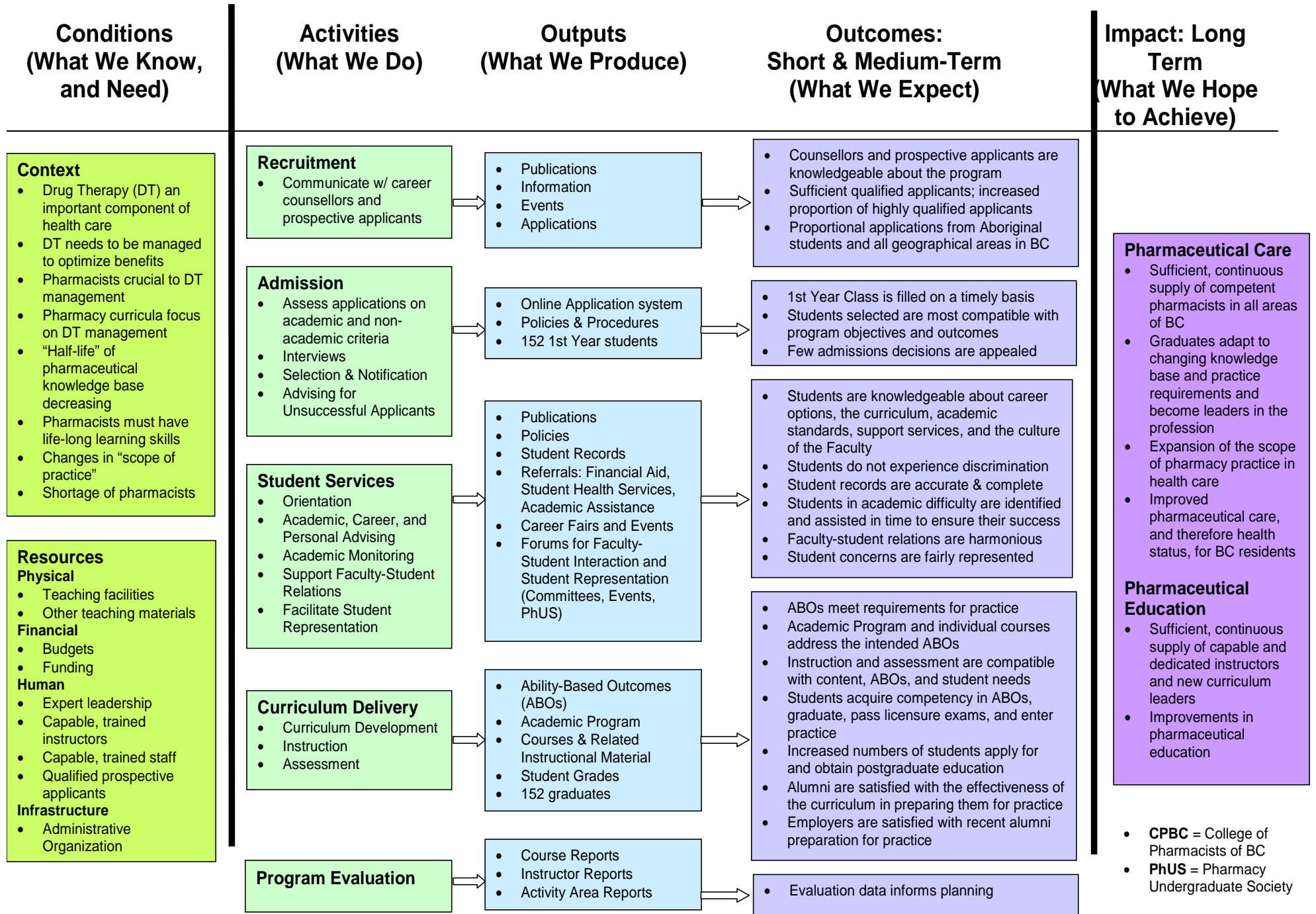
- “The purpose of evaluation is not to prove but improve.”

Stufflebeam et al., *Educational Evaluation and Decision Making*. Itasca, IL: F.E. Peacock, 1971.

