Utilizing Problem-Based Learning and Simulation for Interprofessional Health Education:

a working touchpoint and administration guide

November 2015

Contents

Authors

Alexander Krengel, MPH, Drexel University School of Public Health

Evan Gooberman, MPH, Drexel University School of Public Health

Suggested Citation

E Gooberman, A Krengel. (2015) Utilizing Problem-Based Learning and Simulation for Interprofessional Health Education: a working touchpoint and administration guide.

View a highlight video from our first simulation here:

https://www.youtube.com/watch?v=Ceo-PXDnPNU

Using Simulation for Interprofessional Health Education

About this document

The cases in this document were originally developed for an interprofessional health simulation. Students at the graduate and professional levels, with any interest in the fields of health were invited to participate in this simulation. These students were mostly *MPH, MD, JD, MBA, BSN/RN, MSN, DNP*, and a number of doctoral and masters-level students in various health sciences and services fields. Students were purposively assigned to teams of 6-8 that were representative of these educational backgrounds.

These teams then worked through a number of clinical simulations and health systems scenarios. Clinical simulations were designed in conjunction with simulation faculty and staff in the College of Medicine and College of Nursing & Health Professions at Drexel University. These were run using standardized patients and high fidelity robotic simulation mannequins; involved some or all of the team-members; and were followed by full-team debriefs lasting 30 or more minutes. Health systems scenarios were facilitated in "table-top" settings involving all team-members and lasting 50 minutes or more. Team members were asked to rely on each others' experience, knowledge and training to solve the problems presented in a quasi-facilitated discussion format, as well as problems that developed situationally.

Each scenario was designed with specific learning objectives and the goal to engage all team-members in thoughtful debate to challenge each others' assumptions, broaden perspective, develop rapport with multidisciplinary professionals and deepen knowledge of the health system and the various compositional fields thereof. We evaluated competencies and competency-building using the framework developed by the Interprofessional Educational Collaborative (IPEC) in the report: *Core Competencies for Interprofessional Collaborative Practice* (2011). Multiple iterations of this event have repeatedly found statistically significant improvements in these competencies.

We ask that this document be referenced as working documentation of the processes to achieve the goals of "true interprofessional education" in the health fields. Please use any of the material contained within to develop your own programs, but do not copy our work without reference (suggested citation above). Thank you.

Cases were created by:

Alexander Krengel, MPH, Drexel University School of Public Health
Evan Gooberman, MPH, Drexel University School of Public Health
Kathleen Ryan, MD, FACP Drexel University College of Medicine
Leland Rockstraw, PhD, RN, Drexel University College of Nursing and Health Professions
Brenna Aumier, MPHc, Drexel University School of Public Health
Rajeev Mavath, MD, MPHc, Drexel University School of Public Health
Arlene Solnick, MSN, RN, Drexel University College of Nursing and Health Professions
John Cornele, MSN, RN, CEN, EMT-P, Drexel University College of Nursing and Health Professions
Sharon Calaman, MD, Drexel University College of Medicine
Cheryl Hanau, MD, FACP, Drexel University College of Medicine

Kicking off the Interprofessional Health Simulation

Two public health students dedicated to strengthening interprofessional relations sought out students and faculty members within Drexel University who shared a similar interest. A partnership developed with Dr. Kathleen Ryan, Simulation Center Director at the College of Medicine. Over the course of several months, the first interprofessional health simulation was planned. It was planned as an all-day event on a Saturday with as few conflicts as possible. Students were recruited from various graduate and professional programs associated with health throughout the university. Emails were sent to faculty members and administrators to forward to students, to solicit their participation. A schedule was designed to allow for six teams with a maximum capacity of 10 students each to engage in six cases. Three students independently, with assistance when requested, developed health system scenarios with discussion questions. The students provided faculty members learning objectives and an idea for clinical simulations, and then the faculty developed those case. Transportation was arranged for participants to reach the College of Medicine Queen Lane Campus. Breakfast, lunch, and snacks were provided. Funding came from the School of Public Health Student Government Organization. The College of Medicine covered the costs for use of the Simulation Center.

On October 25, 2014, 15 students out of the 40 who had RSVPed arrived for the event. With some quick troubleshooting, the students were divided into two teams of seven, with participants from different backgrounds on each team. The teams participated in team-building activities to develop a necessary team mentality for the cases. Each team participated in three cases before lunch. During lunch, teams were rearranged so participants could work with as many people as possible throughout the day. In the afternoon, the two teams engaged in the final three cases of the day. Each case was allotted approximately 50 minutes. Health systems scenarios had discussion questions built into the cases. The students who developed the cases each facilitated their respective cases. Faculty and staff facilitated the clinical simulations. Each clinical simulation lasted about 10 minutes, with the remainder of the time spent debriefing about how it went, what could be improved upon, and how it relates to the learning objectives. Participants were asked to complete pre and post surveys for evaluation purposes. Participants also completed consent forms before the event. Once the cases and surveys were completed, all facilitators and participants had a discussion to debrief the day's activities. The cases, facilitation, schedule, and overall experience were all discussed. Participants provided many useful suggestions to improve upon the workshop in the future.

Following the successful workshop, the students sought to promote the idea to other members throughout the university. The project was particularly interesting to Dr. Leland "Rocky" Rockstraw, Simulation Director at the College of Nursing and Health Professions. Collaboration for planning thus expanded to include the School of Public Health, the College of Medicine, and the College of Nursing and Health Professions. A second workshop was planned to coincide with National Public Health Week. The event was scheduled for Thursday April 9, 2015 because the theme of the day was *Building Broader Connections*. Based on feedback from the previous workshop, this one was planned for a few hours on a weeknight to better fit into people's schedules. To promote the workshop, students emailed students and faculty in other programs to encourage increased participation, especially from programs not previously represented. A video with highlights from the previous workshop was created and used to advertise the event. When not enough Drexel students were signing up, students reached out to contacts at Jefferson, University of Pennsylvania, and elsewhere to recruit more participants.

The workshop was held in the Simulation Center at the College of Nursing and Health Professions in Center City. Transportation was not provided because it was expected that participants could easily navigate to the location. Dinner and snacks were provided. Funding came from the School of Public Health Student Government Organization and Graduate Student Association. The College of Nursing and

Health Professions covered the costs associated with the use of the Simulation Center. A schedule was designed to allow for three to six teams, with each team engaging in three cases. Once again, the health system scenarios were designed by students. The clinical simulations were developed by College of Medicine and College of Nursing and Health Professions faculty and staff, based on students' ideas and suggestions.

On the day of the event, 27 out of 35 students who RSVP'd arrived for the event. Students were once again asked to complete consent forms and a pre-survey. Participants were arranged into three teams of nine. Teams engaged in team-building activities and then were brought to their first case. Two teams engaged in two clinical simulations and one health system scenario, and one team engaged in one clinical simulation and two health system scenarios. Each case was allotted approximately 50 minutes. Health systems scenarios had discussion questions built into the cases. The students who developed the cases each facilitated their respective cases. Faculty and staff facilitated the clinical simulations. Each clinical simulation lasted about 10 minutes, with the remainder of the time spent debriefing about how it went, what could be improved upon, and how it relates to the learning objectives. After the cases were completed, all participants were asked to fill out a post-survey. Then, all participants and facilitators had a discussion to debrief the entire event. Once the formal portion of the workshop was over, all participants and facilitators were invited to a local bar to network and socialize, thus building a stronger sense of community.

