

PT211

Pharmacology for Physical Therapists

Tina Brock, BSP Pharm, MS, EdD, FAPhA

March 2016

***The future of
health care is
patient-centered and
team-based.***

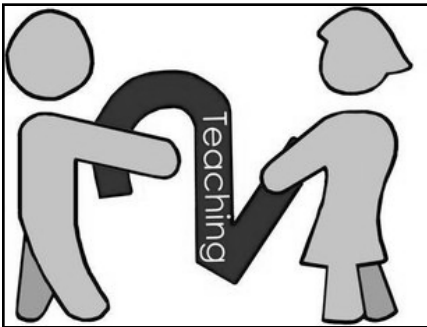
Necessity is the mother of invention; flexibility is the father of innovation*



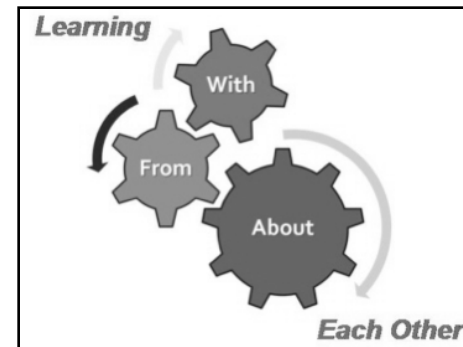
YEAR 2

**FLIPPED
CLASSROOM
FLIPPED**

YEAR 1



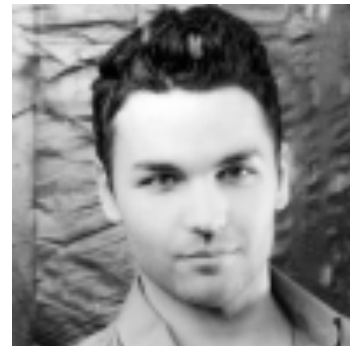
YEAR 3



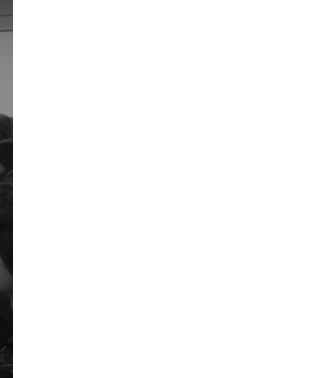
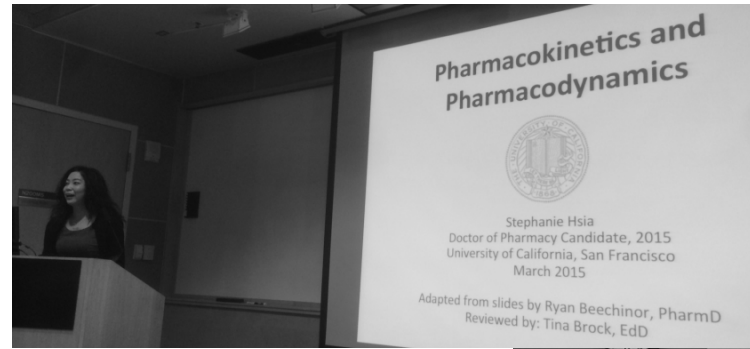
YEAR 4