Program Evaluation Framework

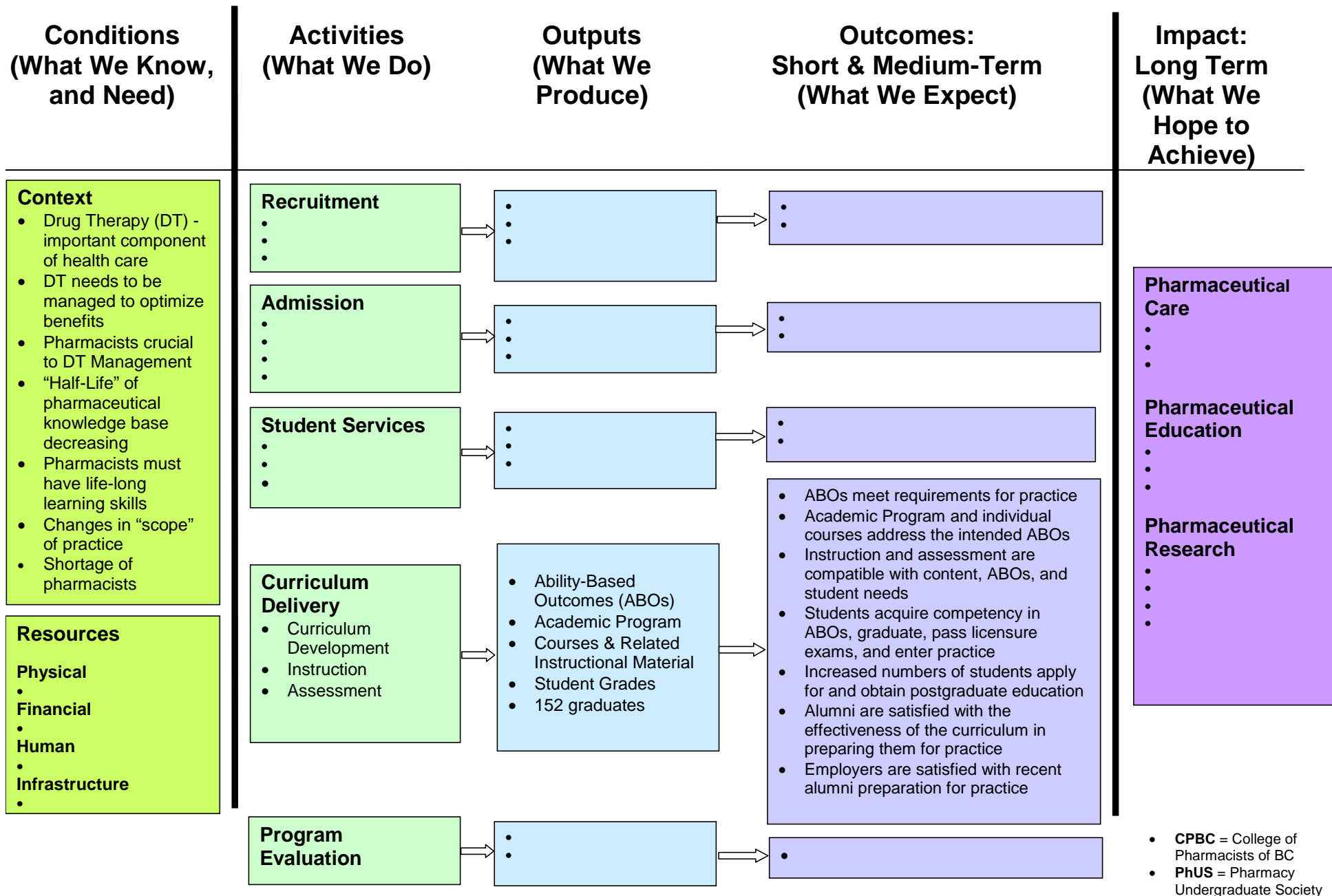


Faculty of Pharmaceutical Sciences B.Sc.(Pharm.) Program Logic Model



- **CPBC** = College of Pharmacists of BC
- **PhUS** = Pharmacy Undergraduate Society

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Sample Evaluation Questions: Curriculum Delivery...

Conditions
(Were the necessary resources available?)

Activities
(Were the activities conducted as planned?)

Outputs
(What is the quality of the tangible products?)

Outcomes: Short & Medium-Term
(Did the activities achieve the desired results?)

Impact: Long Term
(What is the impact of the program, within its context?)

- Does the Faculty have people with sufficient expertise to teach ALL our ABOs?

- Did individual courses **assess** the ABOs specified in their syllabi?

- Are the ABOs appropriately allocated to individual courses in the curriculum?

- Are graduates satisfied with the effectiveness of the curriculum in preparing them for practice?

- Do our graduates assume regional, national and international professional leadership roles?



Indicators / data collection strategies ...

Sample Indicators and Data Collection Strategies

Question	Indicators (Evidence)	Data Collection Methods
Did individual courses address the ABOs as specified in their syllabi?	Student feedback from course evaluations	<p>Students are invited to complete web-based course evaluation surveys for all required courses in the curriculum, including the following question:</p> <p><i>This course was designed to help students begin/continue developing competency in a number of the Ability-Based Outcomes identified for the UBC B.Sc.(Pharm.) degree, primarily [outcomes listed here]. Please comment on the degree to which this course has been successful in helping you develop competency in these areas.</i></p>

Fielding, DW, and Wright, KH, "Using a program logic model to guide continuous quality improvement in pharmacy undergraduate education". Annual Meeting of American Association of Colleges of Pharmacy, San Diego, CA, July 2006.

Comprehensive Curriculum Evaluation

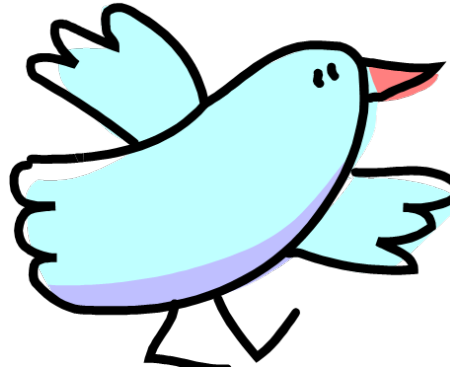
STAKEHOLDER	QUESTIONS (Examples)	DATA COLLECTION STRATEGIES
Students	» Do our students acquire competency in the ABOs (Appropriate amount of growth each year and at graduation)?	<ul style="list-style-type: none"> ➤ Course Evaluation ➤ Exit Surveys ➤ Graduation Rates ➤ Licensing Exam Pass Rates
Faculty	» Does our curriculum address the intended ABOs?	<ul style="list-style-type: none"> ➤ Teaching Evaluation & Reflection Action Plan ➤ Curriculum Mapping Initiatives ➤ Curriculum Committee ➤ Program Evaluation Committee
Graduates/ Alumni	» Does our curriculum prepare graduates for contemporary practice?	<ul style="list-style-type: none"> ➤ Alumni Survey/Interviews
Employers	» Are employers satisfied with the preparation of our graduates for practice?	<ul style="list-style-type: none"> ➤ Employer Survey/Interviews
Accreditation Body	» Do our ABOs meet practice requirements?	<ul style="list-style-type: none"> ➤ Curriculum Mapping <ul style="list-style-type: none"> ▪ AFPC Educational Outcomes
Patients?	» Are patients satisfied with the preparation of our graduates for practice?	<ul style="list-style-type: none"> ➤ Patient Survey/Interviews



Outcome:

not
how many worms
the bird
feeds its young,
but

***how well the
fledgling flies***





“Is what is taught, what is sought in practice?”