Health Systems Scenarios

Facilitation Guidelines

The interprofessional student team should work collaboratively to answer the questions provided with minimal help. The team should rely on internal expertise from experience, knowledge, ethics, values, and training. Facilitator(s) should read the prompt in the numerous stages and ask questions provided as well as situational questions to challenge students on their assumptions. Minimal assistance should be provided to the team and any answers given to the group should be solely factual. Questions are provided throughout the stages of each simulation to guide discussion. Not all of these questions need to be answered. The facilitator(s) may provide guiding questions or suggestions to move the team past stalemate or clear confusion. Any conclusions should be provided with ample reasoning and consensus. The learning objectives should be used to help guide discussion if confusion persists.

Each case was originally designed to last approximately one hour, but could last up to two, depending on the depth of the debrief desired.

Cases

Pharmaceutical Case

Learning Objectives

- Understand traditional pharmaceutical development pathway
- Understand basic financial strategy
- Balance public health and industry priorities
- Tackle ethical challenges of business decision-making

Overview

Students must manage financial and epidemiologic information to make an informed decision on the priorities of a pharmaceutical company. Students will be challenged to agree on criteria for strategic decisions and use relevant information to come to a cohesive solution.

Scenario

Stage 1:
You are the executive leadership at a large, well-known pharmaceutical company. This meeting has been called to discuss the prioritization of your R&D pipeline.

Over the past few years, a biological agent has emerged in your pipeline, which seems promising. The research team originally discovered the XF401 protein in high-throughput screening, a method that enables testing millions of compounds for their effect on cells in a very short period of time. The compound was identified through an experiment looking for biologic DPP-4 inhibitors. DPP-4, short for dipeptidyl peptidase 4, is a common target of small molecule drugs for type II diabetes. This identification marked the early discovery-phase, the beginning of the traditional pharmaceutical development pathway. Next, the protein was augmented by biochemists so that it displayed "optimal" characteristics in development experiments involving cells and eventually mice and rats. These experiments typically aim to maximize the efficiency of the candidate while minimizing its toxicity and side effects.

Initial testing and optimization led to creation of XF-410. XF-410, other proprietary compounds and the DPP-4 inhibitors sitigliptin, vildagliptin and linagliptin were then run through a series of animal tests to collect data on their efficacy, toxicity and help decide whether there is future potential for XF-410.

Type II diabetes affects an estimated 26 million people in the US and 380 million worldwide. Januvia, the best-selling medication for DMII made roughly $2.8 billion in revenues in 2013 on 9.5 million prescriptions. Januvia received patent protection in 2006 and is expected to expire in 2026. A number of its competitors' protections are also scheduled expire within a similar timeframe. Internal estimates to bring XF-410 to market range from 6-10 years. This includes 2-4 years of pre-clinical development and optimization with an 80-90% chance that the FDA will approve an investigational new drug application (IND) within that timeline. The IND permits your company to move into clinical-phase testing, provided ample information about the drugs' safety has been demonstrated in pre-clinical *in vivo* or animal testing. After IND approval, the three phases of clinical testing will begin. Phase 1 clinicals test the safety of low doses of the drug in healthy participants; Phase 2 typically titrates the doses in a larger group of

participants, sometimes including patients along with health participants to estimate human efficacy and side effects at higher doses; Phase 3, typically the final phase, involves testing of the drug in healthy and diseased participants, typically to establish a safe and effective dosing profile for the entire population.

For this disease, with the intended experimental design of your clinical researchers, the trial would require up to 2,500 patients. All-in-all, pre-marketing clinical testing is expected to take three to five years with estimated cost of $30 million. At the culmination of these trials, your company would submit a biologic license application (BLA) (traditionally a new drug application or NDA) to the FDA to market the drug, a process which takes nine months without any hitches. Due to your companies ample resources, the manufacturing and marketing scale up would then happen within a short time-frame, anywhere from six months to a year. Expected costs to bring XF-410 to market for DMII is $580 million. The annual cost associated with manufacturing and selling the drug after approval is $50 million. Given approval, expected revenue over the next 10 years from today is $1.12 billion. Over the patent lifetime, expected net present value (NPV) is $20 billion. This estimate is based on a 50% probability of bringing the drug to market.

As this is happening, another project the company has been working on is already in clinical trials. Despite the promise of XF-410, the company is about to launch its Phase 3 trial on a candidate for patients with cardiac arrhythmias. This program, entitled CA-3 is specifically targeting a diagnosis which affects an estimated two million people and for which there are adequate pharmaceutical treatments currently available. The company has already incurred $370 million in development and testing costs on CA-3 and this phase of the trial is expected to cost $50 million more. Manufacturing, operating and sales expenses are projected at $20 million per year for CA-3. This far along in testing, there is a 90% probability of marketing CA-3 within 3 years. Over the next 13 years, the end of the patent, CA-3's expected NPV is $26.4 billion.

We can assume that if neither drug comes to market, they each recruit $100 million in non-operating revenues. Currently, the discretionary budget for these two programs is roughly $30 million per year.

1. How are you going to balance these two priorities? What are your criteria for making this decision?
2. Come to a decision about which drug you will advance in the pipeline.

Stage 2:
Two month later, your team has decided to advance XF-410 and is looking into debt and grant funding for CA-3. In this month's meeting, the CSO (Chief Science Officer) presents exciting news that scientists in your development team are uncovering convincing findings about a differential therapeutic target for XF-410.

During preclinical development, different mice strains were used to test against XF-410's cross-over to other diseases and its potential side-effects. On an expert hunch, a lead biologist recommended one of the mice strains to be included was one recently bought and bred for a concurrent development interest in DIPG. DIPG, short for diffuse intrinsic pontine glioma, is a rare form of childhood cancer that is highly fatal. Onset of DIPG typically occurs by age 5 and patients, on average, have less than a year of survival from time of diagnosis. While the candidate showed successful blood-glucose reductions in DMII mice with no noticeable side effects at even moderate doses—something its current, molecular competitors can't claim, it also reduced the incidence of swallowing, vision and facial droop problems typical of young mice bred with DIPG.

Because DIPG only affects 300 people per year and there is no adequate drug (or other) treatment, it most likely would gain FDA verification of Orphan Drug Status under the Orphan Drug Act. This requires two major things: 1) the prevalence of the disease must be less than 200,000 people in the US at the time of application and 2) that there is no reasonable expectation that the costs of research and development can be recovered by sales of the drug in the US. Furthermore, under orphan drug status, drug development can receive federal grant money to defray the cost of clinical trials. Because of the low number of patients with the disease, the sample size to run these trials is much less than before, therefore costing much less.

After taking into account the possibility of receiving grant funding for clinical trials, the expected cost faced by the company for development and clinical testing is $50 million over just 5 years. If the clinicals are successful, ongoing safety trials (known as phase 4) and other costs associated with production and sales of the drug would total $150 million over the remaining 15 years of patent protection.

Finally, your chief strategist informs you that a small biotech company has just received marketing approval for an oncologic agent targeting DIPG, which has been indicated to increase average survival in DIPG patients from 5 to 10 years, though with marginal improvements in quality of life. Including this information, your analysts estimate that there is a 10% chance of market success (due to regulatory and competitive estimates). This scenario carries with it a revenue stream upwards of $20 billion. Without approval and due to some constraints designated by grant funding, you cannot recover any costs of development. Despite an expected NPV of only $2 billion, orphan approval bears more than double the expected return on investment (90-fold to 37-fold).

Looking at the proprietary research data, epidemiology and internal market forecasts over the patent lifetime (20 years), your team is now challenged to decide how to move forward with the drug.

1. How are you going to choose between these two marketing pathways?
2. Do you need different criteria for making this decision compared to the previous decision?
3. Do you think you made the right decision in the first stage?
    a. Are there other pieces of information you wish you had included in your decision?
4. What was the hardest priority to balance?