Course presenters/support



Date	Time	Place	Discussion Leader	Topic	Pre-Class Assignments
Thurs March 3	9:30-10:00	UCSF HSW 302	Tina Brock	Pharmacologic principles for the physical therapist (LECTURE)	See CLE for group assignments. Please sit in groups for each class
	10:15-11:30		Allison Komrenko	Pharmacokinetics & pharmacodynamics for the physical therapist (LECTURE)	
Thurs March 10	9:30 – 12:00	IRC	Sheri Van Dessel	Drug information for physical therapists (LABORATORY)	None
Thurs March 17	9:10-10:15	UCSF CL 220 CL 223	Brandon Conley	Respiratory medications (CASE DISCUSSION)	View video, complete quiz
	10:15-11:30		Laurel Carmichael	Diabetes medications (CASE DISCUSSION)	View video, complete quiz
Thurs March 24	SPRING BREAK – no class				None
Mon, Mar 28	9:10-10:15	UCSF CL220 CL223	Liz Staub	Cardiovascular medications (CASE DISCUSSION)	View video, complete quiz
	10:15-11:30		Daryoush Tabatabai	Anti-seizure medications (CASE DISCUSSION)	View video, complete quiz
Thurs April 7	9:10-10:15	UCSF CL220 CL223	PI - TBD	OTC and Alternative medications (CASE DISCUSSION)	View video, complete quiz
	10:15-11:30		Laurel Carmichael	Opioid pain medications (CASE DISCUSSION)	View video, complete quiz
Thurs April 14	9:10-10:15	UCSF CL220 CL223	Daryoush Tabatabai	Psychiatric and movement disorder medications (CASE DISCUSSION)	View video, complete quiz
	10:15 -11:30		Liz Staub	Glucocorticoids and bone medications (CASE DISCUSSION)	View video, complete quiz
Thurs April 21	9:10-10:15	UCSF CL220 CL223	All	Teach-back presentations	Teach-back prep
	10:15-11:30		PI Team	Exam review	Review
Thurs April 28	9-10-11:30	UCSF CL220 CL223	All	FINAL EXAM	



Allison Komrenko
Doctor of Pharmacy Candidate, ...
[Send an email](#)

Opioid Pharmacology for Physical Therapists - Slides_FINAL (18/32/20:01)

Resources

Menu

- 1. Opioid Pharmacology for Physio...
- 2. Overview
- 3. Classification of Opioids
- 4. Opioid Agonists (Opioid Analges...
- 5. Opioid Agonists - Clinical Indic...
- 6. Opioid Analgesics - Mechanism...
- 7. Opioid Analgesics - Mechanism...
- 8. Routes of Administration
- 9. Adverse Effects and Toxicity
- 10. Management of Opiate Adverse...
- 11. Tolerance, Dependence, and A...
- 12. Withdrawal Symptoms Extreme...
- 13. Mixed Agonist-Antagonists
- 14. Opioid Antagonists
- 15. WHO's Pain Relief Ladder
- 16. Clinical Relevance for Physical...
- 17. Opioid Adverse Effects - Physia...
- 18. Questions? Email or Post to C...

Opioid Adverse Effects – Physical Therapy Focus

Adverse Drug Effect	Effect on Rehabilitation
Orthostatic Hypotension	May require a little extra time when assuming a more upright position
Respiratory Depression	May compromise patient's respiratory response due to hypoxia or hypercapnia
Sedation and Confusion	May slow down patient understanding and response following instructions
Muscle Aches and Bone Pain during Withdrawal	May require heat, electrotherapy, massage, or relaxation techniques to relieve symptoms
Constipation	May benefit from patient/caregiver education on lifestyle and over-the-counter management

Navigation controls: Play/Pause, Previous, Next, and volume/speed sliders.



