

Evaluation of Innovative Injection Curriculum and Training for University of Alberta Student Pharmacists

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OVERVIEW

- Background
- Rationale
- Study design
- Results
- Discussion
- Conclusions

BACKGROUND

- In 2006 Alberta passed the legislation for pharmacists to administer drugs by injection
- April 8, 2010, Alberta College of Pharmacists unanimously approved U of A proposal to certify 3rd year pharmacy students to administer drugs by injection
- University Influenza Campaign:
 - November 2010, 50 students (class 2011), 330 doses of influenza vaccine

FLU CLINIC 2011

LOCATION	DOSES ADMINISTERED	# STUDENTS (class 2012)
Main Campus		
Day 1	963	Pharmacy (42)
Day 2	879*	Pharmacy (46)
Day 3	1150	Pharmacy (19) & Nursing (25)
Day 4	1284	Pharmacy (16) & Nursing (25)
Enterprise Square Campus	202	Pharmacy (14)
Campus Saint Jean	111	Nursing (12)
TOTAL	4589	Pharmacy (80) Nursing (62)

* Clinic ran out of vaccines for 3 hours in the afternoon

Cheung W, Tam K, Cheung P, Banh HL. CPJ 2013;146(4):xx-xx

STUDENT COMMENTS

- Excellent opportunity to:
 - Practice injection techniques
 - Practice patient counseling on flu vaccine
 - Interact with supervising pharmacists
- Most felt:
 - Injection program prepared them for the flu clinic
 - Very nervous with the first injection
 - Comfortable after 3 injections
 - Really comfortable after 5 injections

PREVIOUS STUDIES

- Pelly et al
 - Assessed immunization education in Canadian nursing, medical, and pharmacy schools
 - Identified wide variability in immunization curriculum content and evaluation
- To our knowledge, no study to date, objectively evaluates:
 - Injection training in a Canadian pharmacy curriculum
 - The impact of the flu clinic in students pharmacists' injection skills

INJECTION CERTIFICATION & FLU CLINIC (November 6 - 9, 2012)

INJECTION CERTIFICATION



INJECTION CERTIFICATION



Tim Leung (class 2011)

FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



FLU CLINIC 2012



Joey Ton, Joanna Cebula (Class 2013)

FLU CLINIC 2012



Joey Ton, Joanna Cebula (Class 2013)

FLU CLINIC 2012



STUDY DESIGN

- Repeated measures during certification in April & at flu clinic in November
 - Injection skills assessments by certified pharmacists
 - Student survey (self-reported knowledge, experience, confidence)
- Cross-sectional at flu clinic
 - Participants satisfaction survey
- The study received University of Alberta Research and Ethics Board approval on February 24, 2012

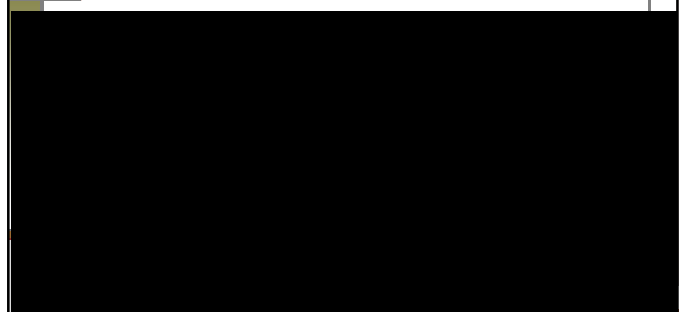
MEASUREMENT

- Injection Certification (April 2012)
 - Students were assessed by one of 5 certified pharmacists on their first IM injection based on five groups of skills
 - Students also completed a self-report measure of their knowledge, experience, and confidence with 10 distinct skills
- Flu clinic (November 2012)
 - Students were randomly selected and rated by at least 2 out of 3 consistent evaluators during 5 clinic days
 - Students were evaluated at injections 1, 5, 10, 15 and 20 by the trained pharmacists
 - Students also completed the self report measure following the flu clinic

SKILLS RUBRIC

SKILLS	PROFICIENT	PROFICIENT	PROFICIENT	PROFICIENT
<p>1. Patient Assessment</p> <ul style="list-style-type: none"> • Gathers and interprets patient history and physical examination findings • Identifies and reports abnormal findings • Performs a focused physical examination • Performs a focused history • Performs a focused physical examination • Performs a focused history • Performs a focused physical examination • Performs a focused history • Performs a focused physical examination • Performs a focused history 				
<p>2. Patient Education</p> <ul style="list-style-type: none"> • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment • Provides patient education on illness and treatment 				
<p>3. Clinical Reasoning</p> <ul style="list-style-type: none"> • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings 				
<p>4. Clinical Judgment</p> <ul style="list-style-type: none"> • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings • Identifies and reports abnormal findings 				

STUDENT SURVEY



STUDENT SURVEY

RESULTS: Injection Skills

PARTICIPANTS

- Injection certification:
n = 116
- Flu clinic:
86 students came back to participate in the Flu Clinic in the Fall
26 students were randomly selected to be assessed by expert pharmacists of which 21 were matched with the injection certification data
36 students were matched for the self report measure