Financials Below:

	Case 1: Not Approved				Case 2: Approved/Market Success					
	PV-Cost	PV-Revenue	NPV1	Probability	PV-Cost	PV-Revenue	NPV2	Probability	eNPV	eROI
Example	*A*	*B*	*B – A*	*p1*	*X*	*Y*	*Y – X*	*p2*	*(p1 * NPV1) + (p2 * NPV2)*	*(p1 * NPV1 / A) + (p2 * NPV2 / X)*
CA-3	420	100						90%	26,400	
XF-410	580	100						50%	20,000	
XF-410-O	50	0	-50		200	20,200	20,000	10%		90

Handout ↑ **Key** ↓

	Case 1				Case 2						
	PV-Cost	PV-Revenue	NPV	Probability	PV-Cost	PV-Revenue	NPV	Probability	eNPV	PV-ROI	eROI
CA-3	420	100	-320	10%	680	30000	29320	90%	26356	43.1	38.73
XF-410	580	100	-480	50%	980	39500	40480	50%	20000	41.3	37.09
XF-410-O	50	0	-50	90%	200	20200	20000	10%	1955	100	89.90

Case-Related Background

HHS Report on drug development process and costs

http://aspe.hhs.gov/sp/reports/2014/ClinicalTrials/rpt_erg.pdf

For more information of drug development and approval:

http://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/default.htm

Orphan Drug Act

http://www.fda.gov/regulatoryinformation/legislation/federalfooddrugandcosmeticactfdcact/significantamendmentstothefdcact/orphandrugact/default.htm

Grant Funding

Phase 1 studies are eligible for grants of up to $250,000 per year for up to 3 years. Phase 2 and 3 studies are eligible for grants of up to $500,000 per year for up to 4 years.

https://www.federalregister.gov/articles/2014/08/19/2014-19600/clinical-studies-of-safety-and-effectiveness-of-orphan-products-research-project-grant-r01#h-13

Interesting DMII medication news story

http://www.modernhealthcare.com/article/20150410/NEWS/150419993/astrazeneca-diabetes-drug-may-increase-risk-of-heart-failure-and

LGBT Case: Power of Attorney

Learning Objectives

- Debate ethics of who gets to make medical decisions
- Discuss the intersection of medical care, religious belief and law
- Discuss determination of substituted judgment
- Understand basics of marriage equality, issues and applications in health settings

Overview

Students will be challenged to confront differential marriage equality legislation as it relates to medical decision making. Standards of judgment and power of attorney will be confronted in the ethical debate between religion, individualism and law. The team should gain an understanding of how LGBT minorities are affected not just at the point of care, but at many levels of the health system.

Scenario

Stage 1:

Morgan and Tim have recently married and are celebrating their honeymoon in New Orleans, LA. While walking through a crosswalk, Tim gets hit by a car running a red light. He flies up onto the hood initially and then slides off. He sustains head and neck trauma resulting in a coma, and two broken legs, including one broken femur that resulting in major blood loss. Tim is rushed to the hospital where he receives a blood transfusion immediately upon arrival. Tim remains in critical condition while his husband, Morgan, alerts family and waits anxiously. At midnight, twelve hours later, it is determined that Tim needs another transfusion. The neurologist on call has informed Morgan that there is a 50/50 chance he will remain in a persistent vegetative state with treatment. Morgan wants to proceed with treatment, but Tim's mother, who Morgan alerted of the emergency, recently arrived and insists that treatment be refused. Morgan waits by his bedside until visiting hours are over, at which point Tim's mother demands that Morgan leaves the room because he is not "family". Morgan informs the nurse that Tim and his mother have not spoken in 5 years (since he came out). Morgan and Tim's mother begin to argue loudly and are now disturbing other patients with their disagreement.

While the couple is legally married in their home state of California, Louisiana does not recognize gay marriage. Additionally, Tim has no medical power of attorney appointed.

Your task is to determine who has Medical Power of Attorney (POA) and how to best care for your patient while he is unable to advocate for himself.

1. What is the best plan of action? How did you arrive at that conclusion? Is everyone in agreement? What might change your decision?
2. How can we mediate the situation to arrive at this intended result without disturbing the relationships?
3. Should Morgan be removed from the room?
4. Should the Mother be removed?

Stage 2:

Morgan is in favor of treatment, however because gay marriage is not recognized in Louisiana, the MPoA defaults to Mom, who is a Jehovah's Witness and refuses the blood transfusion.

Jehovah's Witnesses believe that blood transfusion is forbidden. Witnesses view biblical verses as ruling out transfusion of whole blood, packed RBCs, and plasma, as well as WBC and platelet administration. However, Witnesses' religious understanding does not absolutely prohibit the use of components such as albumin, immune globulins, and hemophiliac preparations; each Witness must decide individually if he can accept these.

Medical personnel need not be concerned about liability, for Witnesses will take adequate legal steps to relieve liability as to their informed refusal of blood. They accept non-blood replacement fluids. Using these and other meticulous techniques, physicians are performing major surgery of all types on adult and minor Witness patients. It is unclear whether or not non-blood alternatives serve as an adequate solution for Tim's current state.

Mom says that Tim has never denounced his religion and that Morgan has no rights to make decisions about Tim's care. Conversely, Morgan says that Tim has not been involved with his family or their religion in 5 years. Additionally, Morgan states that Tim has expressed to him that he wishes to be revived if there is a "good chance of survival."

1. What is in Tim's best interest?
2. How do you determine what is in your patient's best interests?
3. Who should be allowed to dictate the care of the patient?
4. Is there a "good chance of survival"? How do you determine that? Is survival the best outcome? What might be the best outcome? What is the process you would establish to find the best outcome?
5. What do you say to Mom? What do you say to Morgan?
6. How do you sensitively navigate the situation?

Fixing the American Health System

Learning Objectives:

- Understand the basics of the American health system
- Acknowledge challenges that exist within the health care and health insurance systems
- Balance public health services, preventive health and medical care
- Tackle ethical challenges of being responsible for large populations

Overview

Students must reflect upon the current health care and health insurance systems that exist in the United States. Then, students will be challenged to think of systematic ways to improve the quality, cost, and access to care in the United States. Specifically, they are asked to think about the importance of Medicare and Medicaid, the role of private insurance, and potential reforms.

Scenario

Stage 1:

It's January 21, 2017 and Jillian Tank has just been sworn in as President of the United States of America. President Tank ran on the platform to put all Americans to work, and she has interpreted her election as a mandate from the American people to implement a program she is calling "Employed to the Max." The program guarantees jobs to the 8.6 million people who are unemployed but seeking work, which will bring the unemployment rate down to 0%. The idea behind the program is to ensure that everyone who can, gets to work to care for themselves and their families. The government will create thousands of jobs and incentivize private businesses to pay the salaries and/or wages for jobs. To fund this program, various American entitlement programs have been drastically cut, specifically Social Security, Medicare, and Medicaid.

President Tank cares about the American people, but she is not afraid to run people over (figuratively, not literally) to get what she thinks is best for them. She believes that everyone has a great deal of potential, and by shifting towards a work-centered society, she believes communities will be much better. By ensuring that everyone has a full-time job (40 hours/week), President Tank expects that millions of people will be lifted out of poverty, everyone will be able to afford health insurance, and the United States will thrive.

President Tank has recruited you, the nation's premier experts on health and health systems in the US to advise her as she moves forward with her plan. You have never worked with President Tank before and are under the impression that she values honesty and not just a bunch of "Yes People." Why else would she have brought you in, right? To start off, you want to bring some concerns to her attention.