Table 1: Graduate Participants By Year

Grad Year	Exposure to Curriculum	# of Graduates	# of Graduates Contacted	# of Responses	Response Rate
2006	“Old”	136	110	47	~43%
2007	“Revised”	125	117	56	~48%
2008	“Revised”	136	131	61	~47%
	TOTAL	397	358*	164+	~46%

**The number of graduates contacted were limited to the individuals registered as licensed pharmacists with the CPBC and therefore differed from the total number of students who graduated*

+Two invitation letters were returned as undeliverable

Brown, S. M., Mok, D. and Fielding, D. W., “Is what is taught what is needed to practice? What do our graduates think?” July, 2009 AACP Annual Conference, Boston MA



“Is what is taught, what is sought in practice?”

- ✓ Revised curriculum achieving the specified educational outcomes.
- ✓ Certain general and specific abilities, emphasized in the revised curriculum, were perceived by the 2007 & 2008 graduates to be “very well” taught (i.e., critical thinking skills, self-directed learning strategies, etc).
- ✓ On the whole, no differences between graduates from the “old” and revised curriculum in the importance and frequency of the learning outcomes needed to competently practice contemporary pharmacy.

Brown, S. M., Mok, D. and Fielding, D. W., “Is what is taught what is needed to practice? What do our graduates think?” July, 2009 AACP Annual Conference, Boston MA



“Is what is taught, what is sought in practice?”

- Pharmacy Examining Board of Canada (PEBC)
- Required licensing examination.
- MCQ exam + OSCE.
- Since 2007 (first graduates of revised curriculum) UBC ranking has improved when compared to other pharmacy education programs in English Canada.

“Is what is taught, what is sought in practice?”

- Those who supervised graduate for six months or more, were eligible to complete a web-based survey.
- 43 of the 149 supervisors contacted completed the surveys (Response rate: ~ 29%).

Table 1: Graduates Supervised By Year

GRADUATE YEAR	EXPOSURE TO CURRCULUM	# OF GRADUATES SUPERVISED
2006	Old	15
2007	Revised	24
2008	Revised	12
TOTAL		51*

*The total number of graduates' supervised exceeded the number of supervisor respondents since 8 respondents supervised graduates from more than one graduating class.



Supervisors say...

- ✓ 2 practice strengths:
 - ✧ Meet patients drug related needs.
 - ✧ Effective communication skills.
- ✓ 2 areas for improvement:
 - ✧ Apply practice management skills.
 - ✧ Problem solving skills.
- ✓ Practice management skills require emphasis.
- ✓ “Scope of practice” changes biggest impact.

Combating “Curriculum drift...”

	Enacted curriculum “What faculty actually do”
Intended curriculum “Planned or should be”	Assessed curriculum “What is actually tested”
	Learned Curriculum “What students know / can do”

Porter AC, Smithson JL. Defining, developing and using curriculum indicators.

CPRE Research Report Series RR-048, Consortium for Policy Research in Education. Philadelphia, PA; 2001. and

Kelley et al. Curriculum Mapping: Process and Product. Am J Pharm. Educ. 2008; 72 (5): Article 100.



Curriculum mapping...

Examines:

- ✓ Content/topic coverage
- ✓ How much emphasis given to each topic
- ✓ Level of student engagement
(knowledge, application, interpretation,
etc.)
- ✓ How delivered (lecture, etc.)
- ✓ How assessed

Curriculum mapping...

Aids:

- ✓ Identification of gaps and redundancies
- ✓ Integration of curriculum (including exchange of information and coordination)



Curriculum mapping - concrete examples

▪ Pharmacy

- ✓ Armayor GM, Leonard ST. Graphic Strategies for Analyzing and Interpreting Curricular Mapping Data. Am J Pharm Educ; 2010; 74 (5) Article 81.
- ✓ Britton et al. A Curriculum Review and Mapping Process Supported by Electronic Database System. Am J Pharm Educ. 2008; 72 (5): Article 99.
- ✓ Kelley et al. Curriculum Mapping: Process and Product. Am J Pharm. Educ. 2008; 72 (5): Article 100.
- ✓ Plaza et al. Curriculum Mapping in Program Assessment and Evaluation. Am J Pharm Educ. 2007; 71 (2) Article 20.

Medicine

- ✓ Harden RM. AMEE Guide 21: Curriculum Mapping: a Tool for Transparent and Authentic Teaching and Learning Medical Teacher 2001; 23 (2): 123 – 137.
- ✓ Willett et al. TIME as a Generic Index for Outcome-based Medical Education. Medical Teacher 2007; 29 (7): 655 – 659.



The challenge...

Outcomes-based education comes with new expectations:

- ✓ QA measures beyond “satisfaction”.
- ✓ Different timelines versus the “tea bag” approach to education? Snell LS, Frank JR. Competencies, the tea bag model, and the end of time. *Medical Teacher*, 2010; 32 (8): 629-630.
- ✓ Assessments of learning are critical! (formative as well as summative).
- ✓ Application of progress examinations?



Progress assessments...

- ✓ Long history in medical education in US
 - ✧ USMLE Step 1- at the end of second year & usually required prior to starting clinical placements in 3rd year.

http://www.usmle.org/General_Information/general_information_about.html (Accessed Oct. 30, 2010)

- ✓ ACPE Standard 15.1

“Incorporate periodic, psychometrically sound, comprehensive, knowledge-based, and performance-based formative and summative assessments, including nationally standardized assessments (in addition to graduates’ performance on licensure examinations) that allow comparisons and benchmarks with all accredited and peer institutions”

http://www.acpe-accredit.org/pdf/ACPE_Revised_PharmD_Standards_Adopted_Jan152006.pdf
(Accessed Oct. 30, 2010)



College of Pharmacy, Touro University...