SCALE

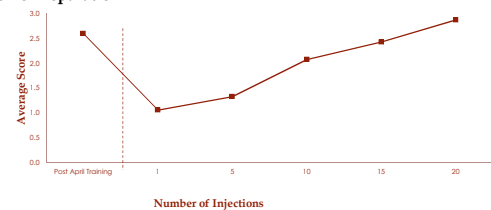
- 0 - DEPENDENT
- 1 - ASSITED
- 2 - SUPERVISED
- 3 - INDEPENDENT

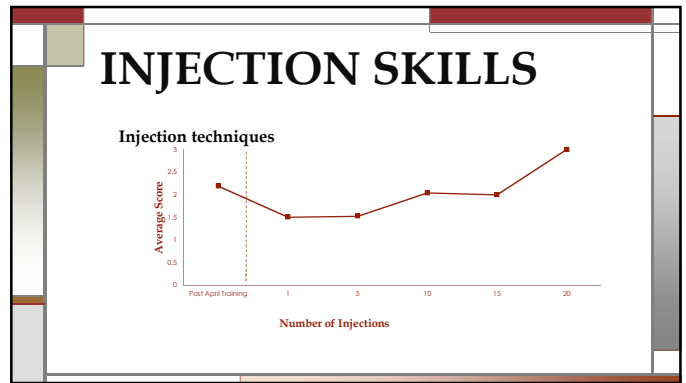
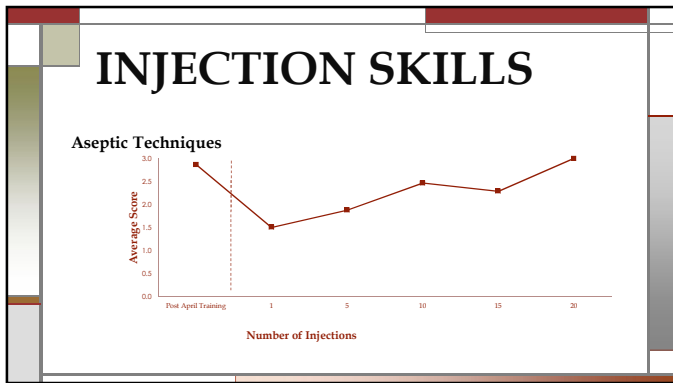
MEAN INJECTION SKILLS SCORES (BASED ON SCORES FROM 21 STUDENTS)

SKILLS	After First Injection	After 20 th injection
Vaccine Preparation	1.1	2.9
Aseptic Techniques	1.5	3.0
Injection Techniques	1.5	3.0
Aftercare	2.0	3.0

INJECTION SKILLS

Vaccine Preparation





RESULTS: Student Survey

STUDENT SURVEY

	Pre-Clinic	Post-Clinic	Matched Cases
Total Participants	n = 84	n = 53	n = 36
Gender	68% female	72% female	64% female
Average Age	24	24	24
Worked in pharmacy prior to pharmacy school	42%	69%	33%
Currently working in pharmacy	67%	75%	72%
Had degree before pharmacy school	30%	38%	15%
Pharm 425 in fall semester	57%	47%	56%
From Alberta	84%	85%	89%

STUDENT SURVEY

STUDENT SURVEY

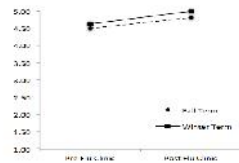


Figure 2. Mean Pre- and Post-Knowledge Obtaining Consent Scores as a Function of When Students have their Final Rotation (Fall vs. Winter)

SATISFACTION SURVEY

The pharmacy student treated me with respect and professionalism

	N	%
Strongly Disagree	0	0
Disagree	1	0
Neutral	4	0
Agree	117	9
Strongly Agree	1192	91

SATISFACTION SURVEY

Based on today's experience I would be willing to receive vaccines from a pharmacist in a pharmacy in the future

	N	%
Strongly Disagree	0	0
Disagree	5	0
Neutral	34	3
Agree	48	11
Strongly Agree	1127	86

SATISFACTION SURVEY

How would you rate your overall experience with the flu clinic?

	N	%
Very Poor	0	0
Poor	1	0
Neutral	22	2
Good	249	19
Excellent	1036	79

DISCUSSION

- Some participants were lost for two reasons:
 - Fewer students participated in the influenza clinic
 - Difficulty matching all the participants
- Strict policies and procedures from Alberta Health & Wellness
 - Strict aseptic technique at the clinic
- Assessment during community placement

CONCLUSIONS

- Trend data shows skill improvement based on expert ratings
- Based on this experience, University of Alberta student and staff:
 - Satisfied with the service our students provided
 - Willing to receive injections from pharmacists
- University Flu clinic is effective in fostering student skill development and improving their self-reported knowledge, experience, and confidence

ACKNOWLEDGEMENT

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 - Christine Kim
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 - Ann Thompson, Clinical Assistant Professor
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STUDENT COMMENTS

- "Being able to interact with patients directly, and being able to utilize the skills I learned last year with regards to injections and actually apply them in practice and in a clinical setting!"
- "Lots of practice doing injections. Was able to promote the profession and educate people on our expanding scope of practice."
- "It was a great learning experience and provided much needed experience and a confidence boost. it was well run, organized, and great. One of the best experiences for me in pharmacy."
- "I liked having a strong pharmacy presence. Was cool to see a room full of white lab coats!"