1. What are some of your concerns with "Employed to the Max" program?
    a. Issues of minimum wage vs. living wage?
    b. Will businesses be able to provide health insurance for all of their employees? In particular, small businesses?
    c. How will people who are unable to work to be cared for?
    d. Are the elderly expected to have saved on their own?
2. Explain how Medicare and Medicaid work and why they are so important.*

3. Explain how the private insurance system works and how the entire health system will be affected by these changes.*
4. What are your concerns with large cuts to Medicare and Medicaid?

Stage 2:
After you have finished discussing, please select 3-5 points of concern and communicate those effectively to President Tank, who is sitting right here.

After you presented these concerns, President Tank got very angry and said some things that you don't even want repeated. She did not bring you on board to tell her about the problems with "Employed to the Max," she brought you on board to make sure there are no problems related to health when it is rolled out. It is now your task to come up with ideas and a plan for President Tank for the future of the health system of the United States, and consequently, the future health of Americans.

1. What are your goals for the national health system and what problems currently exist that you think are important to solve?
2. What problems exist in the way the current health system is set up, particularly related to your goals?
3. What evidence do you have that these are real problems (as opposed to things that you think are bad)?
4. What does the new American health system look like?

President Tank likes what you have come up with and will be "asking" Congress to draft legislation to reflect upon your plan. To pay for it, your salaries have been cut. You're fired! Good work, though!

Follow-Up Questions:

1. What's the link between health care and health insurance?
2. Did you address quality of care, access to care, and cost of care?
3. Did you think about prevention vs. treatment?
4. Did you think about health disparities?
5. Did you think about the financial aspects of a plan?
6. Did you think about populations that are unable to work [elderly, disabled, prisoners, children]?
7. Did you think about a broad range of services [physical, mental, emotional, dental]?
8. What do you think about the structure of our health provider system (physicians usually seen as elitists, paid much more, etc.)
9. What do you think about education for people in the health services? Pay too much? Learning enough? Provided enough opportunities to succeed?

Remember that health care must be paid for in some way, which is why the health insurance system is so important. Health care, health insurance, and other aspects of health are what the health system consists of.

Case-Related Background

- US Health system provides the best emergency response and rare disease care, but it spends more on health care than any other nation but ranks 36th in life expectancy

- Public Insurers
  - Medicare-federal program for individuals 65 and over, and some people with disabilities → single-payer program administered by the government and paid for using federal income taxes, a payroll tax that is shared by employers and employees, and individual enrollee premiums (for Parts B & D)
    - Part A: Hospital Services
    - Part B: Physician Services
    - Part C Medicare Advantage-HMOs that administer Medicare benefits → Potential extra premium
    - Part D: Prescription Drug Benefit → Potential extra premium
    - Gaps in Medicare Coverage: Incomplete coverage for skilled nursing, incomplete preventive care coverage, no coverage for dental, hearing, or vision care → The majority of enrollees have supplemental insurance and pay 22% of their income for health care costs
  - Medicaid-Program designed to provide coverage for people who are low-income and disabled → By federal law, states must provide Medicaid coverage to poor pregnant women, children, elderly, disabled, and parents [ACA changed some regulations so childless adults are covered and more people are covered because many families in poverty made too much to qualify for Medicaid] → The states and the District of Columbia are responsible for administering Medicaid (51 different Medicaid programs) → Financed by federal and state governments through taxes (for every $1 a state spends on Medicaid, the federal government matches that $1 or pays even more—federal government paid for 57% of Medicaid prior to the ACA and Medicaid expansion, which the federal government is mostly paying for) → Medicaid offers comprehensive health services, including prescription drugs, but very few providers accept it because of the low reimbursement rate
  - Children's Health Insurance Program (CHIP)-Designed to cover children in families that make too much to qualify for Medicaid but too little to afford private insurance
  - Veteran's Administration (VA)-Program administered federally for veterans of the military → Care delivered in government-owned VA hospitals and clinics → Funded by taxpayer money and typically offers extremely affordable (if not free) care to veterans
- Private Insurers-Majority of Americans fall into this category (unique to US)
  - Employer-sponsored insurance-Employers provide health insurance as part of the benefits package for employees → The majority of Americans acquire insurance in this way, but the percentage has been decreasing as more businesses find it too expensive to provide for their employees → Insurance plans are administered by private companies (for-profit or not-for-profit), but some very large companies are self-insured, typically using a third party to administer the health insurance plan → Employers pay the majority of premiums and employees pay what's left → Benefits vary widely-some include prescriptions, some don't—cost sharing (co-pays, deductibles) also varies
  - Private Non-Group (Individual Market)-Covers the part of the population that is self-employed, retired, doesn't qualify for Medicare/Medicaid, or doesn't have employer-sponsored insurance [Some rules have changed with the ACA]→ Administered by private insurance companies and financed through insurance premiums (out-of-pocket), and those costs depend on the risk of the individual to the insurance company → Benefits of individual plans vary greatly
- Patient Protection and Affordable Care Act (ACA) AKA Obamacare-Intended to expand access to insurance, increase consumer protections, emphasize prevention and wellness, improve quality and systems performance, expand the health workforce, and curb rising health care costs

References

Chua, K-P (2006). Overview of the U.S. Health Care System. *American Medical Student* Association. Retrieved April 5, 2015, from http://www.amsa.org/AMSA/Libraries/Committee_Docs/HealthCareSystemOverview.sflb.ashx

National Conference of State Legislatures (2011). The Affordable Care Act: A Brief Summary. *States Implement Health Reform*. Retrieved April 9, 2015, from http://www.ncsl.org/portals/1/documents/health/hraca.pdf

Managing an Infectious Disease Outbreak: "The Zombie Apocalypse"

Learning Objectives

- Participants will learn about a potential infectious disease scenario with a condition that is easily and quickly transmitted.
- Participants will learn about mass "casualty" incidents and how to contain such large situations.

Scenario

Stage 1:
You are a special team of health care professionals who are called upon when there are extraordinary crises, and today is your unlucky day. As you were preparing for a rousing game of backgammon, the phones started going off. At the nearby King of Prussia Mall, there have been reports of strange behavior. The FBI wants you on scene before it gets too out of control. As you hop in your Health-Mobile to head to the site, you are provided with the following information:

- Symptoms of the suspected infected people include decreased motor skills (slow movement, bumping into things, unable to pick things up), lack of speech-replaced with moaning sounds, and hair turning green.
- What started as one man exhibiting symptoms turned into 17 people exhibiting symptoms within 12 minutes.
- Witnesses claim to have seen one of the people suspected of being infected to biting another person. It is unknown what happened to the person who was bit.
- As a precaution to keep the incident from spreading, the FBI has locked down the mall, keeping everyone inside, whether they are exhibiting symptoms or not. There are approximately 6,900 employees and customers believed to be in the mall.

Your overall task is to figure out what the problem is, how to contain it, and how to alleviate it. This will be accomplished in parts. While you are on your way to the mall, you must first determine if you will keep the quarantine in place or lift it. Will you let people out who are not exhibiting symptoms and are trying to get out?

1. What are the benefits of quarantining everyone?
2. What are the risks of lifting the quarantine?
3. Is it legal to mass quarantine everyone? Is it ethical?
4. Does the information you have been provided indicate that it would be safe to let people who are not showing symptoms out?
5. If you leave people trapped with people who are infected, what will happen?
6. Are you worried about how this will affect the businesses in the mall and thus the economy of the local community?

Stage 2:
Once you arrive on scene, you head to Incident Command and take over. The first order of business is to inform the officers if you are lifting the quarantine or if you are keeping it in place.

As you are about to put your plan into action, it is reported that a child with no known contact with someone exhibiting symptoms is starting to act strange. The FBI will not let you lift the quarantine.

