Patient Care Contributions by Students: Pilot study using 'PxDx' module to collect data

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Background (1)

▸ Students on experiential rotations at Leslie Dan Faculty of Pharmacy are required to provide pharmaceutical care and related activities

▸ Documentation required has included
   A) samples of:
   ◦ Students' care plans
   ◦ Drug information questions & answers
   B) mid and final point assessments

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Background (2)

▸ No data has been collected on the *types* and/or *quantity* of patient medication-related interventions/activities performed by our students
▸ This data may inform curriculum planning and program evaluation, by illustrating what students contribute to patient care at practice sites
▸ Data may also assist individual student progress/monitoring e.g. by tracking complexity and diversity of patient care actions accomplished

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Database Management System

▸ E*Value is a web-based experiential database program used by the Office of Experiential Education (OEE)
▸ For all experiential rotations including early practice experience (EPE 1 and 2) and advanced (SPEP and APPE)
▸ E*Value has modules allowing students, preceptors and faculty to track and communicate progress, including coursework, assessment and evaluations, and to arrange schedules

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"PxDx" Module within E*Value:

▸ PxDx, originally designed for medical school programs, as "Procedures and Diagnoses"
▸ Intended to be a "case logger"
▸ Can be customized to track data submitted by pharmacy students

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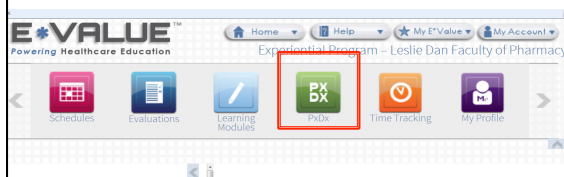
Research Questions (beyond pilot):

1. Are students meeting curriculum outcomes and competencies?
2. Are there gaps in student clinical experiences?
3. Does the process and review of collected data assist the student and preceptor in their teaching/learning discussions during the rotation?
4. How do specific types of practice sites differ in the type of clinical activities available to be performed?
5. What value and contributions do students provide to their rotation sites?
6. Can cost savings, cost avoidance, "value", to sites be determined based on collected data?

Initial Pilot Project Objectives:

1. To conduct a <u>pilot phase</u> of data collection and analysis to determine feasibility and acceptability of using the PxDx module. (Phase 1 and 2)
2. To review and revise PxDx methods for subsequent implementation. (Phase 3)
3. To implement PxDx into experiential programs on an ongoing basis, using the data for program evaluation and student and preceptor development, as appropriate. (Phase 4)

Outline of PxDx Plan

- Pilot Data Collection – March to September

- Review of pilot participants' feedback re feasibility, acceptability, and functionality

- Summation and analysis of data collected

- Continued development and integration of PxDx function into experiential curriculum

Method (1)

- Reviewed use by other Pharmacy schools, as presented at E-Value User Conference (Oct. 2011)
- Reviewed functionality with E-Value representative and obtained permission to adapt set-up from Wilkes University (Aug. 2012)
- *Literature search performed (Dec. 2012)*

Method (2)

- *Dec 2012: Discussion held with institutional stakeholders, shared ideas regarding ongoing project on KPI (Key performance indicators)*
- *Jan 2013: Presentation to OEE members - gathered feedback to modify plan*
- *Jan 2013: Revised working outline and PxDx function; draft REB proposal*
- Feb 2013: Distribute draft plan to stakeholders, including Community practice

Method (3)

- March 2013: Modify screens & tracking form based on stakeholder and further OEE feedback
- REB revisions (Mar 16), approval (Mar 18)
- Communications with SPEP students and preceptors (invitation, instructions posted on website) – start/end date: Mar 21 to April 12
- Feedback survey link to participants– April 11
- Reports of PxDx data generated from EValue and Survey Monkey

Proposed steps for pilot users:

- Students track patient activities throughout their day on worksheet*
- Review worksheet briefly with preceptor
- Student spends ~15-30 minutes daily entering data into E-Value
- Preceptor <u>not</u> required to check/verify entries
- End of rotation: online survey of students and preceptors re feasibility, feedback for improvement of process, perceived value