- ✓ 2 plus 2 year curriculum (didactic : clinical).
- ✓ Years 1 and 2 - four tracks (Biological Sciences, Pharmaceutical Sciences, Social, Behavioral and Administrative Sciences; Clinical Sciences)
- ✓ Evaluate readiness for APPE (clinical placements).
- ✓ Triple Jump Examination
 - ✧ A written case-based closed book exam
 - ✧ A written case-based open book exam
 - ✧ An objective structured clinical exam (OSCE)

College of Pharmacy, Touro University...

Tracks	Semester One	Semester Two	Semester Three	Semester Four
Biological Sciences	Closed-Book Written	Closed-Book Written	Closed-Book Written	Closed-Book Written
Pharmaceutical Sciences				
Social, Behavioral and Administrative Sciences	Open-Book Written	Open-Book Written	Open-Book Written	Open-Book Written
Clinical Sciences	OSCE	OSCE	OSCE	OSCE

- ❖ Exams progressively more complex from semester 1 to 4.
- ❖ Exams test information from all previous semesters.
- ❖ Semester grades average of 5 grades (4 tracks + OSCE)
- ❖ Cumulative scores calculated with each subsequent semester score more heavily weighted.
- ❖ Passing grade set for semesters 1 - 3 but not retakes.
- ❖ Required to achieve a pass on CS for semester 4 (or retake).
- ❖ Must pass or not permitted to proceed to APPE.

Progress examination – concrete examples...

Pharmacy

- ✓ Alston GL, Love BL. Development of a reliable, valid annual skills mastery assessment examination. *Am J Pharm Educ.* 2010; 74 (5): Article 80.
- ✓ Kelley KA, Beatty SJ, Legg JE, McAuley JW. A progress assessment to evaluate pharmacy students' knowledge prior to beginning advanced pharmacy practice experiences. *Am J Pharm Educ.* 2008; 72 (4): article 88.
- ✓ Mészáros K, et al. Progress examination for assessing students' readiness for advanced pharmacy practice experiences. *Am J Pharm Educ.* 2009; 73 (6): Article 109.
- ✓ Monaghan MS, Jones RM, et al. Designing an assessment for an abilities-based curriculum. *Am J Pharm Educ.* 2005; 69 (2): Article 19.
- ✓ Plaza CM. Progress examinations in pharmacy education. *Am J Pharm Educ.* 2007; 71 (4): Article 66.
- ✓ Sziliagyi JE. Curricular progress assessments: the MileMarker. *Am J Pharm Educ.* 2008; 72 (5): Article 101.



Summary of QA principles*...

Principles and characteristics

1. Integrated into culture
2. Ongoing and sustained
3. Based upon appropriate student learning outcomes
4. Reflects learning as multidimensional and integrated
5. Considers experiences leading to outcomes
6. Involves representatives from across educational community
7. Part of several practices to promote change
8. Used in reports to external stakeholders
9. Undertaken in receptive, supportive, enabling environment
10. Basis for funding/re-allocation decisions
11. Directed by competent, trustworthy individuals
12. Regularly re-evaluated

***Compiled by: Abate MA, Stamatakis MK, Haggert RR. Excellence in Curriculum Development and Assessment. Am J Pharm Educ. 2003; 67 (3): Article 89.**

QA principles – concrete examples...

- ✓ Abate MA, Stamatakis MK, Haggert RR. Excellence in Curriculum Development and Assessment. Am J Pharm Educ. 2003; 67 (3): Article 89.
- ✓ Cook DA. Twelve tips for evaluating educational programs. Medical Teacher. 2010; 32(4):296-301.
- ✓ FIP Statement of Policy on Quality Assurance of Pharmacy Education. 2009.
- ✓ Ryan, et al. Best practices assessment to guide curricular change in a bachelor of pharmacy program. Am J Pharm Educ. 2009; 73 (1): Article 12



OBE Implementation Profile...

Nine dimensions in the outcome based educational inventory rated on a scale of 0 to 5

1. Statement of learning outcomes	0	1	2	3	4	5
2. Communication with staff/students	0	1	2	3	4	5
3. Educational Strategies	0	1	2	3	4	5
4. Learning Opportunities	0	1	2	3	4	5
5. Course Content	0	1	2	3	4	5
6. Student Progression	0	1	2	3	4	5
7. Assessment	0	1	2	3	4	5
8. Educational Environment	0	1	2	3	4	5
9. Student Selection	0	1	2	3	4	5

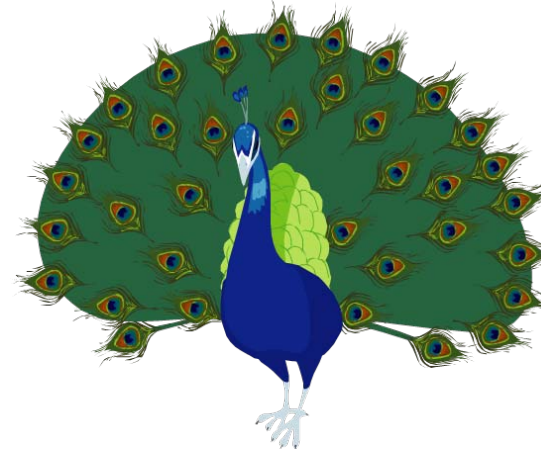
Implementing OBE: Different perspectives

- ❑ Consider learning outcomes a passing fad
- ❑ Don't see merit in OBE
- ❑ Likely to become extinct

OSTRICH



PEACOCK



- ❑ Work hard to develop learning outcomes
- ❑ Display ostentatiously but don't consider implementing

- ❑ Work hard to develop & implement learning outcomes
- ❑ See exit outcomes as critical factor in curriculum design

BEAVER



DISILLUSIONED BEAVER



- ❑ Start off implementing OBE curriculum
- ❑ Give up (for several reasons) and transform into peacocks



"The road to success is
always under
construction."