Your team is permitted to enter the mall through a back entrance, as long as you are wearing extensive protective gear. Once you are inside, what is your first step?

1. Do you want to interact with people showing symptoms or not showing symptoms?
2. Are you going to treat people, or are there more pressing matters?
3. What information are you trying to gather (information about the disease-virus/bacteria, transmission, etc.)
4. What do you do if a group of people not showing symptoms attack you to let them out/take your protective gear?

Stage 3:
You notice that the people who are exhibiting symptoms do not appear to be interacting with each other, are wandering around aimlessly, but they do seem to be attempting to reach other humans. As you approach a few to take blood samples, you notice that they try to bite you, but your suits protect you.

Someone points out that the people appear to be zombies. You check to see if the people exhibiting symptoms have a pulse, which they do, so they are alive, even if they are acting like zombies. After analyzing the blood, you notice that there are strange bacteria present. You determine that you must get the samples to a lab to attempt to find a treatment and/or a preventive vaccine.

As you are trying to get to the door, you notice that the number of infected persons has increased exponentially. You are surrounded, and the people are moving in closer. One of you takes out a knife.

1. Do you let her fight your way out of the crowd, or would that be a violation of your patients' safety?
2. These people are alive, but you are not sure if their conditions can be cured, which would seem to make them as good as dead. Is it appropriate to hurt or even kill them for your own safety?

You manage to escape, but one of you trips on something and attacked by the infected persons. The suit is torn off and the people bite the team member. [Facilitator picks one team member at random to no longer be able to contribute.]

1. Do you go back for the team member?
2. Do you want to try to communicate with him or her?
3. Are the people eating other humans or are they just taking bites?

Luckily, the rest of the team is able to escape and you all properly remove your suits in a unit for disposal. You quickly get to work to figure out the situation, as you watch more and more people start to exhibit symptoms. It is approximated that 5,000 of the people are infected, and the remainder are trying to hide. Will hiding be of use? How is this infection transmitted?

1. Why do you have to take the extra time to put on and take off cumbersome Haz-Mat suits?
2. Who are the people who have become infected thus far?
3. What do you know about infectious diseases?

Stage 4:
There is good news from the lab because the bacteria are not resistant to standard antibiotics. How do you administer the antibiotic to everyone? Do you need FDA approval first? Will people be cured immediately or will it take multiple doses?

Soon you find out that a vaccine has also been developed and is already being mass-produced. Should everyone in the vicinity receive a vaccine? Everyone in the country? Everyone in the world?

Now that the problem is calming down, your job is not over. You are tasked with getting to the bottom of the incident. People who were infected make a full recovery, so they are able to talk to you. How will you go about determining the root cause of this incident and why is that even necessary not that the situation has been handled?

1. Did you feel like you had a role in this scenario?
2. Did it sound similar to things discussed in the media/what is portrayed in movies?
3. Would you like to name this new disease?

Other Facilitation Information

- It is determined that the child who started exhibiting symptoms without direct contact and been cut in the frenzy of trying to escape.
- The vast majority of the people who are in hiding are not becoming infected.
- The infected persons did not eat other humans. They bit people until there was blood. In some cases there were minor injuries. In others, there was major blood loss, so there were casualties.
- The disease itself killed no one. It is suspected that people would have died do to lack of food and water intake.
- If there are more questions, Facilitator will use best judgment to answer them or indicate that they are not important to the scenario.

Making life course decisions: Cystic Fibrosis

Learning Objectives

- Learn about congenital disorders and how they are treated
- Learn about high medical costs, especially when there is a lack of coverage

Scenario

Stage 1:
In Oglethorpe, NC, you are members of the medical advisory committee which oversees the day to day operations for the Carolina Blue Medical Center. The committee is made up of the various departments which run the medical center, i.e. Chief Medical Officer, Nurse Supervisor, Senior Physician Assistant, Business office as well as legal affairs. As part of the oversight, the committee meets on a regular basis to discusses and address various medical concerns faced by the staff. On this occasion, Dr. Sam Tolbert of Piedmont Pediatricians, LLC brings to your attention the case of young William "Billy" Oliver. Billy is a 1 year old, Caucasian male who arrives with his mother for a wellness visit. During the course of the visit with Dr. Tolbert, Billy's mom indicates that the boy is prone to recurrent sinus, pulmonary infections and diarrhea. She also indicates that recently she realized that Billy has a musty smell and his sweat tastes very salty whenever she kisses him. She further goes on to say that there are other members of her husband's family that have had similar experiences. Dr. Tolbert relates his clinical suspicion to your team.

1. What is Dr. Tolbert suspecting?
2. How is this disease transmitted?
3. What are some of the clinical aspects of this disease?

Stage 2:
Diagnosis of Cystic fibrosis (CF) is made. Dr. Tolbert, for all his years of experience, is not familiar enough with Cystic Fibrosis to continue treatment. He requests that the boy be transferred to a pediatric pulmonary specialist for further work up. The committee agrees to do so with the understanding that the parents be educated in all matters related to CF.

1. What are some of the information that a parent would want?
2. It comes to your attention that the annual cost to treat CF is $16,000, with an average lifetime cost of $310,000.
    a. Who should pay for the cost of treatment?
    b. Will your insurance pay for this? Should they?
    c. If without insurance or unable to afford it, what might CF patients and their families do?
3. If Billy's parents decide that they want another child in the future, what concerns should they have and why?
    a. Is it important for parents in such a situation to have access to clinical genetics and counseling?

b. A law was passed in Pennsylvania requiring that all individuals receiving genetic screening receive counseling and standardized pamphlets with information regarding genetically-acquired and congenital conditions.

Stage 3:
Billy is now 2 years of age. He has been rushed to the center's emergency department with high fever, chest congestion, cough and is very ill. The ER doctor wants to admit Billy but he is without medical insurance. Just prior to the illness, his father was laid off when his employer closed the furniture factory and outsourced the work to a foreign land. He has not yet been able to find a new job. His mother is working two jobs to make ends meet. The committee members are contacted and asked what should be done.

1. So what does the committee recommend?

Stage 4:
Treatment for CF is extremely expensive. It involves dealing with problems relating to multiple organ systems. The patient will require visiting many different specialists. Multiple diagnostic modalities will have to be ordered. Long term use of antibiotics, bronchodilators as well as the drug Ivacaftor will need to be prescribed. Lung transplant may be an option for the future. As a point of fact, CF patients almost invariably get diabetes and in adulthood deal with impotence. The patient will need to be hospitalized on various occasions where the cycle will repeat. The median life expectancy is 35 years.

1. Going forward, how does the committee address the costs and financial assistance related to treating the disease?
2. What can you as the committee do to help this patient pay for these treatments?
3. Is quality of life important to consider? How might this be considered in planning discussions and decision-making?

Stage 5:
Billy has just turned 16 years old and he is once again being admitted to the medical center. He has been hospitalized on eight occasions previously. He is presently being evaluated for Pseudomonas aeruginosa infection of the lungs. He is very emaciated and weak. He is also very angry and combative with the hospital staff. He keeps demanding that he receive no more treatment. He has had it with all the "lying" and "cheating" doctors and medical staff. He just wants to die. Any health care person who comes near receives a venomous tirade. This is followed up by him begging anyone who would listen," Please let me die! I don't want this anymore." According to a statute passed by the North Carolina assembly, Billy is considered a minor and any such decision would have to be made by his parent or guardian. The law is being challenged in court. Billy's parents have since divorced and his mother serves as proxy. She is heartbroken and doesn't know what to do. His father is fighting to have his boy receive treatment.