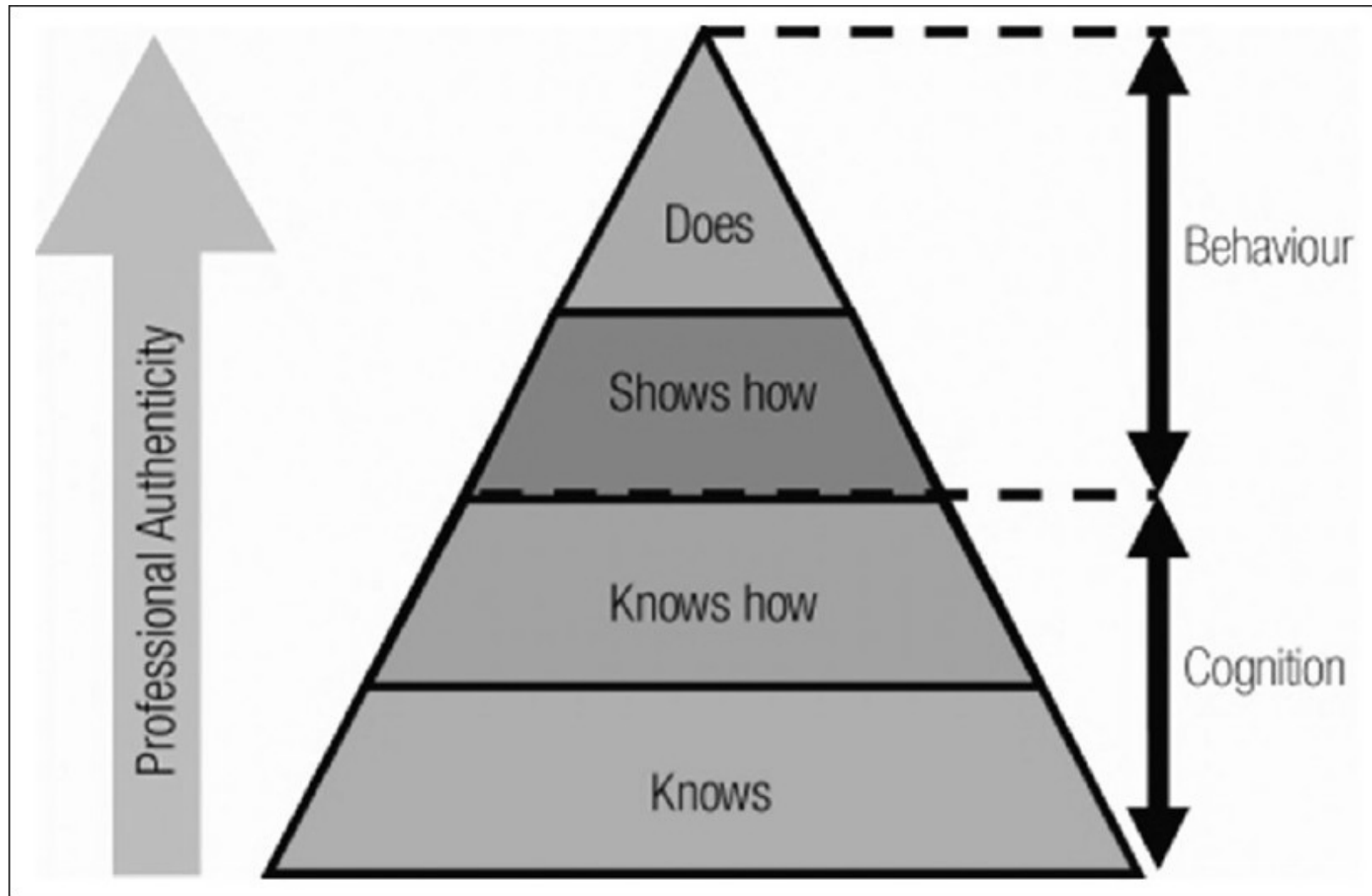
“Yellow weeks”

- Materials available from course CLE site
- Goal will be to have all preparatory materials posted by Monday prior to Thursday sessions*
 - Watch the videos (usually 2/session)
 - Complete the readiness (formative) assessments
 - Review links (as needed)
- Once posted, there will be a weekly message posted to CLE with a reminder
- Q&A forum on CLE is best way to communicate
- Activities in class (including final exam) will be group based

Key responsibilities

PT student duties	Pharm student TA duties
Complete pre-class preparatory activities (individual)	Complete a PT shadowing experience (all)
Participate actively in in-class case discussions (groups)	Create preparatory assignments - mini lectures (Articulate) and online readiness assessments (Moodle)
Prepare and deliver a “teach-back session” about PT treatments (group)	Review student submissions to pre-class preparatory activities
Complete final exam... including a case from an area <u>not</u> covered in the course	Facilitate in-class cases discussions and debriefings
Complete post-course and post-clinical surveys	Review exam submissions and reflect on their own learning