Lily Tomlin

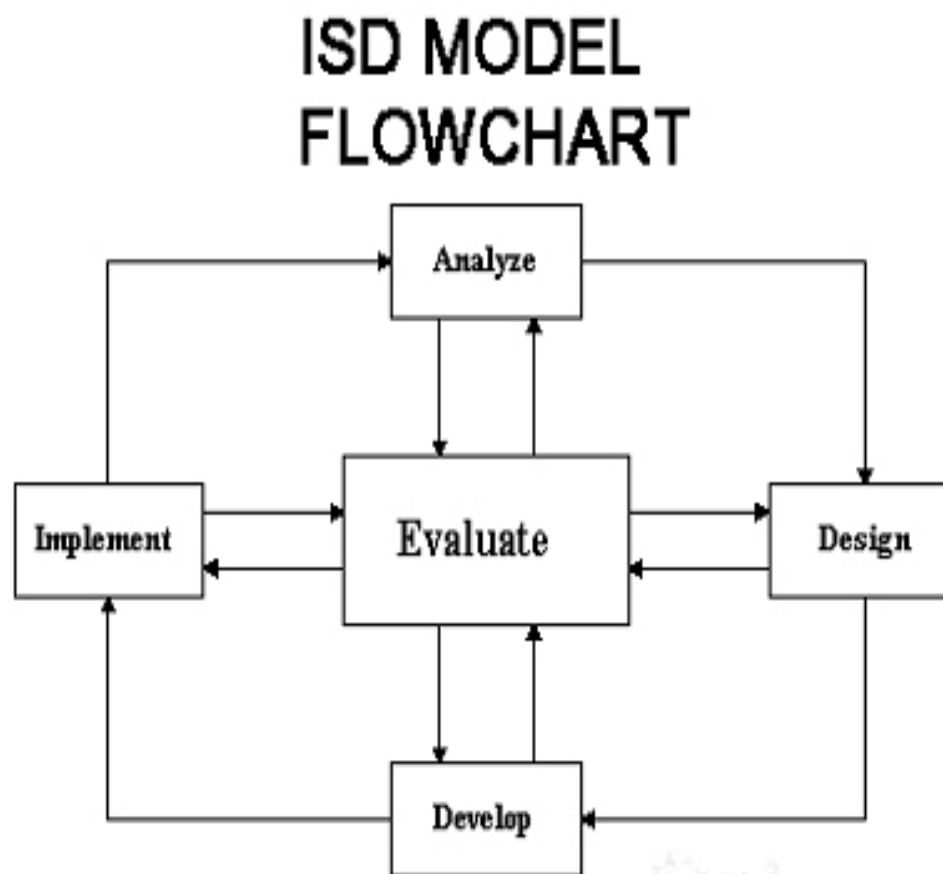
dwfield@interchange.ubc.ca

THANK YOU

谢谢

Mistakes are costly – can we poka yoke education?

The ADDIE model



Slide courtesy of Dr.
Larry Seawright, BYU

Figure 3

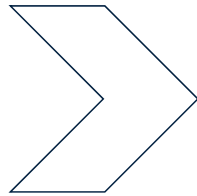


Curriculum designed/redesigned..

- ✓ courses addressed outcomes.
- ✓ integrated “content” as much as possible.
 - ✧ E.G., Pathophysiology, pharmacology, therapeutics, non-prescription drug therapy recently integrated.
 - ✧ Cases in Pharmaceutical Sciences – “CAPS” course.
- ✓ embraced philosophy of “learner-centered/learning-centered” education.
- ✓ increased emphasis on “active learning”.

OBE Implementation Profile...

Transition to Beavers



1. Statement of learning outcomes	0	1	2	3	4	5
2. Communication with staff/students	0	1	2	3	4	5
3. Educational Strategies	0	1	2	3	4	5
4. Learning Opportunities	0	1	2	3	4	5
5. Course Content	0	1	2	3	4	5
6. Student Progression	0	1	2	3	4	5
7. Assessment	0	1	2	3	4	5
8. Educational Environment	0	1	2	3	4	5
9. Student Selection	0	1	2	3	4	5

About CanMEDS

CanMEDS 2005 Framework

CanMEDS Tools and Resources

Resources

CanMEDS Workshops

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CanMEDS Online Store

The CanMEDS Physician Competency Framework

Better standards, better physicians, better care

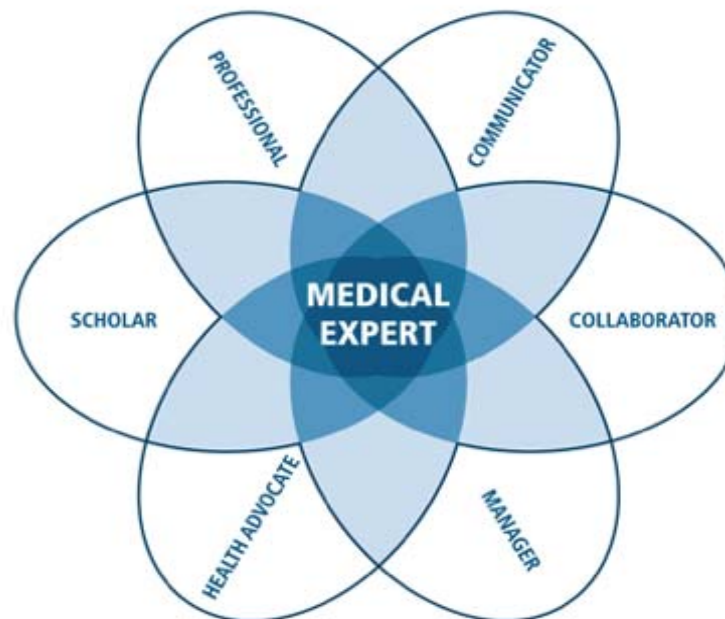
In 1996, the Royal College adopted an innovative framework for medical education called the CanMEDS framework of essential physician competencies. Fundamentally, CanMEDS is an initiative to improve patient care. The focus of CanMEDS is on articulating a comprehensive definition of the competencies needed for medical education and practice. Today, the CanMEDS model for physician competence is being adapted around the world as well as in other professions.