The committee is once again asked to step in and make a decision.

1. What are the options?
2. What are the legal ramifications for each choice?

Safety-net Hospital Closure

Learning Objectives

- Learn about issues in the health care setting that are non-patient centered
- Discuss the benefits of hospitals for communities
- Balance ethics, business and legal aspects of health services delivery and access

Scenario

Stage 1:
Where the Midwest meets the South, there's a town called Victory. Victory used to be a thriving industrial metropolis. Over the last two decades, its blue collar workforce has slowly dwindled, its poverty rate has crept up to an alarming 40% while its economy, once reliant on coal mining, steel, and trucking, lags behind the rest of the country. Victory was especially hard-hit by the financial collapse of 2008, resulting in the closing of a number of small businesses, defunding of social programs such as education, police and fire, and public health screening and prevention programs for the low-income. Divestiture from and a failure to secure federal loans for infrastructural projects, left thousands more without jobs.

Between 2005 and 2011, unemployment in Victory jumped from 8 to 15%, and the level of deep poverty (50% FPL) currently sits at 10% -- ¼ of those in poverty. Victory is a sprawling city with a dense, impoverished urban core. In the entire metropolitan service area, there are 450,000 residents. Roughly 80,000 live in the heart of the city, where there is a deep poverty rate of 25%. A recent epidemic of Hepatitis C has emerged, largely within the substance-abusing community in the inner city.

Most notably, the city has a frustrating medical infrastructure. A large private hospital, owned and operated by United Health sits in the wealthy West End. It also operates a number of primary care clinics and ambulatory service centers in the more affluent sections of town. At the center of town, the community-owned, tertiary-care Phillip-Graves Memorial Hospital has for years operated a level two trauma center and provides one of the highest per-capita volumes of emergency care in the nation. PGMH has assumed the responsibility of caring for Victory's indigent and needy since its inception.

In 2009, State University disaffiliated from Phillip-Graves, a longtime academic medical center. The interim leadership was unable to find a new academic partner and the incoming leadership in 2011 has been unable to maintain the financial viability of the system, despite being accredited as a Federally Qualified Health Center that year.

As a result, the Philip-Graves leadership has decided to close its doors, after 80 years in service. You, the community leaders of Victory, aren't sure how this will impact the city, but there is a high level of concern.

Your task is to figure out the best way to move forward. Feel free to ask any questions that will help you do this.

1. What is going to be your path forward?
    a. What are your biggest concerns for the community?
        i. How are you going to consider these interests?
    b. What are the problems you have to confront?
2. Are there other strategies than the one you propose?
    a. What are the differential strategies?
    b. Can you explain the benefits and negatives of these strategies?
3. What happens to the patient records for the hospital?

4. What responsibility falls in the hands of doctors, nursing leadership, public health, business leaders?

Stage 2:
United offers to buy all of the assets for 80% of market value. These assets are valued at $300 million.

1. What will you do?
    a. How do you feel about this offer?
    b. How will your stakeholders respond to this news?

Stage 3:
A group of PGMH physicians have opened a multispecialty practice & surgery center and are recruiting others into their group. They have refused to accept CMS patients.

1. Should this be allowed to move forward? How would you address it/what steps would you take?

Other Facilitation Information

- Overall insurance coverage:
    - 18% uninsured
    - Urban (80K) coverage is at 60% - 90% CMS, 10% private
    - Suburban (290K) coverage is 90% - 75% private, 25% CMS
    - Rural (80K) residents in outlying agricultural areas – 73%
- 90% of those in deep poverty are black, 20% are Hispanic
- United Health's tertiary care hospital operates a small ER in their west-end hospital, and has two urgent care centers in more suburban areas.
- Physicians and nurses are not pleased but many have already left to sign contracts with United, one group created a small multispecialty practice between Phillip-Graves and United

Clinical Scenarios

Facilitation Guidelines

The interprofessional student team should work collaboratively to treat patients within the simulation as appropriately as possible based on knowledge, skill, and experience. The team may elect to have the clinical students take the lead on clinical aspects of the care, but that is not a requirement. There will be no "correct" or "incorrect" way to complete the simulations. No assistance should be provided to the team. Facilitator(s) will run the simulation using any equipment that is necessary. When the simulation has been completed, facilitator(s) will debrief the scenario with the team. In cases with standardized patients, the standardized patients may be given time to provide feedback to the team.

Cases

Special Needs and Limited Resources (Care Coordination & Planning)

Learning Objectives

- Understand the challenges of working in a resource-deprived area
- Work as a team to recognize and formulate a coordinated care plan
- Engage in life-course planning

Setting

Rural North Dakota Primary Care Clinic

Design/Standardized Patient Instructions

Family lives in rural North Dakota where there is resource-scarcity and lack of availability to specialized patient services. Brittney McHugh is developmentally delayed, has a history of congenital heart defect and scoliosis. She is a complex patient given his multiple special needs.

Sought treatment from primary care provider for her daughter 3 weeks ago after she reported episodes of dizziness fatigue and increased back pain for 2 months.

History of developmental delay, congenital cardiac defect (repaired at 6 months age) and scoliosis.

Instructions for Participants:

Mrs. McHugh (mom) brought her 24 year old daughter in for a Primary Care follow up visit.

Mom (caregiver) sought treatment from primary care provider for her daughter 3 weeks ago. She reported episodes of dizziness, fatigue and increased back pain over past 2 months.

History of developmental delay, congenital cardiac defect (repaired at 6 months age) and scoliosis.

Family here for test results:

- Results Available: *EKG: irregular arrhythmias consistent with atrial scarring.*

You have 15 minutes to review test results and develop a plan of care

Debrief Questions

- What did you learn in this scenario?
- How is this case different from many typical primary care visits, routine or urgent?
- What resource constraints have you identified?
- How would you deal with these resource constraints?
- Think innovatively: how might you coordinate a comprehension plan of care for this patient, considering: his needs and desired life-course outcomes, lack of "appropriate" specialty care providers in a reasonable area; PCP scope of practice, expertise and competence in specific special needs conditions?
- With a growing number of complex patients in rural and urban areas and more of these patients living into adulthood, what are the biggest challenges that our health system will face?
- What are some possible solutions?

Convenience Store Robbery

Learning Objectives

- Learn to function as a team
- Recognize the need to establish a team leader in some situations
- Demonstrate ability to delegate tasks as needed
- Demonstrate an appropriate initial approach to a patient with traumatic injuries
- Demonstrates the initial approach to family members of trauma victims
- Recognize that all patients deserve appropriate care

Setting

ED with two trauma patients just arrived. One patient who has been stabbed during a convenience store robbery, his wounds are not life threatening but that fact will only be uncovered after an assessment has been completed. His wife, who is very concerned about her husband and is demanding that he be treated, accompanies him.

Design/Standardized Patient Instructions

Sam Jones DOB: 1/4/1978 (Standardized Patient)

  - Several superficial stab wounds with bleeding. One on the anterior chest on the right side and one slash on the forehead over the left eye. All wounds are bleeding with some clotted blood.
  - Wife of the stabbing victim. She and her husband were shopping in a convenience store when it was robbed. Her husband tried to break up the robbery and was stabbed several times in the process. She is appropriately concerned at first still in emotional shock from the event but becomes increasingly annoyed and demanding as more resources are directed to victim # 2. She eventually recognizes victim #2 as the robber who stabbed her husband. At which point she becomes hysterical and accusatory.
- Mac Knife DOB: 6/24/1963 (Mannequin)
  - One gunshot wound to the right chest. Some bruising over the right eye, a bloody nose and abrasions on the hands.
  - Voice for mannequin – playing patient # 2 who has been shot during his attempt to rob a convenience store. He was shot by the police and is under arrest. He will give basic information about himself in order to answer questions with regard to his care but will not offer information readily about the incident other to say that the police didn't need to shoot him.