*Paper form - 6 patients per page

PxDx: 3 'Tabs':

- Main Tab

- Clinical Activities Tab

- Review Tab

PxDx Main Tab

▸ Purpose: to gather data on <u>the types of patients and clinical conditions</u> students encounter during rotations; could thus help identify gaps in learning

PxDx Clinical Activities Tab

▸ To gather data (self-reported) on the <u>types and quantity of activities</u> students perform during a patient encounter, within the context of the <u>patient care process</u>

▸ To gather data on the <u>ability of a student to function independently</u> within each component of the patient care process

Clinical Activity Groupings

▸ Groups of activities are based on the patient care process:
  ◦ Assessment (Drug Therapy Problem identification)
  ◦ Care plan development/interventions
  ◦ Follow-up evaluation
  ◦ Documentation
▸ Activities align with the patient care process in Pharmaceutical Care Practice 3rd Ed. and also with proposed Key Performance Indicators (KPIs) that pharmacists may use to track clinical activities

View of "Main" Tab screen:

Clinical Activity Tracking

| Main | Clinical Activities | Review |

Student *

Send Email notifications *
◉ Yes
○ No

Interaction Date *
3/7/2013

Course/Rotation *

Site *
University of Toronto -Faculty of Phar

Patient Age *

Patient Gender *
○ Female   ○ Male

Previous encounter with patient? *
◉ No   ○ Yes

Medical conditions (Relevant to this encounter) *
☐ 1.Anxiety
☐ 2.Asthma
☐ 3.Constipation
☐ 4.COPD
☐ 5.Depression
☐ 6.Diabetes-type 1
☐ 7.Diabetes-type 2
☐ 8.GERD
☐ 9.Heart failure
☐ 10.Hyperlipidemia
☐ 11.Hypertension
☐ 12.Hypothyroidism
☐ 13.Infectious Disease
☐ 14.MI prevention
☐ 15.Oncology/Palliative
☐ 16.Osteoporosis
☐ 17.Pain
☐ 18.Seizures
☐ 19.Smoking cessation
☐ 20.Stroke prevention
☐ 21.Other (please indicate in "Notes" section)
Notes

View of "Clinical Activities" Tab screen:

Clinical Activity Tracking

| Main | Clinical Activities | Review |

Group:
Assessment

Clinical Activity: *
Filter:

DTP ID: 1-Unnecessary Drug Therapy
DTP ID: 2-Requires additional drug therapy
DTP ID: 3-Ineffective/Wrong drug
DTP ID: 4-Dose too low
DTP ID: 5-Dose too high
DTP ID: 6-Adverse drug reaction
DTP ID: 7-Adherance
DTP ID: 8-Other

Role: *
Performed with minimal preceptor in

Notes:

View of "Review" Tab screen:

Clinical Activity Tracking

| Main | Clinical Activities | Review |

Print this page

Student *	TestStudent, Beth
Send Email notifications *	No
Interaction Date *	3/7/2013
Course/Rotation *	Evaluation Preview
Site *	University of Toronto -Faculty of Pharmacy
Patient Age *	45-64
Patient Gender *	Female
Previous encounter with patient? *	Yes
Medical conditions (Relevant to this encounter) *	4.COPD, 7.Diabetes-type 2
Notes	recent diagnosis DM

Clinical Activities	Primacy	Clinical Activity	Your Role	Notes
	1	DTP ID: 2-Requires additional drug therapy	Performed with minimal preceptor involvement	
	2	DTP ID: 7-Adherance	Performed independently	

Preliminary Results – SPEP pilot

- Invited: 189 SPEP students on direct patient care, 8-week rotation in Mar-April block:
  - 111 Community; 72 Institutional; 6 Ambulatory

- Consented: 8 (4.5%);
  - 4 Comm (3.6%);
  - 3 Inst (4.2%);
  - 1 other – did not participate

Participant data: (from E*Value)

Practice Type	# of Clinical Activities	Average #/day of participation period
Community (n=4)	152; 16; 49; 14	10; 4; 3; 1
Institutional (n=3)	6; 45; 54	1; 3; 4
Combined:	Total: 336 Mean: 48 +/- 46	