The CanMEDS framework is organized around seven Roles: Medical Expert (central Role), Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional. The CanMEDS competencies have been integrated into the Royal College's accreditation standards, objectives of training, final in-training evaluations, exam blueprints, and the Maintenance of Certification program.

CanMEDS makes explicit the abilities that have long been recognized in highly skilled physicians, and constantly updates them for today's—and tomorrow's—medicine. As such, the CanMEDS framework was extensively reviewed, updated and launched in September 2005.

CanMEDS Diagram

A diagram was created in 2001 to illustrate the elements and the interconnections of the CanMEDS Roles embodied by competent physicians: Medical Expert (the central Role), Communicator, Collaborator, Health Advocate, Manager, Scholar and Professional. This diagram, also known as the CanMEDS "cloverleaf," "daisy," "flower" and "illustration" was officially trademarked in 2005 and was revised to more accurately reflect the fluidity and overlap amongst the CanMEDS Roles.





Pharmacy competency statements...

- ✓ WHO 1997 report "Preparing the Future Pharmacists" identified ("seven star pharmacist"):
 - ✧ Care Giver
 - ✧ Decision Maker
 - ✧ Communicator
 - ✧ Leader
 - ✧ Manager
 - ✧ Life-longer learner
 - ✧ Teacher

<http://apps.who.int/medicinedocs/en/d/Js2214e/1.html> (Accessed October 10, 2010)

- ✓ Association of Faculties of Pharmacy of Canada, adopts CanMEDs framework.

http://afpc.info/downloads/1/AFPC_Education_Outcomes_AGM_June_2010.pdf
(Accessed November 6, 2010)



CBE goes inter-national ...

✓ Medicine

The Tuning Project for Medicine

<http://www.tuning-medicine.com/proj.asp> (Accessed October 7, 2010)

World Federation for Medical Education - Global Standards.

www.wfme.org (Accessed November 8, 2010)

Institute for International Medical Education - Global Minimal Essential Requirements (GMER)

Schwarz MR, Wojtczak A, Stern D. The outcomes of global minimum essential requirements (GMER) pilot implementation in China. *Medical Teacher* 2007; 29: 699-705.

✓ Pharmacy

The WHO “Seven Star Pharmacist”. The Role of the Pharmacist in the Health-Care System

- Preparing the Future Pharmacist: Curricular Development, Report of a Third WHO Consultative Group on the Role of the Pharmacist Vancouver, Canada, 27-29 August

1997 <http://apps.who.int/medicinedocs/en/d/Js2214e/1.html> (Accessed October 10, 2010)

Global Framework for QA in Pharmacy Education

<http://www.fip.org/files/fip/PharmacyEducation/Global%20Framework%20Final%20Draft.pdf> (Accessed November 8, 2010)

WHO UNESCO FIP Global competency framework

Bruno A, Bates I, Brock T, Anderson C. Towards a global competency framework. *Amer J Pharm Educ.* 2010; 74 (3): Article 56.



CBE goes inter-professional...

- ✓ Core competencies that all health clinicians must possess in 21st century

“All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics”.

Health Professions Education: A Bridge to Quality (2003). RC Greiner, E Riebel, Editors. The National Academics Press. Washington DC. p 45.

- ✓ Canadian Inter-professional Competency Framework:

- ✧ Role clarification

- ✧ Team functioning

- ✧ Patient/client/family/community-centered care

- ✧ Collaborative leadership

- ✧ Inter-professional communication

- ✧ Inter-professional conflict resolution

<http://www.cihc.ca/> (Accessed November 9, 2010)



General abilities-based outcomes (GABO)...

1. Critical thinking skills.
2. Information access and evaluation.
3. Communication skills.
4. Scientific inquiry skills.
5. Self-directed learning skills.
6. Math skills.
7. Interpersonal and teamwork skill.
8. Ethical behaviour.
9. Social awareness.

Specific abilities-based outcomes (SABO)...

1. Meet patient's drug-related needs.
2. Meet practice, professional and societal responsibilities.
3. Provide drug information.
4. Communicate and educate effectively.
5. Apply and integrate knowledge.
6. Manage drug distribution.
7. Apply practice management principles.
8. Contribute to the profession and society.



Outcome # 1

Apply and integrate knowledge

Outcome unit:

Pharmacy graduates will demonstrate an ability to integrate and apply knowledge to solve drug-related problems

Outcome Elements:

- 1.1 Integrate knowledge as needed to design, implement and evaluate patient-specific pharmacotherapeutic regimens to prevent or resolve drug-related problems or to respond to information requests
 - i. Describe the anatomy, physiology and biochemical processes of the major organs/tissues/cells of the body
 - ii. Describe the pathophysiology of a specific disease
 - iii. Describe the pharmacologic approaches to the management of specific diseases
 - iv. Describe the pharmacological and toxicological mechanisms of drug action and how these relate to drug effects
 - v. Relate the chemical and/or biochemical structure of drugs to their therapeutic action
 - vi. Describe the principles of the design, formulation and evaluation of drug delivery systems
 - vii. Explain how drug, patient and disease factors influence drug absorption, distribution, metabolism and elimination
 - viii. Explain relationships between pharmacological and therapeutic principles and drug-related problems experienced by patients
 - ix. Describe analytical approaches to quantifying drugs and physiological markers in biological fluids and in delivery systems



Linear program “theory” model...