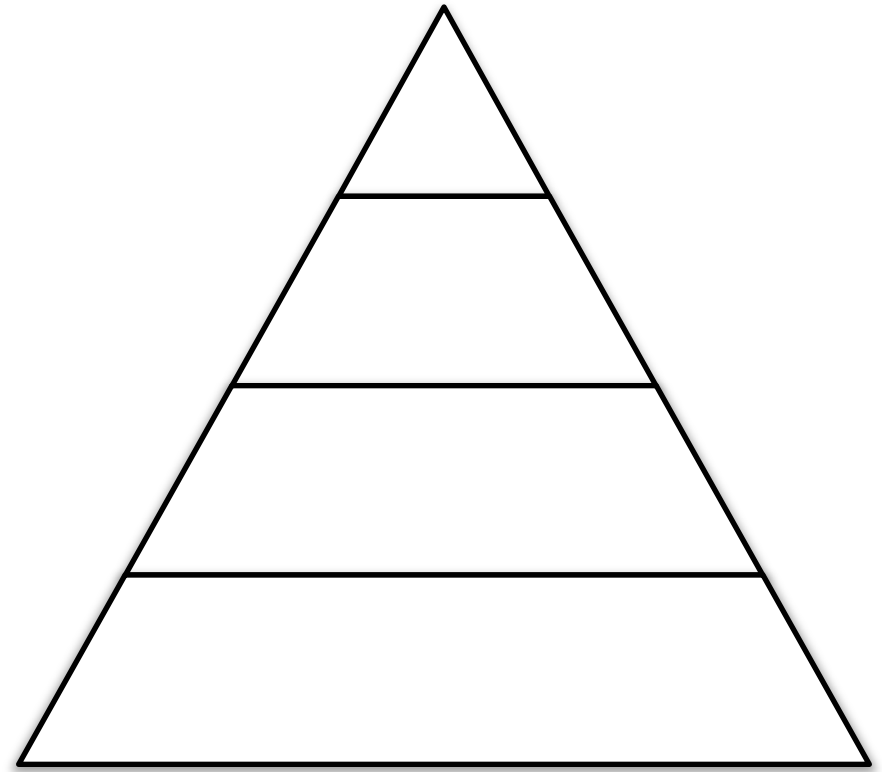
Miller's Pyramid



Miller GE, *Acad Med*, 1990

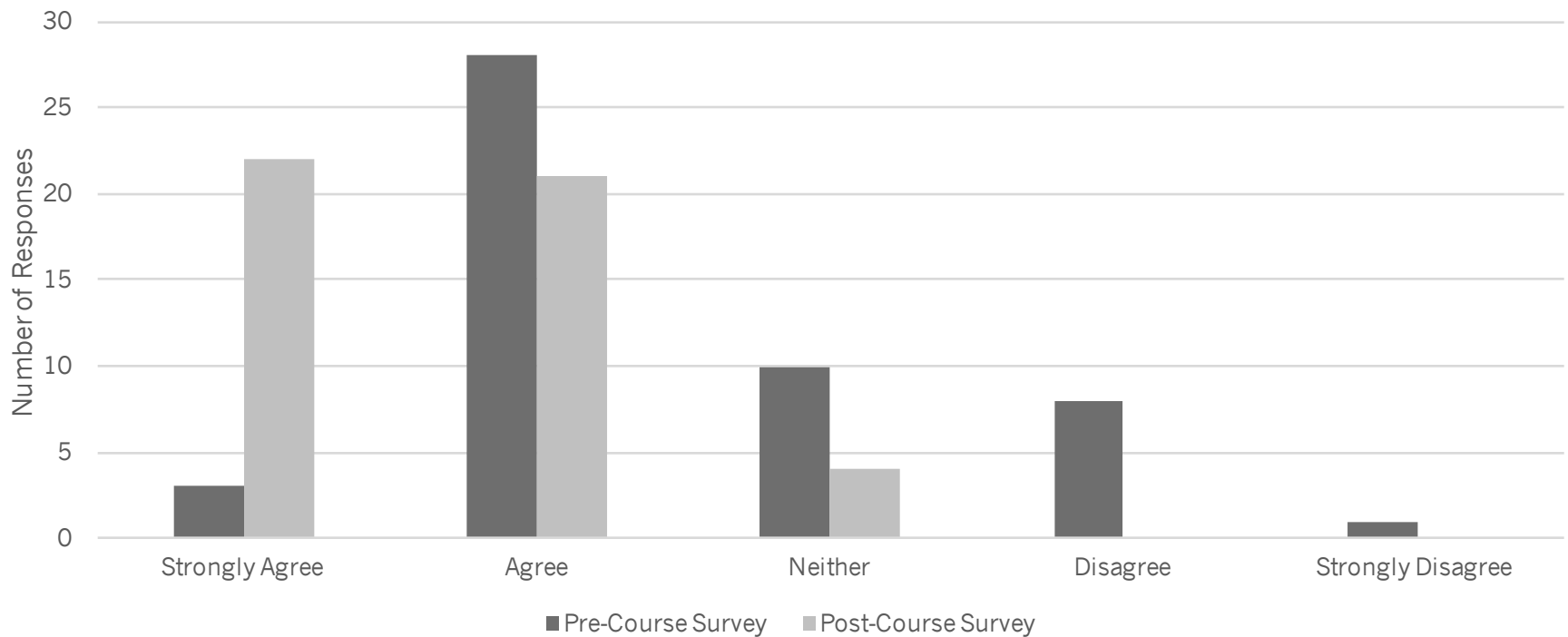
Kirkpatrick Pyramid

- **Reaction**
 - Did they **LIKE** it?
- **Learning**
 - Did they **LEARN** it?
- **Behavior**
 - Do they **DO** it?
- **Results**
 - Did they **IMPROVE** something?



Did they like it?

"The 'flipped classroom' model was a positive learning experience for me."



2015 cohort, N=50

Did they like it enough to provide comments?

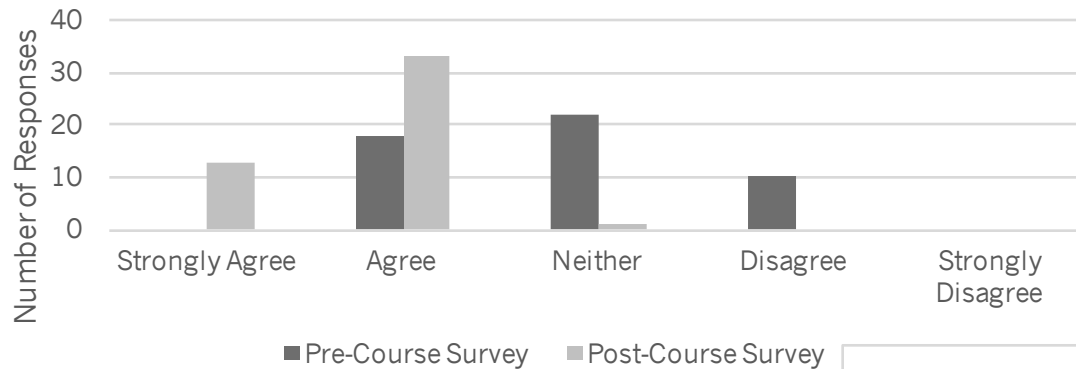
- *I loved the premise of the class - the interaction between the pharmacy and PT schools and the fact that the entire course was structured around what pharmacological knowledge is relevant and important for a physical therapist to know. (2012)*
- *I was nervous about the mini lectures at first but was surprised how much I looked forward to reviewing them. I hope we can still access them during our clinicals. (2013)*
- *The [pharmacy student] TAs really cared about integrating the practices of PT and pharmacy. I appreciated that they were open to our perspective and it made me want to understand the practice of pharmacy. (2014)*
- *One of the most effective, efficient, and logically organized courses of the entire first year. More courses should be organized like this one. (2015)*

And what about the TAs?