Participant days: Mean 13 days +/- 4.7

Community participant (16 days)

Descriptor	Comments:
Clinical activities	152 total clinical activities for 93 patients • 44% age 65–84; 35% age 45–64 • 69% female
Independence	• Independently = 68% • Minimal preceptor involvement = 19% • Significant preceptor involvement = 13%
Conditions	Other; Infectious Dis; Pain; Hypertension • Other: e.g cough/cold; contraception; iron def.; insomnia

Institutional participant (14 d)

Descriptor	Comments:
Clinical activities	54 total clinical activities for 46 patients • 41% age 65–84; 26% age 45–64 • 61% female
Independence	• Independently = 63% • Minimal preceptor involvement = 26% • Significant preceptor involvement = 11%
Conditions	Hypertension; Other; Infectious Dis; MI Prevention • Other: e.g. delirium, atrial fib, renal failure

Clinical Activities of 2 Participants

Descriptor	Community	Institutional
Assessment	Requires drug ADR Drug inter'n	Unnecessary drug Requires drug ADR
Care Plan	Pt Education Initiate drug No changes	No changes Initiate drug Discontinue drug
Documentation	Other (eg fax MD) Profile Note Medscheck	Admission Medrec BPMH
Followup	Continue Ch. d/t efficacy Ch. d/t safety	Ch. d/t safety

Survey Monkey – Results

- 8 respondents:
  - Students: 3 community and 3 institutional
  - Preceptors: 1 community and 1 institutional

- Responses based on Likert 5-point scale
  - Strongly disagree (value = 1) to strongly agree (value = 5)

Survey Monkey - Results

Question	Mean value (out of 5)
Tracking form instructions clear?	3.5
Form user friendly?	3.9
Instructions for using screens clear?	3.9
Overall PxDx functioned well?	3.8
Positive contribution to rotation?	3.5
PxDx a negative factor in rotation?	2.4

Preceptor comments

‣ I enjoyed the tracking system as I wasn't spending ALL my time with the student. This enabled me to review with her "what she had been up to" and to enhance her educational experience by delving more into the issues of the day during the review of the tracking sheets.

‣ I would use the tracking sheets to enhance the learning so each incident that my student tracked generally lent itself to me asking a question of the student... "What if...", for example, or "How about...". This then led to the student doing more research to answer subsequent questions and us spending even more time discussing possible other issues / avenues (i.e. enhanced learning) ... so then the time factor became longer...

Time spent

‣ 100% of students indicated spent less than 15min/day reviewing tracking sheet with preceptors (Note: only 1 had regular review)
‣ All students indicated less than 30 min/day entering into EValue; median time 15-30 min
‣ 4/6 students indicated time to enter was faster as became familiar with process
‣ 3/6 did enter daily at end of day; others less frequently
‣ All used computer at site to enter (no smart-phone)

Should preceptor review in future?

‣ 4/6 students said preceptor should not need to

‣ 2/6 students and 1 preceptor suggested preceptor should have access via EValue to review

Benefits/value of collecting PxDx information

Student views:
◦ Reflecting on the role of the pharmacist in this setting
◦ Helped to summarize interventions and identify trends
◦ Allowed review of clinical activities with preceptor that were performed under the supervision of another pharmacist
◦ Method to track encounters with patients
Preceptor view:
◦ Enhanced the learning experience as kept the preceptor and student in close communication

Disadvantages or concerns with collecting PxDx information

Student Views:

‣ Could be more user-friendly.
In general, E*Value requires too much clicking and confirming
‣ Often difficult to find time to review information
‣ Time consuming

Suggestions for improvement to the PxDx training, set up, and/or method

Student Views:
- Have clinical placement & practice site pre-set [in E-Value]

- Reconsider some of the medical conditions coding (eg: Type 1 DM not that common, insomnia common)

Summary

- Preliminary data supports feasibility and acceptability
- Need data from more users and further analysis
- Potential as valuable tool to contribute to learning during the rotation, and to program evaluation