Program Process Theory

Inputs

Activities

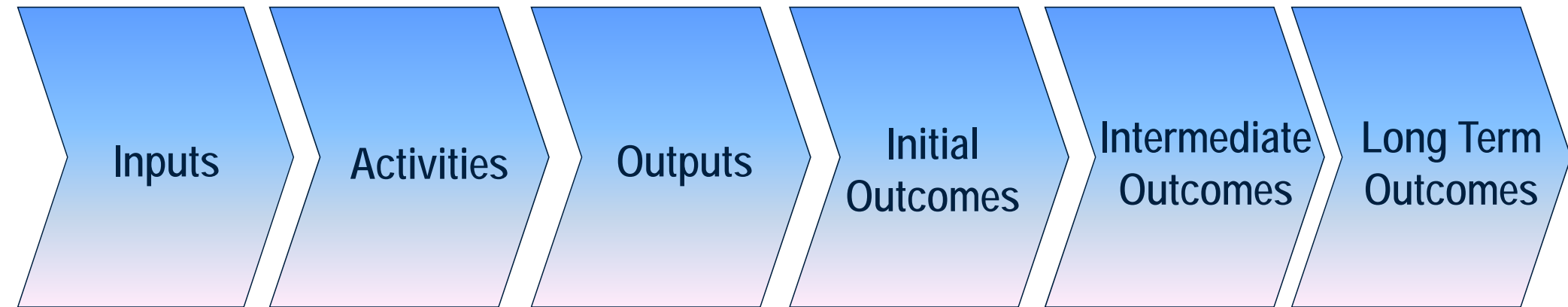
Outputs

Program Impact Theory

Initial
Outcomes

Intermediate
Outcomes

Long Term
Outcomes



Exit studies...

At the end of the academic years 05 - 08, students surveyed.

Table 4a: Means for 2005, 2006, 2007 & 2008 on General Abilities Scale by Program Year

Program Year \ Year of Study	2005 N	2005 Mean	2006 N	2006 Mean	2007 N	2007 Mean	2008 N	2008 Mean
1	54	4.03	91	4.13	81	4.06	62	3.95
2	59	3.76	58	3.96	52	3.82	80	3.65
3	46	3.68	85	3.79	28	4.00	43	3.91
4	40	3.49	75	3.52	42	4.05	46	4.21

Table 4b: ANOVA Results for Program Year on General Abilities Scale by Year of Study

Program year	DF	F	Sig
1	3	1.00	NS
2	3	2.44	NS
3	3	2.50	NS
4	3	19.51	0.000

Table 5a: Means for 2005, 2006, 2007 & 2008 on Specific Abilities Scale by Program Year

Program Year \ Year of Study	2005 N	2005 Mean	2006 N	2006 Mean	2007 N	2007 Mean	2008 N	2008 Mean
1	53	4.05	90	4.11	78	3.98	62	3.76
2	56	3.61	59	3.85	49	3.86	78	3.68
3	43	3.60	86	3.93	29	4.08	43	4.03
4	41	3.47	75	3.58	43	3.99	45	4.24

Table 5b: ANOVA Results for Program Year on Specific Abilities Scale by Year of Study

Program year	DF	F	Sig
1	3	3.08	0.028
2	3	1.58	NS
3	3	6.09	0.001
4	3	16.82	0.000

QA in pharmacy educ. (FIP's

- view)...**
- ✓ Reflect the vision for pharmacy practice and education developed through profession-wide consensus.
 - ✓ Allow appropriate input from all stakeholders in including students and the public.
 - ✓ Ensure educational programs are evidence and competency-based, of high quality and meet the needs of the people the pharmacists and their country
 - ✓ Evaluate programmatic outcomes as well as institutional structure and processes.
 - ✓ Be transparent /free of inappropriate influences & conflicts of interest in its development and implementation.
 - ✓ Promote & foster self-assessment and CQI.
 - ✓ Be accountable to appropriate governmental agencies.



QA data gathered from...

- All courses minimally for first two years offered.
- End of each program year (“exit studies”).
- Graduate performance on PEBC examinations.
- Graduates of 2006, 2007 & 2008.
- Supervisors of graduates of 2006 – 2008.
- Planned versus delivered curriculum.



Outcome # 5

Self-directed learning skills

Outcome unit:

Pharmacy graduates will develop self-directed learning strategies and be realistic self-evaluators

Outcome Elements:

- 5.1 Maximize learning through the use of effective personal learning strategies
 - i. Identify personal learning strengths and weaknesses
 - ii. Use objectives to guide learning efforts
 - iii. Select and use instructional resources to facilitate learning

- 5.2 Use self-assessment and the feedback from others to improve learning
 - i. Identify strengths and weaknesses in learning performance
 - ii. Formulate strategies to improve learning performance

- 5.3 Carry out learning activities on a continuing basis for personal or professional development based upon self-determined areas of deficiency and/or interest
 - i. Develop self-reflection skills
 - ii. Formulate a learning plan based on reflections
 - iii. Monitor and reflect upon the success of learning events and change learning plan accordingly



Countries		Professions
Australia	South Africa	Architecture
Canada	Scotland	Engineering
China	Singapore	Nursing
Denmark	Sweden	Medicine
England	Thailand	Pharmacy
Finland	United States	Public Health
Malaysia	Vietnam	University Teachers
Mexico	European Union "Bologna Process"	Biomedical Laboratory Science
Netherlands		
Pakistan		



Competency Statements for Medical Education...

- USA - ACGME - "Outcome Project"

<http://www.acgme.org/outcome/> (accessed October 7, 2010)

- UK

- Scottish Doctor

<http://www.scottishdoctor.org/node.asp?id=outcomes> (accessed October 7, 2010)

- GMC - Tomorrow's Doctor

http://www.gmc-uk.org/education/undergraduate/tomorrows_doctors_2009_outcomes.asp
(accessed October 7, 2010)

- "Tuning Project"

<http://www.tuning-medicine.com/proj.asp> (accessed October 7, 2010)

- CanMEDS - The CanMEDS 2005 Physician Competency Framework

<http://rcpsc.medical.org/canmeds/CanMEDS2005/index.php> (accessed October 7, 2010)

- A number of others...



Program evaluation...