Equipment Required

1. Standard crash cart
2. NSS or LR 2 – 3 bags
3. Peripheral IV in place in both patients
4. Oxygen – nasal cannula

Instructions for Participants

Orientation to room, team needs to identify a team leader, all students are health care providers. Review limitations of the mannequin, that they can obtain history from the mannequin. They should act as they would in real clinical practice, Review use of phone

Debrief Questions

- Based on your decision-making process, at which points might different decisions be made and why?
- What happens with these patients now? Should victims and suspects be in same hospital? What are some of the issues here?
- What was the most challenging aspect of this scenario?
- What could you have done to make this situation better?
- Was it difficult to work with a family member causing such a fuss?
- Explain the legal standards of this scenario--are these appropriate? Should priority be given to stabilize a patient who has clearly inflicted harm? What if the victim was more severely harmed than in the simulation we just experienced?
- What might those who didn't take an active role in this simulation do differently and why?
- Imagine a situation in which the two patients here, playing similar roles, present with the same, life-threatening injuries. In this case, due to field triage, the suspect is transported and arrives at the ED moments before the stabbing victim. Due to resources and policy, the suspect's care is prioritized as it has already been initiated. Is this a satisfactory outcome? If not, what would you change to create a satisfactory outcome in the future?
- Have you thought about why the suspect was committing the crime in the first place? What underlying issues may exist? He indicated that the police didn't need to shoot him. Do you agree?

Heart Attack

Learning Objectives

- Recognize signs, symptoms and lab findings of an acute myocardial infarction
- Discuss treatment of acute myocardial infarction
- Discuss prevalence of heart disease as a cause of death in the United States
- Discuss which forms of prevention are evidenced based and cost effective on a population based scope

Setting

Emergency Department of Suburban Hospital

Design/Standardized Patient Instructions

Kathy Kelly Age: 60

Telemetry Unit: Bed 3

Weight: 200 lbs. Height: 5' 1" Sex: Female PCP: Unknown

Ms. Kelly is a 60 year old female with a history of diabetes, hypertension, hyperlipidemia who had come to the ER last night with chest pain. She had been stabilized and was pain free until this morning. You are here to see her for more intense chest pain and shortness of breath.

Past Medical History: Diabetes for > 20 years, Hypertension for >30 years, Hyperlipidemia for >30 year, Former smoker (50 pack year history, quit 2 years ago)

Medications: Metformin 1000 mg twice a day, Lisinopril 40 mg once a day, Pravastatin 40 mg once a day

No known allergies

Labs can be seen on the monitor. No chest x-ray is available other than the admission one which was normal.

Debrief Questions

- What can cause a heart attack?
- What are ways to prevent a heart attack?
- Was treatment provided quickly?
- What kind of standards using evidence-based practices exist to ensure all patients with a heart attack receive the same care?
- Ms. Kelly has been presenting with the same conditions for the past 30 years. There are millions of Americans like Ms. Kelly who have have long-term relationships with their primary care physicians, yet many present with acute issues despite constant monitoring. What might you do to prevent acute episodes in patients with chronic diseases like Ms. Kelly?

Abdominal Infection

Learning Objectives

- Recognize signs, symptoms and lab findings of an acute infectious process in the abdomen
- Recognize sign of decompensation of patient's vital signs
- Discuss what can be done for the patient who cannot consent to treatment
- Describe who consent can be taken from for emergent and non-emergent treatments

Setting

Emergency Department of Urban Hospital

Design/Standardized Patient Instructions

Name: Unknown Female Age 51

Telemetry Unit: Bed 2

Weight: 180 lbs. Height: 5' 8" Sex: Female PCP: Unknown

Patient was brought to the emergency rooms by fire rescue after being found on the street. She was complaining of intense abdominal pain in the right lower quadrant. She is unable to give her name or any other information as she is confused.

Past Medical History: Unknown

Medications: Unknown

Allergies: Unknown

Labs can be seen on the monitor.

Debrief Questions

- What was the most challenging part of this case?
- Did you utilize each other and your resources?
- There are many other types situations in which a patient may not be able to consent to treatment, such as a dementia patient. In this case the patient may be awake and seem able to make decisions but he or she has an altered state of consciousness. What are the implications of caring for such a patient? Would you approach this situation differently than you would with an unconscious patient? There are also cases when there may be a family member with power-of-attorney to make decisions. How would you work with them to ensure the appropriate care for the patient?

Pediatric Trauma

Learning Objectives

- Obtain a history and assess a child for trauma
- Recognize physical signs of child abuse
- Describe the prevalence of accidents in children of this child's age group
- Describe the steps that need to be taken should child abuse be suspected

Setting

Emergency Department of Suburban Hospital

Design/Standardized Patient Instructions

Name: Johnny Davis Age: 7

Pediatric Room ER: Bed 4

Weight: 50 lbs. Height: 4' 1" Sex: Male PCP: Unknown

7 year old healthy male brought in by fire rescue after falling through a sliding glass door onto a patio. Mother states he was running and didn't realize the sliding glass door was closed. He has a foreign body lodged in his arm.

Past Medical History: None

Medications: None

Allergies: None

Immunizations: TdaP 1/12/14 Influenza 9/2/13 All other immunizations up to date

Debrief Questions

- What does it commonly indicate if a child has old and new bruises?
- How might you have spoken to Johnny without him worrying about his mom hearing his answer?
- You are an Intern in an Emergency Department. A child has come in and you suspect child abuse. You bring this concern to the attending, who tells you it is not child abuse and not to follow it up. How do you approach the situation?

Evaluation Methods

To evaluate the effectiveness of these simulation exercises in building interprofessional competencies in the fields of health, a survey was administered before and after the workshop in which simulations took place. These surveys were administered anonymously with participant identification numbers (which were destroyed after each workshop) to maintain pairing for statistical analysis. In addition to numerous qualitative questions used to evaluate the effectiveness and improvability of the simulations for the participants, surveys composed a panel of quantitative questions built off the IPEC core competencies for interprofessional practice. Participants were blinded to the competency group of the questions and the order of the questions was randomized during administration. In pre-workshop surveys, quantitative questions came last; while in pre-workshop surveys, these questions came before any others.

Improving the Evaluation

We acknowledge a large degree of selection bias and some degree of self-report, social-desirability and other biases in this attitudinal survey. Because it is administered to measure the effectiveness of an educational intervention, there is no external comparison group. If it were administratively possible, we would administer the survey electronically well before and well after a simulation workshop had occurred and establish a control/non-interventional group to observe random variance. Ideally, multiple workshops would take place engaging students co-curricularly and surveys could be administered at beginning and end of the academic year. However, with our small groups of students and the inherent voluntary response rates typical of this population, we resolved to administer on paper at the event to increase responses—with the understanding of the biases implicit of this strategy.

Scoring

Participant scores on the Likert-type quantitative items on the survey were summed to their appropriate scale (shown in Quantitative Survey Items below) and scored as using a paired t-test. Findings over two repetitions of survey administration have demonstrated a high ceiling effect on 5-point scales. When designing and administering these items. They should be scored using a 7- or 10-point Likert scale. Alternatively, competencies could be clustered in a dynamic self-evaluation tool and administered electronically (most students could use a smartphone, tablet or computer to take the pre and post evaluations).