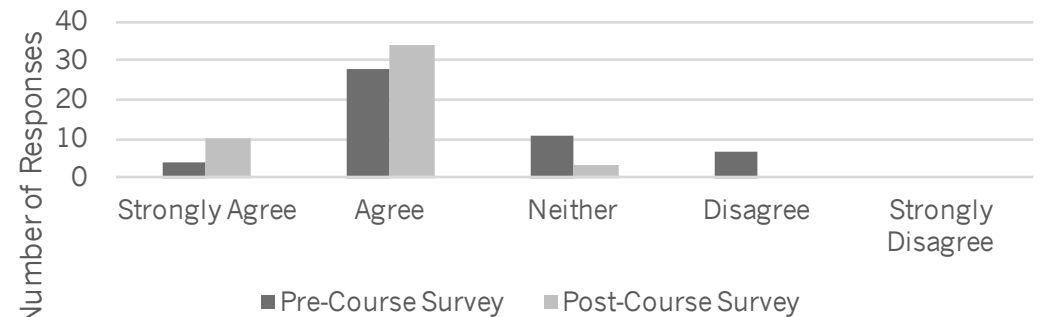
- *I enjoyed that I was able to gain knowledge about the field of PT. Figuring out what the students wanted to learn made me more aware of what was relevant to PT. I kept their point of views in mind on my rotations, and it helped me work interprofessionally.*
- *I really enjoyed the opportunity to teach and loved interacting with the PT students. Their enthusiasm was infectious!*
- *Teaching pharmacology to my PT peers was a challenging but fun experience! I've also learned useful PT knowledge along the way.*

Did they learn it?

"I have a clear understanding of how medications can impact physical therapy treatments."



"I feel comfortable consulting other members of the healthcare team about issues that could impact patient care."