- A Logic Model (LM) was developed to guide the evaluation of the revised curriculum.
- LMs diagrammatic representation of assumed linkages between inputs, processes and outcomes, i.e., "If we invest these resources, to accomplish these activities, then we should achieve these outcomes." Logic Model Development Guide. WK Kellogg Foundation; 2004
- LMs used to develop a "test" of the program
Fielding, DW, and Wright, KH, "Using a program logic model to guide continuous quality improvement in pharmacy undergraduate education". Annual Meeting of American Association of Colleges of Pharmacy, San Diego, CA, July 2006.

QUESTIONS.

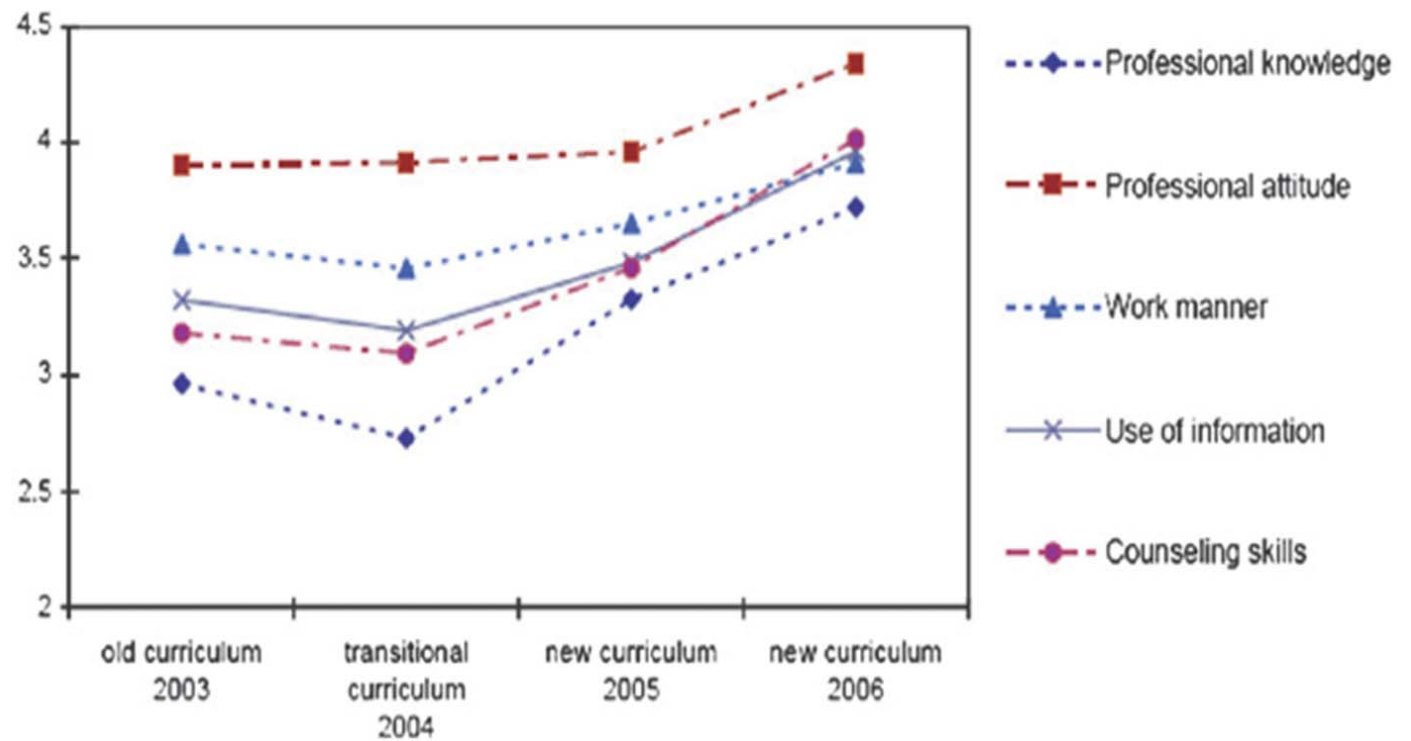


Figure 2. Longitudinal data for professional learning outcomes.

Ho SSS, et al. An outcomes-based approach to curriculum development in pharmacy. Amer J Pharm Educ. 2009; 73 (1): Article 14.



“Curriculum” ...

- “is all the planned learning outcomes for which a school is responsible.” Popham WJ and Baker EI. *Systematic Instruction*. Prentice-Hall, Inc. 1970, p.48. (Emphasis added).
- “content of instruction ... selected on the basis of educational considerations and organized into topics and structures according to special principles; ... an overall plan of goals, subjects, timetables, materials, and intended learning outcomes of institutionalized teaching and learning as expressed in official, more-or-less standard, syllabi usually adopted by educational

Now..

- Blueprint
- Outcomes – CanMEDS

Performance...

- A function of
Selection + Competence + Motivation
+ Resources



Figure 4: Course Reflection/Action Plan

PHAR [Course Number]

Coordinator: [Course Coordinator Name]

The following evaluation results have been provided to you for the above-named course:

- CourseEval report (also available to participating instructors, the Division Chair, Associate Dean Academic, and Dean)
- Other: _____

In order to better understand these results and your response, it would be useful to know about any other evaluation strategies you have used in this course (e.g., focus groups). Please list them here:

***Note:** In addition to the evaluation results above, your responses may be based on your own experiences & expertise; input from participating instructors/preceptors; and/or consultation with colleagues, e.g., your Division Chair or the Associate Dean Academic. Obviously, you are not obligated to act on all student comments! However, please address any consistent student comments that you do not plan or are not able to act upon.*

Key strengths of the course this term/year:

Areas for refinement:

Action Plan – changes and refinements:

I would like to work with the Evaluation Unit to evaluate these changes.

Signature:

(Course coordinator)

Date

Reviewed by	Initials	Date
Division Chair:		
Associate Dean Academic: David Fielding		
Other:		