Quantitative Survey Items

*See survey below

Healthcare Competency and Knowledge

1. Overall, I have a very good understanding of the health system and industry
2. Overall, I have a very good understanding of the medical care of patients
3. I can explain how specific health policies they impact my daily work
4. I can explain what how our health system functions
5. I can explain how business forces affect health at many levels
6. I can explain the process of medical care delivery
7. I can explain the role of hospitals in the greater health system

Values & Ethics

1. I effectively develop trusting relationships with patients, families, and team-members
2. I value the opinions and thoughts of others
3. I work cooperatively with all stakeholders receiving, providing and supporting health services
4. I recognize when there is not enough information to make a decision
5. I effectively manage ethical dilemmas specific to interprofessional patient/population centered care

Roles & Responsibilities

1. I recognize the limit of my skills, knowledge and abilities
2. I can explain the role of the business and system support professionals
3. I can explain the role of each of my team-members involved in providing care
5. I am competent in the scope and role of my work
6. I recognize & utilize the unique abilities of my team-members

Communication

1. I listen effectively
2. I incorporate ideas from others into my work to be effective
3. I use respectful language in difficult situations with patients & team-members
4. In my team, I communicate my role with confidence and clarity
5. In my team, I seek clarity to understand other roles
6. I can explain the primary communication strategy I use when dealing with challenges

Teamwork

1. I value the contributions of other team members
2. I engage myself and others to constructively manage disagreements about values, roles, goals, and actions that arise among professionals in the health care setting
3. I engage others to facilitate effective care planning, policy making or program implementation
4. I depend on the abilities, knowledge and skills of my team-members
5. I often rely on others to make the right clinical and analytic decisions

Pre-Survey

Participant ID#: University: Grad. Year:

Degree & Concentration: Full-time Work Experience (years):

1. Why did you sign-up for the Interprofessional Health Simulation?

2. What are your personal goals for the IHS?

3. List your three greatest personal values: _____ _____ _____

4. Do you have other interprofessional opportunities in your program? YES NO

5. Which field of health services do you hope to go into after graduation?

   Medicine Nursing Physician-Assistants Business/Administration Health Policy

   Community Health Health Information Systems Law Epidemiology Therapy

   Other: _____

6. Which field of health services do you know the least and hope to learn the most about in the IHS? (Circle 1 – 3)

   Medicine Nursing Physician-Assistants Business/Administration Health Policy

   Community Health Health Information Systems Law Epidemiology Therapy

   Other: _____ _____ _____

For the following questions, please answer on a scale of 0 to 4 with 0 indicating complete disagreement and 4 indicating absolute agreement.

1.	Overall, I have a very good understanding of the health system and industry	0	1	2	3	4
2.	In my team, I seek clarity to understand other roles	0	1	2	3	4
3.	I listen effectively	0	1	2	3	4
4.	I work cooperatively with all stakeholders receiving, providing and supporting health services	0	1	2	3	4
5.	I can explain what how our health system functions	0	1	2	3	4
6.	I incorporate ideas from others into my work to be effective	0	1	2	3	4
7.	I can explain the process of medical care delivery	0	1	2	3	4
8.	In my team, I communicate my role with confidence and clarity	0	1	2	3	4
9.	I can explain the role of hospitals in the greater health system	0	1	2	3	4
10.	I effectively develop trusting relationships with patients, families, and team-members	0	1	2	3	4
11.	I value the opinions and thoughts of others	0	1	2	3	4
12.	I use respectful language in difficult situations with patients & team-members	0	1	2	3	4
13.	I can explain the role of the business and system support professionals	0	1	2	3	4
14.	I effectively manage ethical dilemmas specific to interprofessional patient/population centered care	0	1	2	3	4
15.	I recognize the limit of my skills, knowledge and abilities	0	1	2	3	4
16.	I can explain the role of each of my team-members involved in providing care	0	1	2	3	4
17.	I engage others to facilitate effective care planning, policy making or program implementation	0	1	2	3	4
18.	I can explain how specific health policies they impact my daily work	0	1	2	3	4
19.	I am competent in the scope and role of my work	0	1	2	3	4
20.	I can explain how business forces affect health at many levels	0	1	2	3	4
21.	I recognize & utilize the unique abilities of my team-members	0	1	2	3	4
22.	I recognize when there is not enough information to make a decision	0	1	2	3	4
23.	Overall, I have a very good understanding of the medical care of patients	0	1	2	3	4
24.	I can explain the primary communication strategy I use when dealing with challenges	0	1	2	3	4
25.	I value the contributions of other team members	0	1	2	3	4
26.	I engage myself and others to constructively manage disagreements about values, roles, goals, and actions that arise among professionals in the health care setting	0	1	2	3	4
27.	I depend on the abilities, knowledge and skills of my team-members	0	1	2	3	4
28.	I often rely on others to make the right clinical and analytic decisions	0	1	2	3	4

Post-Survey

Participant ID:

For the following questions, please answer on a scale of 0 to 4 with 0 indicating complete disagreement and 4 indicating absolute agreement.

1.	Overall, I have a very good understanding of the health system and industry	0	1	2	3	4
2.	In my team, I seek clarity to understand other roles	0	1	2	3	4
3.	I listen effectively	0	1	2	3	4
4.	I work cooperatively with all stakeholders receiving, providing and supporting health services	0	1	2	3	4
5.	I can explain what how our health system functions	0	1	2	3	4
6.	I incorporate ideas from others into my work to be effective	0	1	2	3	4
7.	I can explain the process of medical care delivery	0	1	2	3	4
8.	In my team, I communicate my role with confidence and clarity	0	1	2	3	4
9.	I can explain the role of hospitals in the greater health system	0	1	2	3	4
10.	I effectively develop trusting relationships with patients, families, and team-members	0	1	2	3	4
11.	I value the opinions and thoughts of others	0	1	2	3	4
12.	I use respectful language in difficult situations with patients & team-members	0	1	2	3	4
13.	I can explain the role of the business and system support professionals	0	1	2	3	4
14.	I effectively manage ethical dilemmas specific to interprofessional patient/population centered care	0	1	2	3	4
15.	I recognize the limit of my skills, knowledge and abilities	0	1	2	3	4
16.	I can explain the role of each of my team-members involved in providing care	0	1	2	3	4
17.	I engage others to facilitate effective care planning, policy making or program implementation	0	1	2	3	4
18.	I can explain how specific health policies they impact my daily work	0	1	2	3	4
19.	I am competent in the scope and role of my work	0	1	2	3	4
20.	I can explain how business forces affect health at many levels	0	1	2	3	4
21.	I recognize & utilize the unique abilities of my team-members	0	1	2	3	4
22.	I recognize when there is not enough information to make a decision	0	1	2	3	4
23.	Overall, I have a very good understanding of the medical care of patients	0	1	2	3	4
24.	I can explain the primary communication strategy I use when dealing with challenges	0	1	2	3	4
25.	I value the contributions of other team members	0	1	2	3	4
26.	I engage myself and others to constructively manage disagreements about values, roles, goals, and actions that arise among professionals in the health care setting	0	1	2	3	4
27.	I depend on the abilities, knowledge and skills of my team-members	0	1	2	3	4
28.	I often rely on others to make the right clinical and analytic decisions	0	1	2	3	4

1. What skills or knowledge did you gain from the workshop?

2. Did you accomplish your personal goals? How might we have better designed the IHS to do so?

3. Were the scenarios effective? How might you improve them?

4. Which scenario enabled to the greatest collaboration and why? (please describe the scenario briefly)

5. Which scenario was the best for you and why? (please describe the scenario briefly)

6. How strongly will you encourage your friends to participate in the next IHS?

"Don't go" "Go if it's improved" "Not sure" "You should go" "You can't miss it!"

7. How did the IHS compare to other interprofessional experiences you've had? Describe below.