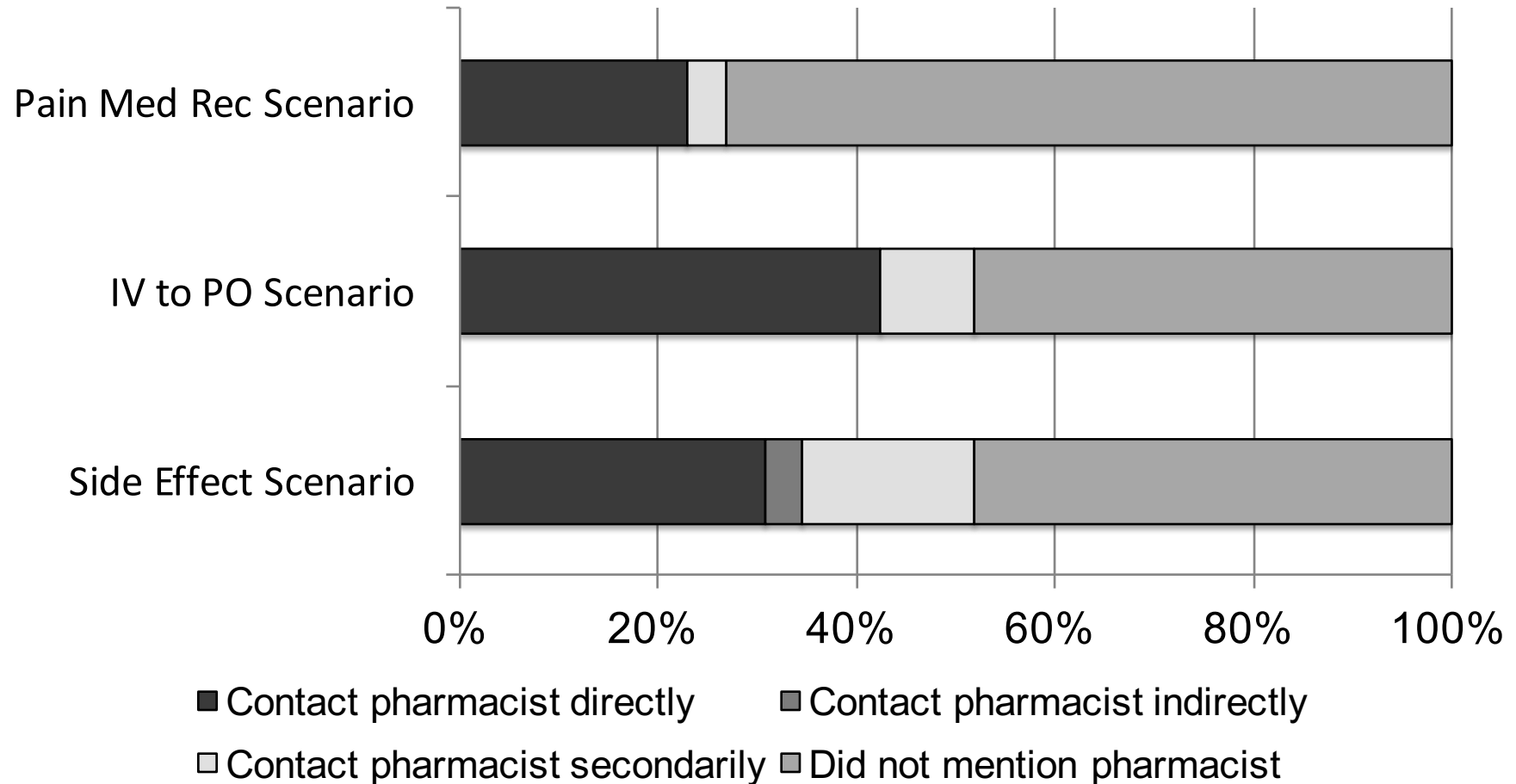
2015 cohort, N=50

How about that fishing?



- After learning how to access and assess several common drug information resources, students were able to respond appropriately to a complex case involving chemotherapy-induced fatigue and nausea (a topic NOT covered in the class).

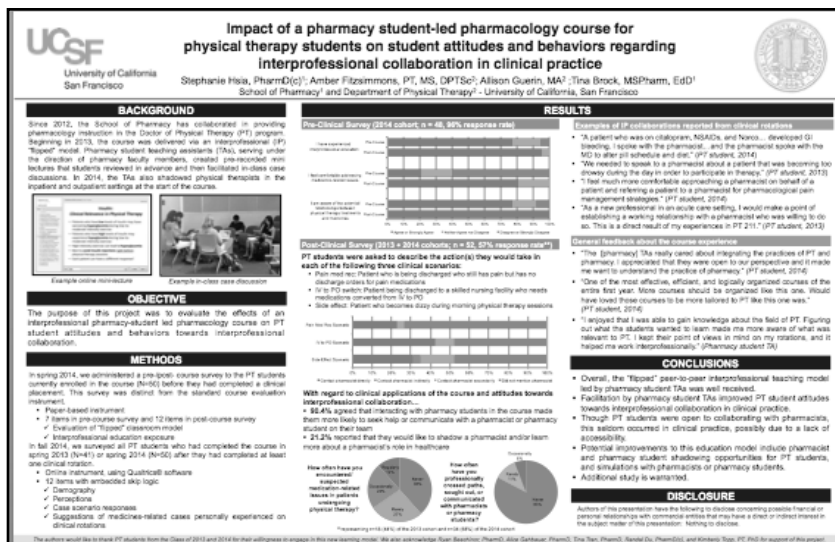
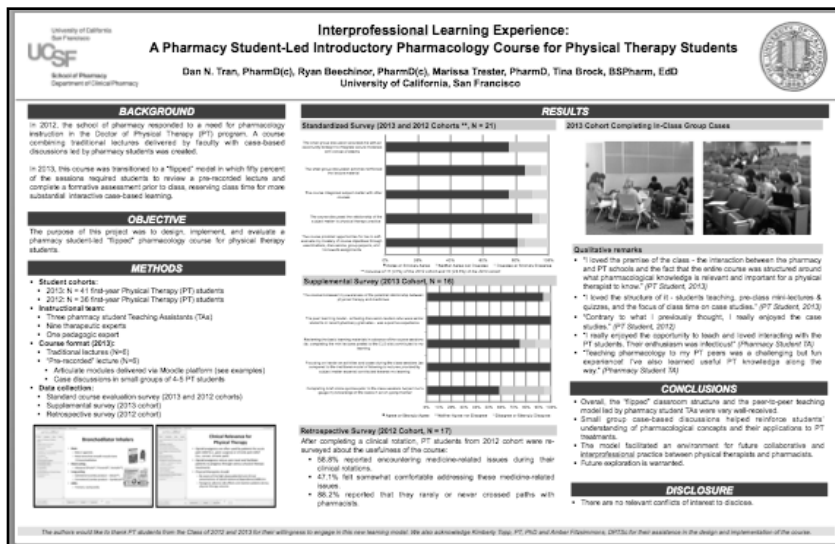
Do they do it?



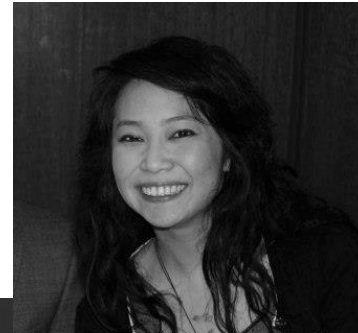
Post-Clinical Rotation Survey (2013-14 cohorts; n = 52, 57%)**

Did they improve something?

- Has allowed us to explore and evaluate new technologies and new instructional methods
- Has created a linkage between clinician-educators who are now working together more closely in med center
- Exploring potential to expand to other courses and programs
- Have had PT students take Health Policy course



Awesome legacy



Find the sweetness



Pharmacologic Principles for the Physical Therapist

At the conclusion of this session, the learner should be able to:

1. Navigate to the course website for information.
2. Compare the common goals of pharmacotherapy and physical therapy treatments.
3. Differentiate between class name, chemical name, generic name, and brand/trade name for medicines.
4. Discuss how medicines may be influenced by physical therapy treatments.

Pharmacology

- Text definition
 - The study of substances that interact with living systems through chemical processes, especially by binding to regulatory molecules and activating or inhibiting normal body processes
- Said another way
 - The study of the actions of drugs and their effects.
- For this course
 - Specifically interested in how drugs may affect (+/-) physical therapy treatments

Goals of pharmacologic therapy

1. Prevent symptoms
2. Relieve symptoms
3. Reverse or delay pathophysiological effects
4. Minimize adverse effects
5. Control costs of therapy
6. Improve quality of life

**Does this remind
you of anything?**

Ways of classifying drugs

- Prescription
 - Regular prescription medications
 - Controlled substances
 - Schedule I, II, III, IV, V
- Over-the-counter (OTC)
 - Regular OTC medications
 - Herbal medicines
 - Dietary supplements

Ways of classifying drugs (2)

- Brand (Proprietary)
 - A brand name drug is a drug marketed under a proprietary, trademark-protected name.
- Generic (Nonproprietary)
 - A generic drug is the same as a brand name drug in dosage, safety, strength, how it is taken, quality, performance, and intended use.
 - A generic drug product must contain the identical amounts of the same active ingredient(s) as the brand name product.
- Class
 - Several classification systems exist and may relate to pharmacologic function of the drug, structure, or mechanism of action
- Chemical name
 - Related to the chemistry of the drug compound
 - Rarely used or referred to in practice

Acetaminophen (an analgesic/antipyretic)



- Paracetamol – *International* Nonproprietary Name
- APAP – nickname for the chemical name
(N) Acetyl-Para-Amino-Phenol



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